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# UNDERGRADUATE CATALOG

This publication has been authorized by the Board of Trustees. The provisions of this publication are not to be regarded as an irrevocable contract between the student and Western Colorado University. The information presented is based on commonly accepted practices at Western Colorado University, but the University reserves the right to change any provision or requirement at any time within the student's term of attendance.

For further information, phone or write:

Office of Admissions  
Western Colorado University  
Gunnison, CO 81231

(970) 943-2119

Main Switchboard (970) 943-0120  
www.western.edu (<http://www.western.edu>) • admissions@western.edu

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Academic Resource Center  
Western Colorado University  
Gunnison, CO 81231

(970) 943-7056

## Academic Policies

Academic success, a goal that we want all students to achieve, can be measured in many ways. This section identifies and explains the standards that Western has established as measures of academic success and indicates the policies and procedures that apply to the students who fail to meet the standards. The Provost/Vice President for Academic Affairs, in consultation with the Faculty Academic Policies Committee and the Faculty Senate, is responsible for the development and implementation of these academic standards and policies.

## Unit of Credit

Western uses the semester hour as the basic unit of credit. The semester credits assigned to a course are based on the specific learning objectives and the expected outcomes. The University's assigned semester hours are consistent with the Federal definition of a credit hour and the Colorado Commission on Higher Education's minimum class times for credit courses. The minimum expectation for one semester credit is one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for at least fifteen weeks in seminar and lecture-based classes. An equivalent amount of work is required in laboratories, internships, practica, online, studio work, and other academic work which results in the awarding of credit hours.

## Course Numbering System

Following is an explanation of the numbers used in identifying courses offered at Western:

- 001-099** Preparatory skills courses not counted toward the required 120 credits for a bachelor's degree. Students enrolled in preparatory skills courses will be assessed tuition separately for those courses.
- 100-199** Courses primarily for freshmen.
- 200-299** Courses primarily for sophomores. Freshmen may take them after consultation with an advisor. Many 200-level courses have specific prerequisites which must be completed prior to enrolling.
- 300-399** Courses primarily for juniors and generally not open to freshmen. Sophomores may enroll after consultation with their academic advisor.
- 400-499** Courses primarily for seniors and generally not for freshmen and sophomores.
- 500-599** Graduate level courses that may lead to certificates, or serve in some professions as evidence of continuing education or professional development. Course formats include workshops and seminars and are primarily practice-based. May not be used to satisfy degree requirements.
- 600-699** Graduate level courses intended for degree-seeking students. They are more than an extension of the baccalaureate education and at a minimum, students should be required to undertake original scholarly/creative activity, assume greater responsibility for mastering the subject matter, and develop close working relationships with professors. It is assumed that students taking 600-level graduate courses have acquired the ability to use language and information sources effectively, and engage in analytical thought and creative processes.

## Student Classification by Class Level

Students are classified according to the number of semester credits they have earned.

Classification	Semester Credits Earned
Freshmen	0-29
Sophomores	30-59
Juniors	60-89
Seniors	90+

## Academic Load

A standard course load over a 16-week semester is 15 credits. This is the most common load leading to graduation in four years. Students are discouraged from carrying an overload. An overload is defined as more than 18 credits in a 16-week semester and must be approved via petition. Under no circumstances is a student to enroll in more than 21 credits in a 16-week semester<sup>1</sup>.

Summer semester is 13-weeks. A student may enroll in no more than 15 credits without special approval. The maximum credits for each session are as follows:

Parts of Term	Full Load	Overload by Petition <sup>1</sup>
Maymester	3 credits	4 credits
1st 5 week session	6 credits	7 credits
2nd 5 week session	6 credits	7 credits
10 week session (occurs during both 5 week sessions)	12 credits	13-14 credits

Under no circumstances is a student to enroll for more than 18 credits in the 13-week summer semester.

<sup>1</sup> Petitions for overload may be obtained on the Office of the Registrar website in the forms link. Petitions must be signed by the student's advisor and chair of the student's major department. If the student's cumulative grade point average is below 3.000, the petition also requires approval of the Vice President for Academic Affairs. Students taking an overload are assessed a surcharge for each overload credit. The completed petition must be submitted to the Office of the Registrar.

## Registration

**Advising.** All Western Colorado University students are assigned an academic advisor who can assist them in developing their educational plans and accomplishing career and life goals. Academic advisors are an important resource as students develop course schedules. Consultation with an academic advisor is required prior to registration each semester.

**Course Descriptions.** Course descriptions provide a summary of the course content. If there is a prerequisite that must be met before a student can register for the course, this information is stated in the course description. Prerequisites may include specific courses, class standing, declared major, and other requirements. If there is a corequisite course in which a student must be registered, this information is also stated in the course description. The Course Schedule, available prior to registration, includes information about courses offered in the given semester, such as the names of instructors, class meeting times and locations, and additional requirements.

**Registration Procedures.** New students are required to participate in new student orientation. Information about registration and orientation is provided to all new students admitted to the University. Currently enrolled

students may register during the present semester for the next semester or summer session. Registration timelines and procedures are detailed on the Office of the Registrar website.

**Late Registration.** Students should register for classes prior to the beginning of the semester. While they may register during the first week of the semester, students must understand that the limited availability of classes may prevent them from obtaining complete schedules. Late registrants may be assessed additional fees.

**Add/Drop.** After classes have begun in a 16-week semester, students may add an open class without petition until 5 p.m. on the fourth day of the semester. After the fourth day and until the end of the official drop period, students may add a course only with approval by the instructor. The add deadline for any course that meets for less than 16 weeks is two days. The student is responsible for understanding and communicating with the instructor, understanding course policies, and understanding any consequence of adding a course after the first class meeting.

Students may drop a course during the first 15% of the class meetings. This rule applies for both classes that meet for a full semester and classes that meet in sessions shorter than a full semester. (Note the difference between this rule and "withdrawal" explained on the next page.)

Western Colorado University faculty reserve the right to drop students from class rolls if they miss the first class meeting. Not all instructors require attendance at the first class meeting, but many do. Students are strongly encouraged to attend all of their first class meetings. If circumstances such as weather or travel arrangements prevent students from attending the first class session, it is the student's responsibility to contact the instructor of each course to request that their seat in the class be held.

**Class Attendance and Participation.** Faculty and students have shared responsibility in the education process. Class attendance and participation is the student's responsibility. The interactions a student has with the instructor and fellow students represent a significant portion of the learning process in coursework. Therefore, class attendance and participation is essential for a successful education. Instructors may set attendance and participation policies for each of their courses, which are specified in the course syllabus. If a student violates an attendance or participation policy, instructors may withdraw a student from class, lower the earned grade, and deploy other actions as specified by the course policy.

An important responsibility for students is to be prepared for class. Such preparation for the average student expecting an average grade ("C") typically requires 2-3 hours of studying or other types of preparation for every hour of coursework.

**Variable Credit Courses.** Variable Credit courses are courses which may be offered for a range of credits. The range of credits is set by the discipline, and is published in the catalog and class schedule. The types of courses generally encompassed by the term "variable credit" include Field Experience, Internship (described below), Independent Study, Directed Study, Practicum, Senior Thesis, and Research Problems. The learning objectives and academic requirements for these courses are established between individual faculty and individual students, and have specific academic outcomes defined before the course work begins.

Students must register for variable credit courses prior to beginning the studies associated with the course. Internship hours or study completed



before the course registration is complete will not be counted towards the hours required for the course credit.

The student must be enrolled for the credits during the term in which the studies begin. This coursework is part of a student's academic load for the semester and course contact hours must be able to be completed by the end of the semester for registration to be approved. A request for changes to variable credit registration after the work begins may be considered through a petition process in extenuating circumstances. The petition must be signed by the instructor for the variable credit course, the department chair, and the Registrar.

To register for a variable credit course, the student must submit a completed and signed Variable Credit Course form to the Office of the Registrar. Some disciplines may have additional requirements for registration in Variable Credit Courses. Substituting variable credit courses for required courses in the major or minor is at the discretion of the discipline; no variable credit course may be used to meet General Education requirements.

**Internships.** Internships offer students the opportunity to combine academic credit with work in their career field. The learning objectives and academic requirement for these experiences are established in collaboration with the student's faculty advisor, based on the employer's job description. The faculty advisor, employer, and student sign off on the learning objectives, agreeing in advance to the parameters of the internship. Students earn credit based on the number of hours to be worked, which is determined in advance. Each academic department establishes a requirement for the number of hours to be worked for each credit earned in line with established minimal contact hour requirements for credit hours. Employers complete an evaluation of the intern at the end of the experience which faculty use in assessing the student's performance and grade.

Minimum eligibility requirements for internships are a 2.000 GPA and completion of at least 12 credits in the academic area of the internship. The internship policy of individual disciplines may be more stringent. Assignment of internship credit toward requirements of a degree program is to be decided by the academic area of the internship, and in no case can it count towards General Education requirements.

In order for internships to maintain academic integrity, Western Colorado University and a faculty member must be involved from the initial development of the learning objectives through the completion of the internship.

Students must register for internship credit prior to beginning the work associated with the internship. The student must be enrolled for the credits during the term in which the work is initiated. This course work is part of a student's academic load for the semester and course contact hours must be able to be completed in order for registration to be approved.

**Auditing Courses.** Regularly enrolled students may register to audit a course for no credit, but only at the time of registration. Students may not change from audit to credit or from credit to audit after the class has begun. Students auditing a course pay appropriate tuition and fees and are expected to attend classes regularly. Audited courses are treated as a part of a student's course load for purposes of determining semester course-load limits, are not graded, and do not fulfill degree requirements.

Western invites citizens 60 years of age or older to participate in classes at the University on a space-available, no-credit, no-cost basis. (This does not apply to Extended Studies courses.) Students qualified to audit

courses in this manner should make arrangements with the Office of the Registrar.

## Withdrawal from Individual Courses

After the official add/drop period, a student may only withdraw from a course with approval by the course instructor and the student's academic advisor. Students who obtain these authorizations will receive a grade of "W" (which has no effect on the student's grade-point average; refer to sections on Grades and Grade-Point Average that follow). If two-thirds of the scheduled class time in any given course has been completed, the student is not allowed to withdraw, and a grade for the course (which does affect the student's grade-point average) is recorded. Specific withdrawal deadlines are published on the Office of the Registrar website at <http://www.western.edu/registrar> (<http://www.western.edu/registrar/>).

Course instructors may also withdraw a student from a class for reasons such as inadequate academic progress or attendance, academic dishonesty, or disruptive behavior.

## Withdrawal from the University

Students who wish to withdraw from the University may do so in the first two-thirds of any term. Contact the Vice President for Student Affairs to initiate an official withdrawal from the University. Students should also consult with course instructors and their academic advisor.

If two-thirds of the scheduled term has been completed, the student will be allowed to withdraw from the university only under documented, mitigating circumstances such as prolonged illness, a death in the immediate family, etc., pending approval by the Office of Student Affairs.

After the official Add/Drop period, but before the withdrawal deadline, a student wishing to withdraw entirely from the University will be given a grade of "W" for all courses except variable credit and short term courses. Once two-thirds of the scheduled class time in any course has been completed, a student wishing to withdraw from the University will be given a "W" grade for each course.

**Withdrawal from Variable Credit and Short Term Courses.** After 15% of the course has been completed, a student wishing to withdraw from the University during a term when he or she is enrolled in a variable credit or short term course (e.g., internship, practicum, field experience, independent study, HWTR 100) must receive the approval of the supervising instructor. If a student obtains this authorization, a grade of "W" or a "WF" may be assigned. The academic advisor can explain the guidelines and consequences resulting from dropping or withdrawing from selected courses. If a course has already concluded, the student will receive the grade earned for the course.

**Withdrawal in Absentia.** If illness, injury, or other circumstances prevent a student from being on campus to request withdrawal from the University in person, the student may notify the Office of Student Affairs (970) 943-2011 and request that the Vice President for Student Affairs act as the student's agent in notifying course instructors and the student's advisor.

## Leaving the University

Students leaving the university for a semester or longer who plan to return can complete an application for readmission. Students returning to Western are given the same priority registration as continuing students when applications for readmission are received by mid-October for spring course registration and mid-March for fall registration. Students should

discuss departure plans with their advisor, as well. Contact the Office of the Registrar for more information about this process.

Prior to departure from Western all students should check out by contacting applicable departments. Students who have on-campus housing must contact Residence Life. Students with financial aid should contact the Student Financial Services/Financial Aid Office for exit counseling and should not be registered for courses in a future term. Additionally, contact the Office of Student Affairs to complete an exit interview.

## Transfer Courses

College-level academic courses with grades of C- or better, completed at an institution accredited by a regional accrediting agency, are generally accepted. Western accepts up to 90 credits, combined total, from accredited institutions, military credit, AP, IB, and CLEP exam.

- Western only applies grades earned through Western toward the calculation of GPA.
- Western will only grant upper division credit if the transfer course is taken at an upper division level, regardless of Western equivalency.
- No credit will be granted for remedial or vocational-technical courses; except for some military training or as part of an articulation agreement.
- Courses recommended by the American Council on Education may be considered for credit.
- Total credit permitted under CLEP, AP and other programs leading to credit by examination is limited to 40 semester credits.
- Continuing students are advised to receive approval in advance for transfer credit.
- Credit earned from non-Western Study Abroad programs are treated as transfer credit.
- To graduate from Western, students must complete a minimum of 30 credits at Western. At least 15 credits in the major and at least 8 credits in the minor. Of the 40 upper division credits, numbered 300, 400, or 600, required for graduation from Western, at least fifteen credits must be courses in the major. Exceptions to evaluations of transfer credit by the Office of the Registrar may be requested by the appropriate academic department.

Additional information regarding transfer policies may be found in the Admission Policies section of the catalog.

## Military and Emergency Personnel Deployment

In times of emergency, certain students (including reserve military units, individuals with specialized skills, or firefighters) are called to provide services to the state or country.

When the call for service or emergency deployment is issued, it is often necessary for students to interrupt their coursework in mid-semester without advance notice. The university recognizes that normal refund and withdrawal policies may not be appropriate and therefore will make the following provisions for individuals who leave the institution mid-semester.

Instructors will accommodate student absences of up to twenty percent of the class time for mandatory military training or an emergency or short-term deployment. Students must be given the opportunity to make up missed assignments and tests later, and they cannot be penalized for

their absence during their deployment. Students must notify the Office of Student Affairs, which will contact all instructors on their behalf; in order to receive permission to return to the classroom after short-term training or deployment, activation letters or orders must be submitted to the Office of Student Affairs.

- Any student ordered to active duty must:
  - Contact the Office of Student Affairs immediately; they must complete and submit a withdrawal form if they wish to withdraw.
  - Provide a copy of activation letter or orders.
  - Notify their instructors of deployment and make arrangements for withdrawal or delayed completion.
- The Office of the Registrar will withdraw the student with the following conditions:
  - **On or Before the Drop Deadline** - Students will be dropped from all of their courses if ordered to active duty or to respond to a state or national emergency. There will be no notation of that semester enrollment in their transcripts.
  - **After the Drop Deadline** - Students will have a choice to:
    - i. Be dropped with W grades. A notation of "Military or Emergency Services Withdrawal" will be made under the semester of deployment in the student's transcript.
    - ii. In consultation with the instructors, receive a grade of incomplete if:
      1. At least 50% of the work has been completed.
      2. The student has obtained a C or better in the class thus far.
      3. Student and instructor share a plan for the completion of the course work with the department chair. Class work must be completed within one calendar year. If the student remains deployed or has recently completed deployment he/she may request an extension through the Registrar's Office.

## Rebates and Financial Aid

Students who choose to be withdrawn will receive a full refund of all tuition and fees, including room and board. Veterans' Aid payments may have to be repaid to the funding agency under certain circumstances, and the Veteran's Certifying Official will assist with the paperwork.

If the student is receiving financial aid, the Veteran's Certifying Official will work with the Financial Aid Office to determine the best refund for the student (based on the Department of Education's rules governing financial aid).

Western realizes that active duty and emergency personnel students may encounter extreme and unforeseeable circumstances during their educational career. We are committed to helping these students succeed no matter what challenges come their way. Therefore, the offices of Academic Affairs, Student Affairs, and the Registrar are willing to review and potentially make additional accommodations for cases in which students encounter exceptional situations or circumstances.

## Grades and Grade-Point Average

For the purpose of calculating a student's grade-point average (which determines academic standing), numerical values are assigned to letter grades on the following scale:



Grade	Grade Points
A	4.000
A-	3.670
B+	3.330
B	3.000
B-	2.670
C+	2.330
C	2.000
C-	1.670
D+	1.330
D	1.000
D-	0.670
F	0.000

### Computation of Grade-Point Average (GPA)

Only grades earned through Western are used to calculate GPA. To obtain grade points earned in a course, multiply the number of credits per course by the numerical points for the grade earned in the course. Following is an example of a GPA calculation for 12 credits earned by a student taking four courses with each course worth three credits.

Grade Earned	Grade Points	GPA
B	3	9
C+	2.330	6.999
C	2.000	6.000

Total GPA credits = 12 Total grade points = 30.000

A student's semester GPA is calculated by dividing total grade points by total GPA credits (in the above example  $30.000/12 = 2.500$  GPA). A student's cumulative GPA is calculated by dividing all grade points earned by all GPA credits.

All grade-point averages at Western are calculated to three decimal places and all requirements specifying grade-point averages (e.g., scholarships) are stated in terms of three decimal places.

### Repetition of Courses

A student who has received a low grade in a course can improve his/her cumulative grade-point average by repeating that course and earning a higher grade. If the student repeats a course under the same title and/or number, only the credits and grade points of the most recent enrollment in that course (even if the repeated course grade is lower) are used to determine whether a requirement has been met and in calculating that student's cumulative GPA. In addition, the following conditions apply to repeating a course:

Variable-credit courses are handled as exceptions to the policy on course repetition. A student who wishes to enroll in a variable-credit course to repeat credit previously taken under that course number, but not for additional available credit under that same course number, must contact the Office of the Registrar.

Students wishing to repeat and replace the grade from a course taken on National Student Exchange or a Study Abroad program must send a letter of petition to the Registrar.

Course work repeated after the undergraduate degree has been recorded on the student academic record will not be included in the undergraduate GPA.

### Grades Assigned Other than A, B, C, D, F

At the discretion of the faculty member teaching the course, a student who is unable to complete a course for reasons beyond the student's control (e.g., illness) may be assigned an "Incomplete" (IN). The student must have completed more than one-half of the course work at an acceptable level at the time of the request for an "Incomplete." The student and the faculty member must agree upon a plan for the completion of the work within a time period not to exceed one calendar year. When faculty give an "Incomplete", they must designate the student's existing grade in the course, the work to be completed for the "Incomplete" to be removed, and also indicate the grade that will be automatically given after one year if the work is not satisfactorily completed.

A grade of "Technical Failure" (TF) indicates that the student discontinued participation in the course without official approval. A "TF" is assigned 0.000 grade points.

Selected courses have been approved to be graded as "Satisfactory/Unsatisfactory" only and are so noted in their course descriptions. Only grades of "S" or "U" may be recorded for courses so designated. The grade of "S" is equivalent to letter grades of C- or above. The grade of "U" is equivalent to the letter grades of D+ or below, and no credits are earned. In no case may the grade of "S" or "U" be converted to a traditional letter grade. The S/U grade cannot be used in classes which allow the letter grades A-F.

Some courses or projects are intended to last longer than one semester. Such courses may be designated by the department or department chair at the time of registration and will be given an "In Progress" designation at the end of the semester. The "In Progress" (IP) designation can be used for a maximum of one year, the end of which a grade must be assigned. Grades of "IN," "IP," "NC," "W," "S," and "U" are not counted in the computation of a student's grade-point average (GPA). Since "S" is not counted in calculation of grade point, it does not assist the student toward inclusion on the Dean's List or Honors designation at commencement.

"Incomplete" (IN) or "In Progress" (IP) grades completed after the undergraduate degree has been posted will not be included in the undergraduate GPA.

### Attendance-Related Grades

A course grade of "Technical Failure" (TF) may be assigned by course instructors for students who failed to attend classes but who did not officially withdraw from the course. A "TF" is assigned 0.000 grade points for purposes of computing grade-point averages. Whether students have completed enough of the course to be assigned a grade other than "W," "TF," or "IN" (see sections explaining letter grades) is determined by the respective course instructors.

### Grade Corrections

Faculty members must submit requests for grade corrections to the Registrar within one year following the recording of the incorrect grade.

### Academic Standing

The faculty recognizes that the adjustment to university life may have a negative effect on the early academic performance of some

students. To allow for this adjustment period, the 2.000 cumulative grade-point average requirement (ultimately necessary for graduation with a bachelor's degree) is not immediately imposed on beginning students, though all students should strive to achieve at least the minimum level of a 2.000 GPA every semester.

A sliding scale of categories of "academic deficiency" is applied to students who fall below this minimum. Students who are notified that they fall into any of these categories should re-examine their academic goals and their study habits and should avail themselves of the services provided by Western to help them to succeed academically. Students who perform at less than a 2.000 level, even if they are not technically "academically deficient," should take steps to improve their academic performance.

### Academic Dean's List

Students who have attained a grade-point average of 3.70 during a semester, while carrying a full course load, will be placed on the Academic Dean's List. A full course load is 12 or more credits of letter-graded courses in a 16-week semester or six or more credits of letter-graded courses in a summer session.

### Good Standing

Students whose cumulative grade-point average exceeds that which would place them on probation are considered to be in good standing. This minimum grade-point average is defined in the section below titled "Academic Probation." Fourth year students in 3+2 programs must meet graduate program requirements for GPA and course grades. Refer to the Western Graduate Catalog for further details.

### Academic Alert

Students who have cumulative grade-point averages of 2.000 or higher are sent notices at the end of any semester in which they receive a semester grade-point average lower than 1.500, alerting them that corrective action should be taken to improve their performance.

### Academic Probation

Students are placed on academic probation when their cumulative grade-point average falls below the minimum required (see below). It is an early warning that students should take steps to improve academic performance. Students are placed on academic probation if they:

- are in the first semester of enrollment at Western (regardless of the number of credits enrolled) and receive a semester GPA below 1.500;
- have attempted fewer than 10 credits and have less than a 1.750 cumulative GPA at the end of a non-probationary semester;
- have attempted between 10 and 44 credits and have less than a 1.880 cumulative GPA at the end of a non-probationary semester; or
- have attempted 45 or more credits and have less than a 2.000 cumulative GPA at the end of a non-probationary semester.

Students are expected to raise their cumulative grade-point average to the required level during the probationary semester. Academic probation ends when the student achieves the required cumulative grade-point average. Students on probation achieving at least a 2.000 semester grade-point average (even though the cumulative grade-point average has not reached the specified level), may be permitted to continue for an additional probationary semester.

### Academic Suspension

Academic suspension notices are issued at the end of fall, spring, and summer semesters to all students who, during a probationary semester,

fail to achieve at least a 2.000 semester grade-point average and do not have the cumulative grade-point average required to be in good standing:

- Students who have attempted fewer than 10 credits and have less than a 1.750 cumulative GPA at the end of a probationary semester are placed on academic suspension.
- Students who have attempted between 10 and 44 credits and have less than a 1.880 cumulative grade-point average at the end of a probationary semester are placed on academic suspension.
- Students who have attempted 45 or more credits and have less than a 2.000 cumulative grade-point average at the end of a probationary semester are placed on academic suspension.

In addition, *any* student who earns less than a 1.000 GPA in any semester may be placed on academic suspension.

The period of suspension is for one calendar year. A student to whom such a suspension notice is issued at the end of a fall semester is eligible to return a year later, at the beginning of spring semester. A student suspended at the end of the spring semester is eligible to return a year later, at the beginning of the summer session. A student suspended at the end of the summer semester is eligible to return a year later, at the beginning of the fall session. In order to return to Western after serving the specified academic suspension period, the suspended student must apply for readmission through the Office of the Registrar.

Credits earned at another institution during a period of academic suspension are evaluated by the criteria explained in the Admissions Policies and Procedures section of this *Catalog*.

Students who believe that *exceptional circumstances* contributed to their suspension may submit a written petition, through the Registrar, to the Academic Appeals Committee (a sub-committee of the Faculty Academic Policies Committee). The petition form and instructions for appeal are available on the website of the Office of the Registrar and must be submitted no later than five working days before the start of any semester during which that student wishes to re-enroll at Western. Each petition is reviewed by the Academic Appeals Committee to determine whether the appeal is granted.

The Academic Appeals Committee is authorized to specify conditions, beyond those described in these general policies, which reinstated students must meet in order to continue at Western.

### Academic Dismissal

If a student returns from a period of academic suspension, the student's academic standing will be "probation after suspension." If she/he does not earn a 2.000 or higher semester grade-point average during any semester prior to earning or exceeding the cumulative grade-point average required at that point in his/her academic career, no further probationary semester is allowed, and the student is issued an immediate notice of academic dismissal.

Readmission from an academic dismissal is possible only by action of the Academic Appeals Committee, according to the established procedures of that committee. The committee will not accept for review any dismissal appeal petition before two calendar years have transpired since the dismissal. If a student is granted readmission following academic dismissal, credits earned at another institution are evaluated by the criteria explained in the Admissions Policies and Procedures section of this *Catalog*.

## Errors in Determining Academic Suspension/Dismissal

Students whose suspension or dismissal resulted from an error in grading or recording will be readmitted (the suspension or dismissal will be removed from their academic records) upon receipt by the Registrar of written notification from the appropriate faculty member. Such errors in grading or recording should be resolved before the Add Deadline of the semester the student is to be readmitted.

## Academic Amnesty

Students who have not attended Western Colorado University for six years or more may, upon returning to Western, petition for academic amnesty. Academic amnesty allows students to count prior credits earned at Western of "C-" and above in meeting total graduation requirements. It also allows students to have a fresh start in their overall grade-point average, as the previous credits attempted at Western will not be used in calculating the overall grade-point average. Petitions by students may be submitted, through the Registrar, to the Faculty Academic Policies Committee. Students must submit petitions for academic amnesty before the end of their first term of re-entry. Academic amnesty will be granted to a student only once.

## Graduation Requirements (p. 287)

### Academic Integrity

As members of the academic community, students are expected to recognize and uphold standards of intellectual and academic integrity. The University assumes, as a basic and minimum standard of conduct in academic matters, that students will be honest and that they will submit for credit only the products of their own efforts. Both the ideals of scholarship and the need for practices that are fair require that all dishonest work be rejected as a basis for academic credit. They also require that students refrain from any and all forms of dishonorable conduct in the course of their academic work. Dishonest work may include, but is not limited to, the following infractions:

**Plagiarism.** Presenting another person's work as one's own, including paraphrasing or summarizing of the works of another person without acknowledgment and the submitting of another student's work as one's own is considered plagiarism.

Plagiarism frequently involves a failure to acknowledge in the text, notes, or foot-notes the quotation of paragraphs, sentences, or even a few phrases written or spoken by someone else.

**Cheating on Examinations.** Giving or receiving unauthorized help before, during, or after an examination is considered cheating. Examples of unauthorized help include the use of notes, texts, or "crib sheets" during an examination (unless specifically approved by the instructor).

**Unauthorized Collaboration.** Submission for academic credit of a work product, or a part thereof, represented as being one's own, which has been developed in substantial collaboration with assistance from another person or source, is a violation of academic honesty. It is also a violation of academic honesty to knowingly provide such assistance. Collaborative work specifically authorized by an instructor is allowed.

**Falsification.** It is a violation of academic honesty to misrepresent material or fabricate information in an academic exercise or assignment (e.g., false or misleading citation of sources or the falsification of the results of experiments or of computer data).

**Multiple Submissions.** It is a violation of academic honesty to submit substantial portions of the same work for credit more than once

without the explicit consent of the instructor(s) to whom the material is submitted for additional credit.

### Consequences of Violations

Violations of academic integrity may result in the following: a grade of "F" or a "zero" for the assignment, an "F" for the course, withdrawal from the course, or suspension or expulsion from the University. Serious violations of academic integrity are reported to the Office of Academic Affairs.

## Academic Due Process for Students US Department of Education Program Integrity Regulations Complaint Process

Pursuant to the United States Department of Education's Program Integrity Rule, Western is required to provide all prospective and current students with the contact information of the state agency or agencies that handle complaints against post secondary education institutions offering distance learning or correspondence education within that state. Students are encouraged to utilize the institution's internal complaint or review policies and procedures through the Office of Student Affairs or Office of the Provost prior to filing a complaint with the state agency or agencies. The link below provides a list of contacts from each state in which a student may file a complaint.

<http://www.nc-sara.org/content/state-portal-entity-contacts> (<http://www.nc-sara.org/content/state-portal-entity-contacts/>)

It is the objective of these procedures to provide for the prompt and fair resolution of the types of problems described herein which students may experience at Western.

### Definitions

**Complaint.** An informal claim by an affected student that a faculty member or an academic administrator has violated, misinterpreted, or improperly exercised his/her professional duties.

**Complainant.** An affected student who makes a complaint.

**Grievance.** A written allegation by an affected student that a faculty member or an academic administrator has violated, misinterpreted, or improperly exercised his/her professional duties. The grievance should include the possibility of a remedy.

**Grievant.** An affected student who files a grievance.

**Respondent(s).** The faculty member(s) and/or academic administrator(s) identified by the affected student as causing or contributing to the complaint or grievance.

**Grievance Committee.** A committee composed of one faculty member selected by the grievant, one faculty member selected by the respondent, and three faculty members selected by the Vice President for Academic Affairs (or assignees).

**Time Limits.** When a number of days are specified herein, they shall be understood to exclude Saturdays, Sundays, holidays, University vacation days, and other days when the University is not in session and holding classes.

**Academic Administrator.** Professional personnel of the University, other than teaching faculty, who are in positions to make academic decisions affecting students, including but not limited to, department chairs, Associate Vice President for Academic Affairs, Vice President for Academic Affairs, and the President.

## Informal Complaint Procedure

The complainant shall discuss the problem with the respondent(s). If the problem is not mutually resolved at this time, the complainant shall confer with the immediate supervisor(s) of the respondent(s). This usually will be the Chair(s) of the Department(s) to which the respondent(s) is assigned.

If satisfactory resolution is still not achieved, the complainant must confer with the Vice President for Academic Affairs or selected representative.

## Formal Grievance Procedure

If the complaint is not suitably resolved, the student has the right to file a grievance with the Vice President for Academic Affairs within six months of the time that the grievant could or should have known of the action which is the basis of the problem.

This written allegation shall indicate what has already been done to resolve the complaint. Preservation of relevant documents and of precise records of actions taken is advantageous.

The grievance committee shall be formed under the supervision of the Vice President for Academic Affairs, and a hearing shall be scheduled within 15 days after that officer receives the written grievance from the grievant.

The grievance committee shall hear testimony from the grievant, the respondent, and whomever else it deems appropriate.

Within 15 days after completion of the hearing(s), the grievance committee shall submit its findings to the Vice President for Academic Affairs for implementation as deemed appropriate by that officer. A copy of the finding of the committee and of the implementing decision of the Vice President for Academic Affairs shall be given to the grievant and the respondent.

The grievant may withdraw the grievance at any point in the proceedings by doing so in writing to the Vice President for Academic Affairs.

The Vice President for Academic Affairs may grant an extension of the time limit for good cause.

If the grievance has not been resolved satisfactorily after the above procedures have been completed, the grievant is advised that he/she may appeal to the President of Western Colorado University, and ultimately, to the Board of Trustees.

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- Spanish (SPAN) (p. 277)
  - Spanish K-12 Licensure Emphasis: Comprehensive Program (<https://catalog.western.edu/undergraduate/programs/spanish/spanish-k-12-licensure-emphasis-comprehansive-program/>)
  - Spanish K-12 Licensure Emphasis: Comprehensive Program (with a 3+2 Master of Arts) (<https://catalog.western.edu/undergraduate/programs/spanish/spanish-k-12-licensure-emphasis-comprehansive-program-3-2/>)
  - Spanish Major: Standard Program (p. 278)
  - Spanish Minor (p. 279)

## Accounting (ACC)

At Western, we believe that the best accountants are those with the greatest breadth in their undergraduate education. Thus, Accounting majors at Western are required to take a full range of General Education courses while still completing all necessary accounting and related business courses. This approach results in graduates who have over half of their course work in liberal arts disciplines, but who still meet all educational requirements to become certified public accountants. This method of accounting education, together with the rigors inherent in the study of accounting, combine to create an outstanding program with outstanding students. In addition, as with other disciplines at Western, students can count on small classes with caring and dedicated faculty.

Western Colorado University offers three programs of study in Accounting: a Comprehensive Major: Professional Emphasis (p. 19), a Comprehensive Major: Financial Analysis Emphasis (p. 17), and a Standard Accounting Major (p. 21).

The Professional Emphasis is intended to provide the appropriate educational background for students interested in professional accountancy (CPA) as a career, or the pursuit of a graduate degree in accounting, business, or law. The course work leading to graduation with a Comprehensive Accounting Major is composed of five areas:

1. general education and elective courses;
2. supporting tool courses;
3. Accounting Nucleus courses;
4. supporting courses in Accounting, Business Administration and Economics; and
5. a Capstone Course. Students completing one of the Comprehensive Majors do not need a minor area of study.

Students interested in becoming a Certified Public Accountant (CPA) should be aware that all states now require or will soon require 150 credits to be licensed as a CPA. In Colorado, this requirement went into effect July 1, 2015. The Professional Emphasis in accounting is designed to meet all the requirements for a Colorado CPA candidate to sit for the CPA exam. This can be done after graduation with the bachelor's degree and a total of 120 credits. Before being certified as a CPA, the candidate must then complete a total of 150 credits, including additional accounting and business credits. This can be accomplished by completing the Professional Emphasis in Accounting, a Standard major in Business Administration, and a second auditing course (ACC 415 Information Technology Auditing), for a total of 66 credits. A work

experience requirement must also be met. Students should consult with an Accounting faculty advisor to develop an appropriate academic program.

The Financial Analysis Emphasis in Accounting is designed for students who are interested in careers in accounting or finance but who do not intend to seek CPA certification. This emphasis includes courses in the traditional areas of managerial finance, financial institutions, investments, and economics, and also requires a substantial core of accounting courses. This approach maximizes the post-graduate opportunities available to students. Students completing the Financial Analysis Emphasis do not need a minor area of study.

The Standard Accounting Major is appropriate for students who have a strong interest in both accounting and another discipline. It does not offer the integrated breadth provided in the comprehensive majors. Students pursuing a Standard Major must also complete a minor area of study or have a second major in another discipline. The Standard Major does not provide sufficient preparation for someone interested in professional accountancy, but provides an excellent preparation for graduate study or for careers that make use of accounting information. The selection of a minor area of study (or a second major) that complements a Standard Accounting Major should be made with the aid of an advisor.

Many majors are student members of the Colorado Society of Certified Public Accountants and the American Institute of Certified Public Accountants. To graduate, all majors must have a grade-point average of 2.500 or better in all courses required in the major and complete each of the following courses with a minimum grade of "C": ACC 201 Introduction to Financial Accounting, ACC 202 Introduction to Managerial Accounting, ACC 301 Intermediate Financial Accounting I, ACC 302 Intermediate Financial Accounting II, ACC 320 Advanced Management Accounting, ACC 350 Income Tax.

## Programs

- Accounting Comprehensive Major: Financial Analysis Emphasis (p. 17)
- Accounting Comprehensive Major: Professional Emphasis (p. 19)
- Accounting Major: Standard Program (p. 21)
- Accounting Minor (p. 23)

## Capstone Course Requirement

The following courses in the Accounting Major fulfill the capstone course requirement: ACC 498 Accounting Ethics (Standard Accounting Major or Professional Emphasis); or BUAD 491 Strategic Management.

## Accounting Courses

### ACC 201. Introduction to Financial Accounting. (3 Credits)

An introduction to the field of accounting with emphasis on corporate financial statements. Financial statements are viewed as a communication device conveying the financial health of a business to interested parties. The objective of this first course is to teach students to read, analyze, and interpret these financial statements. The emphasis is on developing critical thinking and problem-solving skills using accounting concepts. Students are exposed to the steps used by accountants to record, measure, and process financial information. Cash flow analysis is contrasted with the accrual basis of accounting; the concepts of asset valuation and income measurement are discussed. Accounting majors must pass this class with a minimum grade of C. Prerequisites: completion of the College Mathematics Course Requirement with minimum grade of C-, or instructor permission.

### ACC 202. Introduction to Managerial Accounting. (3 Credits)

An introduction to the preparation, uses, and analysis of common management accounting information. Topics include cost-volume-profit analysis, capital budgeting and present value applications, cash budgets, financial statement analysis, taxes, and management decisions, plus a brief introduction to modern cost accounting, with emphasis on activity-based costing systems. The development of problem-solving and analytical abilities is given primary importance throughout the course. Accounting majors must pass this class with a minimum grade of C. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of C-; and ACC 201 with a minimum grade of C.

### ACC 255. Business Structure and Taxes. (3 Credits)

Students are provided with information on business structure and how taxation affects each business type. This course is especially helpful for students considering starting their own business but students may find this course helpful in understanding current and future business structures of existing businesses.

### ACC 292. Independent Study. (1-6 Credits)

### ACC 297. Special Topics. (6 Credits)

### ACC 301. Intermediate Financial Accounting I. (3 Credits)

Rigorous and comprehensive study of the means by which generally accepted accounting principles are used to generate the publicly-available information disseminated by modern U.S. corporations. Theoretical and practical criticisms and alternatives to current accounting practice are also considered, as is the idea of accounting as an information feedback system that allows individuals and organizations to reshape their environment. In addition, students are exposed to the realities of the economic and political climate surrounding the accounting standard-setting process. Accounting majors must pass this class with a minimum grade of C. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; and ACC 201 with a minimum grade of "C."

### ACC 302. Intermediate Financial Accounting II. (3 Credits)

Continuation of ACC 301. As the ACC 301-02 sequence progresses, increased emphasis is placed on the relationship of modern accounting and information theory to current accounting practice. In addition, students are expected to develop an insight into the behavioral and economic consequences of the financial reporting process. Accounting majors must pass this class with a minimum grade of C. Prerequisite: ACC 301.

### ACC 320. Advanced Management Accounting. (3 Credits)

A study of the information needed by managers for planning, control and decisionmaking. Both the tools needed to generate this information and the principles involved in evaluating the information are covered. Topics include: breakeven analysis; product and process costing, including activity-based costing, standard costing and joint costs; cash budgets and forecasting; relevant costs and nonroutine decisions; the direct vs. absorption costing tradeoff; and capital budgeting. The overall level of difficulty in this course is generally consistent with the level of difficulty encountered on typical management accounting problems found on the Uniform CPA Examination. Accounting majors must pass this class with a minimum grade of C. Prerequisites: ACC 202 and ACC 301.

### ACC 340. Accounting Information Systems. (3 Credits)

A dual-purpose course which explores the theoretical view of information systems, while at the same time exposing the student to actual off-the-shelf accounting software. The course alternates between textbook readings and discussions and several case studies which require the student to create a computerized accounting system for a fictional client. After completing the course, the student is expected to possess the ability to computerize a manual accounting system, to understand system theory underpinnings of accounting information systems, and to have developed a view of the implications of expected technological advances on management information systems in general and accounting systems in particular. Prerequisite: BUAD 220 or CIS 120. Prerequisite or corequisite: ACC 301.

### ACC 350. Income Tax. (3 Credits)

An introduction to the federal income tax system. Emphasis is on the ways in which the U.S. income tax laws influence personal and business behavior and decision making, and how the tax laws can be used to accomplish various economic and social objectives. Topics covered include an introduction to tax research, principles of income and deduction, tax liability, and tax credits. Individual taxation is the primary focus, but the basic principles apply to most forms of business organization as well. Accounting majors must pass this class with a minimum grade of C. Prerequisite: minimum sophomore standing.

### ACC 365. VITA. (3 Credits)

Sponsored nationally by the IRS, VITA is the Volunteer Income Tax Assistance program. It involves assisting taxpayers in preparing their state and federal tax returns. Prerequisite: ACC 350 with at least a B- and instructor permission.

### ACC 392. Independent Study. (1-6 Credits)

### ACC 397. Special Topics. (1-6 Credits)

### ACC 410. Auditing. (3 Credits)

An introduction to the field of auditing including an examination of the standards and methods used by certified professional accountants when attesting to the fairness of corporate financial statements. Specific topics include the accounting professional code of ethics, generally accepted auditing standards (GAAS), internal controls, sampling techniques, audit planning and specific audit procedures. Government policies concerning auditors' responsibilities for fraud detection are also discussed. Prerequisite: ACC 302.

### ACC 415. Information Technology Auditing. (3 Credits)

Building on concepts covered in ACC 410 (Auditing), the course emphasizes the process of auditing information technology (IT), IT governance and management, IT acquisition, development and implementation, IT maintenance and support, and protection of IT assets. The course will present tools, concepts, and techniques necessary to properly audit IT. Prerequisites: ACC 340 and ACC 410.

**ACC 450. Advanced Financial Accounting. (3 Credits)**

An overview of the financial accounting theory, practice, problems, and reporting requirements for various economic entities. These include partnerships, foreign branches and subsidiaries, state and local governments, colleges and universities, hospitals, voluntary organizations, and the modern parent/subsidiary corporate structure. The approach taken in this course is that there are common information needs which each of these entities must satisfy. While the specific approach used to satisfy this need is dependent on a variety of factors, the common thread is that useful information is being generated for the consumers of that information. Prerequisite: ACC 302.

**ACC 460. Advanced Income Tax. (3 Credits)**

A continuation of federal income taxation, with emphasis on property transactions, corporations, partnerships, and fiduciaries. A primary objective is decision-making from an after-tax point of view, that is, how taxes affect behavior. Topics include the tax effects of organizing, operating, and liquidating partnerships and corporations. Tax research methodology and the federal estate and gift tax are also covered. Prerequisite: ACC 350.

**ACC 465. VITA Reviewer. (3 Credits)**

Sponsored nationally by the IRS, VITA is the Volunteer Income Tax Assistance program. VITA Reviewer is for students with experience from ACC 365 and involves reviewing tax returns. Prerequisite: ACC 365 and instructor permission.

**ACC 491. Seminar in Accounting. (3 Credits)**

A boardroom approach to problem solving through research, discussion, and analysis.

**ACC 492. Independent Study. (1-6 Credits)**

A singular investigation into a unique problem arrived at between the researcher and the advisor.

**ACC 497. Special Topics. (1-6 Credits)**

**ACC 498. Accounting Ethics. (3 Credits)**  
Investigates and explores the ethical responsibilities faced by professional accountants in all fields. Students will read, discuss, and analyze case studies regarding ethical situations and issues confronted by the accounting profession. The AICPA Code of Professional Conduct will be studied, as well as foundational ethical theory and an approach for identifying and analyzing ethical issues, with a focus on current events. Students are expected to make significant written and oral contributions to the class. This is the capstone course for the Standard Accounting Major and the Professional Emphasis. Prerequisite: senior status.

**ACC 499. Internship in Accounting. (1-6 Credits)**

Experiences designed especially for the uninitiated student. Internships provide guided, counseled, and progressive experience under a dual tutelage program of a businessperson and an academician. Graded Satisfactory/Unsatisfactory only.

## Accounting Comprehensive Major: Financial Analysis Emphasis

### Program Requirements

A minimum of 57 credits is required including 18 credits of Tool Courses and the 12-credit Accounting Nucleus:

Code	Title	Credits
<b>Tool Courses</b>		
ACC 201	Introduction to Financial Accounting	3

ACC 202	Introduction to Managerial Accounting	3
ECON 202	Microeconomics	3
Select one of the following:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 213	Probability and Statistics	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
<b>Accounting Nucleus</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
ACC 350	Income Tax	3
Total Credits		30-31

**And the following:**

Code	Title	Credits
<b>Major Requirements</b>		
ACC 460	Advanced Income Tax	3
BUAD 210	Legal Environment of Business	3
BUAD 311	Business Analytics	3
BUAD 360	Managerial Finance	3
BUAD 461	Investments	3
BUAD 491	Strategic Management	3
ECON 201	Macroeconomics (GT-SS1)	3
Select two of the following:		6
ECON 301	Intermediate Macroeconomics	
ECON 316	Econometrics	
ECON 361	Money, Banking, and Financial Markets	
Total Credits		27

## Capstone Course Requirement

BUAD 491 Strategic Management will fulfill the capstone requirement for the Accounting Comprehensive Major: Financial Analysis Emphasis.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3

ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 14
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
ECON 202	Microeconor	3
Elective	Elective course	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences w/lab	4
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 201	Introduction to Financial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 216	Statistics for Business and Economics	3
Gen Ed	Arts & Humanities	3
		Credits 15
<b>Spring</b>		
ACC 202	Introduction to Managerial Accounting	3
ECON 301	Intermediate Macroecono	3
Elective	Elective course	6
Gen Ed	Social Sciences	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 350	Income Tax	3
BUAD 210	Legal Environment of Business	3
Gen Ed	Arts & Humanities	3

Elective	Elective course	3
		Credits 15
<b>Spring</b>		
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
ACC 460	Advanced Income Tax	3
BUAD 311	Business Analytics	3
Elective	Elective course	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
BUAD 360	Managerial Finance	3
ECON 361	Money, Banking, and Financial Markets	3
Elective	Elective course	9
		Credits 15
<b>Spring</b>		
BUAD 461	Investments	3
BUAD 491	Strategic Management	3
Elective	Elective course	9
		Credits 15
		Total Credits 120
<b>Course</b>	<b>Title</b>	<b>Credits</b>
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
MATH 140	College Algebra (GT-MA1)	3
BUAD 101	Business of Life	3
Natural Science GE		3
		Credits 13
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
ECON 202	Microeconor	3
Arts & Humanities GE		3
Natural Science GE		3
		Credits 12



<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroecono (GT-SS1)	3
ECON 216	Statistics for Business and Economics	3
Arts & Humanities GE		3
Credits		15
<b>Spring</b>		
ACC 202	Introduction to Managerial Accounting	3
ECON 301	Intermediate Macroeconomics	3
Natural Science GE		3
Social Science GE		3
Credits		12
<b>Year Three</b>		
<b>Fall</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 350	Income Tax	3
BUAD 210	Legal Environment of Business	3
Credits		9
<b>Spring</b>		
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
ACC 460	Advanced Income Tax	3
BUAD 311	Business Analytics	3
Credits		12
<b>Year Four</b>		
<b>Fall</b>		
BUAD 360	Managerial Finance	3
ECON 361	Money, Banking, and Financial Markets	3
Credits		6
<b>Spring</b>		
BUAD 461	Investments	3

BUAD 491	Strategic Management	3
Credits		6
Total		85
Credits		

## Accounting Comprehensive Major: Professional Emphasis Program Requirements

A minimum of 57 credits is required including 18 credits of Tool Courses, the 12-credit Accounting Nucleus:

Code	Title	Credits
<b>Tool Courses</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 202	Microeconomics	3
Select one of the following:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 213	Probability and Statistics	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
<b>Accounting Nucleus</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
ACC 350	Income Tax	3
Total Credits		30-31
<b>And the following:</b>		
Code	Title	Credits
<b>Major Requirements</b>		
ACC 340	Accounting Information Systems	3
ACC 410	Auditing	3
ACC 450	Advanced Financial Accounting	3
ACC 498	Accounting Ethics	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 315	Business Law	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		27

## Capstone Course Requirement

ACC 498 Accounting Ethics will fulfill the capstone requirement for the Accounting Comprehensive Major: Professional Emphasis.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Natural Science GE		3
		Credits 13
<b>Spring</b>		
Arts & Humanities GE 3		
BUAD 220	Spreadsheet and Analysis	3
ECON 202	Microeconomics	3
Natural Science GE		3
		Credits 12
<b>Year Two</b>		
<b>Fall</b>		
ACC 201	Introduction to Financial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Social Science GE		3
		Credits 12
<b>Spring</b>		
ACC 202	Introduction to Managerial Accounting	3
Arts & Humanities GE 3		
Natural Science GE 3		
Social Science GE 3		
		Credits 12

<b>Year Three</b>		
<b>Fall</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 340	Accounting Information Systems	3
Arts & Humanities GE 3		
BUAD 210	Legal Environment of Business	3
BUAD 360	Managerial Finance	3
		Credits 15
<b>Spring</b>		
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
BUAD 270	Principles of Marketing	3
BUAD 315	Business Law	3
		Credits 12
<b>Year Four</b>		
<b>Fall</b>		
ACC 350	Income Tax	3
ACC 410	Auditing	3
ACC 450	Advanced Financial Accounting	3
		Credits 9
<b>Spring</b>		
ACC 415	Information Technology Auditing	3
ACC 498	Accounting Ethics	3
BUAD 333	Organizational Behavior	3
		Credits 9
		Total Credits 94
<b>Course</b>	<b>Title</b>	<b>Credits</b>
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Natural Science GE		3
		Credits 13
<b>Spring</b>		
Arts & Humanities GE		3

BUAD 220	Spreadsheet and Analysis	3
ECON 202	Microeconomics	3
Natural Science GE		3
Credits		12

**Year Two**

**Fall**

ACC 201	Introduction to Financial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Social Science GE		3
Credits		12

**Spring**

ACC 202	Introduction to Managerial Accounting	3
Arts & Humanities GE		3
Natural Science GE		3
Social Science GE		3
Credits		12

**Year Three**

**Fall**

ACC 301	Intermediate Financial Accounting I	3
ACC 340	Accounting Information Systems	3
Arts & Humanities GE		3
BUAD 210	Legal Environment of Business	3
BUAD 360	Managerial Finance	3
Credits		15

**Spring**

ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
BUAD 270	Principles of Marketing	3
BUAD 315	Business Law	3
Credits		12

**Year Four**

**Fall**

ACC 350	Income Tax	3
ACC 410	Auditing	3

ACC 450	Advanced Financial Accounting	3
Credits		9
<b>Spring</b>		
ACC 415	Information Technology Auditing	3
ACC 498	Accounting Ethics	3
BUAD 333	Organizational Behavior	3
Credits		9
Total		94
Credits		

## Accounting Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 42 credits is required including 18 credits of Tool Courses and the 12-credit Accounting Nucleus:

Code	Title	Credits
<b>Tool Courses</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 202	Microeconomics	3
Select one of the following:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 213	Probability and Statistics	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
<b>Accounting Nucleus</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
ACC 350	Income Tax	3
Total Credits		30-31

**And the following:**

Code	Title	Credits
<b>Major Requirements</b>		
ACC 498	Accounting Ethics (Capstone)	3
BUAD 210	Legal Environment of Business	3
Select two of the following:		6
ACC 340	Accounting Information Systems	
ACC 410	Auditing	
ACC 450	Advanced Financial Accounting	

ACC 460	Advanced Income Tax	
Total Credits		12

## Capstone Course Requirement

ACC 498 ACCOUNTING ETHICS will fulfill the capstone requirement for the Accounting Major: Standard Program.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Natural Science GE		3
		Credits 13
<b>Spring</b>		
Arts & Humanities GE		3
BUAD 220	Spreadsheet and Analysis	3
ECON 202	Microeconomics	3
Natural Science GE		3
		Credits 12
<b>Year Two</b>		
<b>Fall</b>		
ACC 201	Introduction to Financial Accounting	3
Arts & Humanities GE		3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Natural Science GE		3
		Credits 15
<b>Spring</b>		
ACC 202	Introduction to Managerial Accounting	3
Arts & Humanities GE		3

Natural Science GE		3
Social Science GE		3
		Credits 12

### Year Three

Course	Title	Credits
<b>Fall</b>		
ACC 301	Intermediate Financial Accounting I	3
ACC 340	Accounting Information Systems	3
Accounting Elective		3
BUAD 210	Legal Environment of Business	3
		Credits 12

### Spring

ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
Accounting Elective		3
		Credits 9

### Year Four

Course	Title	Credits
<b>Spring</b>		
ACC 498	Accounting Ethics	3
		Credits 3
Total Credits		76

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 14
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
ECON 202	Microeconomics	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences w/lab	4
Elective	Elective course	3
		Credits 16

**Year Two**

**Fall**

ACC 201	Introduction to Financial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
Credits		15

**Spring**

ACC 202	Introduction to Managerial Accounting	3
Elective	Minor course	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
Credits		15

**Year Three**

**Fall**

ACC 301	Intermediate Financial Accounting I	3
ACC 340	Accounting Information Systems	3
BUAD 210	Legal Environment of Business	3
Elective	Accounting Elective	3
Elective	Minor course	3
Credits		15

**Spring**

ACC 302	Intermediate Financial Accounting II	3
ACC 320	Advanced Management Accounting	3
Elective	Accounting Elective	3
Elective	Minor course	3
Elective	Minor course	3
Credits		15

**Year Four**

**Fall**

Elective	Elective course	6
Elective	Minor course	6
Elective	Elective OR Minor course	3
Credits		15
<b>Spring</b>		
ACC 498	Accounting Ethics	3
Elective	Elective course	12
Credits		15
Total		120
Credits		

## Accounting Minor

A minimum of 18 credits is required:

Code	Title	Credits
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ACC 301	Intermediate Financial Accounting I	3
Accounting Electives		9
Total Credits		18

## Anthropology (ANTH)

Anthropology is the scientific study of humans that is holistic and cross-cultural. Through anthropology a student achieves a broad geographical and temporal perspective of human biological and cultural adaptations. This perspective includes an understanding of cultural diversity in our own society, in our world at large, and in the past.

The Anthropology Standard Major provides students with a challenging, scholarly educational experience. Training in archaeology, physical anthropology, and cultural anthropology involves classroom, laboratory, and field work. Students majoring in Anthropology at Western apply information from the classroom as they participate in field studies. Majors are required to attend an Anthropology field school. The field school gives students hands-on field experience in anthropology. Laboratory skills are an important feature of the Anthropology curriculum, and students have the opportunity to participate in research with faculty.

Students majoring in Anthropology have used this experience to further careers in archaeology, cultural anthropology, forensics, and law enforcement, teaching, community planning, international business, and governmental research. With additional graduate work, careers in archaeology, cultural anthropology, and physical anthropology are possible.

## Programs

- Anthropology Major: Standard Program (p. 24)
- Anthropology Minor (p. 25)



## Capstone Course Requirement

The following course in the Anthropology Major fulfills the capstone course requirement: ANTH 465 Senior Research Seminar.

## Anthropology Courses

### ANTH 107. Introduction to General Anthropology (GT-SS3). (3 Credits)

A general introduction to anthropology. All three sub-fields of modern anthropology: cultural anthropology (archaeology and ethnography), physical anthropology, and linguistics are covered. GT-SS3

### ANTH 197. Special Topics. (1-6 Credits)

### ANTH 218. Physical Anthropology (with laboratory). (4 Credits)

An examination of biological variation in modern human populations and biological evolution of humans as shown by the fossil record. Additional course fee applies. Prerequisite: ANTH 107.

### ANTH 219. Archaeology (with laboratory). (4 Credits)

A study of the methods and theory of modern archaeology. The emphasis is on how archaeologists understand the past. A general chronology of world prehistory is presented. Additional course fee applies. Prerequisite: ANTH 107.

### ANTH 230. Cultural Anthropology (with laboratory). (4 Credits)

An exploration of ethnographic theory and methods, and a cross-cultural and comparative examination of societies studied by ethnographers. Additional course fee applies. Prerequisite: ANTH 107.

### ANTH 292. Independent Study. (1-4 Credits)

### ANTH 297. Special Topics. (1-6 Credits)

### ANTH 320. Cultural Ecology. (3 Credits)

An examination of key perspectives, theories, and methods in the study of ecological anthropology. Students learn about the use and definition of the environment by groups from different cultural backgrounds, and build a comparative perspective in so doing. The focus is on contemporary groups, but archaeological examples are used as comparison and to build time-depth in our understanding of cultural ecology. Prerequisite: ANTH 107 or instructor permission.

### ANTH 322. Analysis of Material Culture (with laboratory). (4 Credits)

A lab course training students in analytical methods in anthropology. Students are responsible for a major project in which they carry out all phases of anthropological research, including research design, background research, hypothesis, analysis, and presentation of results. Materials studied include lithics, fauna, ceramics, and botanical remains. An excellent preparation for (or follow-up to) the Archaeological Field School. Prerequisite: ANTH 219.

### ANTH 333. Archaeology of Colorado. (3 Credits)

A detailed look at the archaeological sequences of Colorado with an emphasis on western Colorado. Time periods from Paleo-Indian to Historic are described. This course is a recommended preparatory course for the Archaeological Field School in Colorado or the Archaeological Field Trip. Prerequisite: ANTH 219.

### ANTH 344. Indians of North America. (3 Credits)

A detailed look at the native people found in North America and their relationships to each other and the non-native settlers of North America. Several case studies are examined in depth. Prerequisite: ANTH 107 or instructor permission.

### ANTH 355. Medical Anthropology. (3 Credits)

An examination of medical systems from various cultural groups, focusing on beliefs, methods of healing, health practitioners, and medical pluralism. Prerequisite: ANTH 107.

### ANTH 369. Anthropology Field Trip. (1-3 Credits)

A field study of archaeological and ethnographic cultures in the western United States. Students camp and tour ancient sites, modern Native American towns, and anthropological museums. This course may be taken for a maximum of six credits.

### ANTH 392. Independent Study in Anthropology. (1-4 Credits)

### ANTH 397. Special Topics. (1-6 Credits)

### ANTH 465. Senior Research Seminar. (3 Credits)

A study of the history and intellectual growth of anthropology is paired with individual work on student projects, which employ theory and methods discussed in class. Students present their work to the university community. Prerequisite: Senior standing; or instructor permission.

### ANTH 467. Ethnography Field School. (4 Credits)

A field experience in cultural anthropology in which students are immersed in the culture, traditions, and lifeways of a group of people, learning methods of inquiry and anthropological perspectives through hands-on experiences. This course may be taken for a maximum of eight credits. Prerequisite: ANTH 230 or instructor permission.

### ANTH 469. Archaeology Field School. (4 Credits)

A field-experience course in which students learn and perform proper field techniques. Some laboratory work may be involved. This course is offered during the summer session and may be taken for a maximum of eight credits. Additional course fee applies. Prerequisites: ANTH 219 or instructor permission.

### ANTH 492. Independent Study. (1-4 Credits)

### ANTH 497. Special Topics. (1-6 Credits)

## Anthropology Major: Standard Program

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 38 credits is required:

Code	Title	Credits
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ANTH 218	Physical Anthropology (with laboratory)	4
ANTH 219	Archaeology (with laboratory)	4
ANTH 230	Cultural Anthropology (with laboratory)	4
ANTH 465	Senior Research Seminar	3
Anthropology Electives		13
MATH 113	Statistical Thinking (GT-MA1)	3
Select one of the following field and laboratory courses:		4
ANTH 322	Analysis of Material Culture (with laboratory)	
ANTH 467	Ethnography Field School <sup>1</sup>	
ANTH 469	Archaeology Field School <sup>1</sup>	
Total Credits		38

<sup>1</sup> ANTH 467 Ethnography Field School and ANTH 469 Archaeology Field School may be repeated for eight credits.

## Capstone Course Requirement

The following course in the Anthropology Major fulfills the capstone course requirement: ANTH 465 Senior Research Seminar.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Anthropology Minor

A minimum of 18 credits, including:

Code	Title	Credits
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
Anthropology Electives <sup>1</sup>		7
Select two of the following:		8
ANTH 218	Physical Anthropology (with laboratory)	
ANTH 219	Archaeology (with laboratory)	
ANTH 230	Cultural Anthropology (with laboratory)	
Total Credits		18

<sup>1</sup> ANTH 467 Ethnography Field School and ANTH 469 Archaeology Field School may be repeated for eight credits.

## Art (ART)

The Western Colorado University Department of Art offers degree programs in multiple emphases that are grounded in the fundamentals of art and design. Western Art students are fully prepared to pursue advanced studies leading to a variety of careers.

This training begins with comprehensive Foundations classes in drawing, two-dimensional design and three-dimensional design. During this first year, students document their university artwork and produce professional portfolios to submit for formal admittance into the Art program.

In their sophomore year, formally-admitted Art students begin to specialize in their emphasis: Painting, Photography, Printmaking, Ceramics, Jewelry, Sculpture, Graphic Design, K-12 Art Education Licensure, Art History. Art majors and minors also take courses in other areas of interest. Degree-seeking Art students additionally have access to two computer labs with digital industry-standard facilities.

Students majoring in Art may select either a Bachelor of Arts or Bachelor of Fine Arts degree.

The Bachelor of Arts degree is designed for the qualified student intending to graduate with a liberal arts background with an in-depth emphasis in Art. The Bachelor of Arts Degree consists of a Standard Major, or a Comprehensive Major which allows students to specialize in Studio Art (2-D: Painting, Photography, Printmaking; or 3-D: Ceramics,

Jewelry, Sculpture), Graphic Design, K-12 Education licensure, and Art History.

The Bachelor of Fine Arts Degree is designed for the qualified student intending to become a professional artist or to pursue graduate study in Art, and is a Comprehensive Major specializing students in Painting, Photography, Printmaking, Ceramics, Jewelry, Sculpture, and Graphic Design.

In their senior year, Art majors exhibit their senior show in the Quigley Gallery, or present their senior art history thesis.

## Formal Admission to the Art Program

Students declare a major or minor in Art to enter into their first year in the program. Students apply for formal admission to the Art program when they have completed most of their Foundation requirements. All degree-seeking students who wish to major or minor in Art must be formally admitted to the Art program in order to take sophomore and upper level Art courses.

To be formally admitted to the Art Program, a student must:

1. submit an application for admission;
2. have demonstrated a minimum competency by completing the following courses with a minimum grade of "C":

Code	Title	Credits
ART 000	Exhibition and Convocation Attendance (Completed two semesters with a Satisfactory grade)	0
ART 119	Foundation Drawing I	3
ART 120	Foundation Drawing II	3
ART 171	Foundation Design: Two-Dimensional	3
ART 172	Foundation Design: Three-Dimensional	3

3. submit a portfolio of recent art work;
4. submit a current transcript which shows an overall grade-point average of 2.000.

All majors must have an overall grade-point average of 2.500 or above in order to graduate.

- Art Bachelor of Arts Degree (p. 29)
  - Art Major: Standard Program (p. 29)
  - Art Comprehensive Major: Studio Art Emphasis (p. 30)
  - Art Comprehensive Major: Graphic Design Emphasis (p. 32)
  - Art Comprehensive Major: K-12 Art Education Licensure Emphasis (p. 34)
  - Art Comprehensive Major: K-12 Art Education Licensure Emphasis (with a 3+2 Master of Arts) (<https://catalog.western.edu/undergraduate/programs/art/art-ba/art-comprehensive-k-12-art-education-licensure-3-2/>)
  - Art Comprehensive Major: Art History and Theory Emphasis (p. 36)
  - Art History Emphasis (with a 3+2 Master of Arts in Gallery and Museum Management) (<https://catalog.western.edu/undergraduate/programs/art/art-ba/art-history-3-2-mgmm/>)
- Art Bachelor of Fine Arts Degree (p. 40)
  - Design Art: Graphic Design Emphasis (p. 40)
  - Three-Dimensional Art: Ceramics Emphasis (p. 42)
  - Three-Dimensional Art: Jewelry Emphasis (p. 44)

- Three-Dimensional Art: Sculpture Emphasis (p. 45)
- Two-Dimensional Art: Painting Emphasis (p. 47)
- Two-Dimensional Art: Photography Emphasis (p. 49)
- Two-Dimensional Art: Printmaking Emphasis (p. 50)
- Art Minor (p. 52)
- Web Design and Development Minor (p. 52)

## Capstone Course Requirement

The following course in the Art Major fulfills the capstone course requirement: ART 400 Artist's Portfolio/Senior Exhibition.

## Art Courses

### ART 000. Exhibition and Convocation Attendance. (0 Credits)

Monthly or bi-monthly department gatherings for presentations by exhibiting artists and scholars, or workshops, which enable students to develop their own work and their understanding of the discipline of art. Art majors are required to register for and attend Art 000 every semester of enrollment towards their Art degree; minimum 6 semesters of Satisfactory grade. Graded Satisfactory/Unsatisfactory only.

### ART 105. Introduction to Art (GT-AH1). (3 Credits)

An introduction to the visual arts, including consideration of the fundamentals of art making, artistic practice, design, art history, analysis, and interpretation. Students engage with art through a combination of lectures, demonstrations, gallery-based exercises, and/or hands-on studio projects. (Course does not count toward the Art major or minor.) GT-AH1

### ART 119. Foundation Drawing I. (3 Credits)

A foundation course in drawing with special attention to line, value, perspective, texture, and shape. Landscape, still life, and other forms are used as subject matter. The visual elements and principles of organization in relationship to perceiving both flat and illusionary space are explored. Black and white media are exclusively practiced. Prerequisite: Art major or minor status.

### ART 120. Foundation Drawing II. (3 Credits)

A foundation course in drawing, placing emphasis on composition. The study of the essential aspects of drawing (such as gesture, contour, proportions, anatomy, structure, textural surface, and articulation) and their synthesis into a coherent drawing attitude. Included in this course is the introduction of drawing the life form and color. Prerequisite: ART 119.

### ART 171. Foundation Design: Two-Dimensional. (3 Credits)

An introduction to design organization with an emphasis on the exploration of line, value, texture, shape, and color. Prerequisite: Art major or minor status.

### ART 172. Foundation Design: Three-Dimensional. (3 Credits)

A foundation course in design organization with emphasis on the exploration of mass, texture, process, and techniques in the three-dimensional area. Tools and materials are explored. Prerequisite: Art major or minor status.

### ART 197. Special Topics. (1-6 Credits)

### ART 203. Introduction to Ceramics. (3 Credits)

An introduction to the basic techniques and processes of ceramics: pinch, coil, slab, and some wheelwork. Prerequisites: ART 120, ART 171, and ART 172.

### ART 222. Art History I. (3 Credits)

A survey of western and non-western art from approximately 30,000 years ago to the 14th century. Works of art and architecture are examined within the cultural and historic context for art-making through world human history. Prerequisite: ENG 102 with a minimum grade of "C", and sophomore or higher status, or instructor permission.

### ART 223. Art History II. (3 Credits)

A survey of western and non-western art from approximately the 14th century to the present. Works of art and architecture are examined within the cultural and historic context for art-making through world human history. Prerequisite: ENG 102 with a minimum grade of "C", and sophomore or higher status, or instructor permission.

### ART 230. Introduction to Sculpture. (3 Credits)

An introduction to the various processes of sculpture: carving, modeling, and casting. Aesthetic qualities and craftsmanship of the sculptural forms are emphasized. Prerequisites: ART 120, ART 171, and ART 172.

### ART 235. Introduction to Jewelry. (3 Credits)

An introduction to the creative use of silver and precious gemstones in the making of jewelry. Design and craftsmanship are emphasized. Prerequisites: ART 120, ART 171, and ART 172.

### ART 246. Introduction to Photography. (3 Credits)

An introduction to contemporary photographic technique incorporating traditional black-and-white analogue photography alongside digital photographic practice and procedure. Lectures introduce topic areas that the student must exercise in lab sessions. Students must supply their own quality 35mm or 120mm camera. Prerequisites: ART 120, ART 171, and ART 172.

### ART 257. Introduction to Printmaking. (3 Credits)

An introduction to the basic techniques of printmaking including lithography, woodcut, etching, and the collagraph. Emphasis is on the traditional approaches in printmaking. Prerequisites: ART 120, ART 171, and ART 172.

### ART 270. Introduction to Graphic Design and Illustration. (3 Credits)

An introductory course utilizing the basic fundamentals of art in a broad base of commercial applications. Design in the areas of corporate identity, packaging, illustration, and typography are explored. Illustration, new techniques, materials, and tools used by the designer are emphasized. Prerequisites: ART 120, ART 171, and ART 172; or ART 171 with a declared minor in Web Design and Development.

### ART 271. Calligraphy/Typography. (3 Credits)

A study of individual letter forms as design elements that relate to user interface, experience and visual communication. Students can apply skills learned in this class in other areas including interaction and web design. Prerequisites: ART 120, ART 171, and ART 172; or ART 171 and a declared minor in Web Design and Development.

### ART 280. Introduction to Painting. (3 Credits)

An introduction to oil painting, using basic tools, materials, techniques, and the development of compositional methods. Prerequisites: ART 120, ART 171, and ART 172.

### ART 283. Introduction to Airbrush. (3 Credits)

Introduction to the use of the airbrush as a tool for painting, drawing, and design. Multiple use of the tool within traditional and non-traditional directions, as well as tool maintenance, are stressed. Prerequisites: ART 120, ART 171, and ART 172

### ART 286. Introduction to Watercolor. (3 Credits)

An introduction to both the traditional and contemporary methods of watercolor. The various watercolor media are explored. Prerequisites: ART 120, ART 171, and ART 172.

**ART 297. Special Topics. (1-6 Credits)****ART 303. Intermediate Ceramics. (3 Credits)**

An exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 203.

**ART 319. Intermediate Drawing. (3 Credits)**

A study of figure drawing with an emphasis on structure, figure compositions, and portrait studies from the model using various drawing media and techniques. Prerequisite: ART 120.

**ART 321. American Art: Colonial to Modern. (3 Credits)**

A survey of the arts of America from the 17th century to the present. Emphasis is placed on uniquely American innovations and expressions, regional distinctions in American art, with a strong component in art of the American West; significant individual artists and trends; and the arts of the many diverse peoples that comprise America. Prerequisite: junior standing or instructor permission.

**ART 324. Art Criticism and Critical Theory in Contemporary Art. (3 Credits)**

A survey of contemporary art and art practices through the discipline of art criticism. This seminar course prepares students for senior-level courses and advanced studies in art and art history at the graduate level. A survey of modern and contemporary art since the midtwentieth century is followed by seminar presentations on selected readings. Prerequisites: ART 222 and ART 223.

**ART 325. Women Artists. (3 Credits)**

A survey of women artists and their work from the 16th century (Renaissance) to contemporary times. The contributions of women artists and the changing roles of women in the western tradition of the visual arts are examined within relevant historical, political, social, theoretical, and gender contexts. Prerequisite: junior standing or instructor permission.

**ART 330. Intermediate Sculpture. (3 Credits)**

An exploration of the expressive possibilities of individual sculpture direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 230.

**ART 335. Intermediate Jewelry. (3 Credits)**

Designed for exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 235.

**ART 346. Intermediate Photography. (3 Credits)**

An intermediate course that explores the expressive possibilities of individual photography direction with an emphasis placed on digital photographic practices and principles. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 246.

**ART 357. Intermediate Printmaking. (3 Credits)**

An exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 257.

**ART 370. Intermediate Graphic Design. (3 Credits)**

An exploration of digital technology as it relates to visual communications in print, and interactive based design. Students will develop an understanding of design terminology, language and process related to current user interaction applications. Prerequisite: ART 270.

**ART 375. Intermediate Magazine Production. (3 Credits)**

An integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART370 and instructor permission.

**ART 380. Intermediate Painting. (3 Credits)**

An exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 280.

**ART 386. Intermediate Watercolor. (3 Credits)**

Designed for exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 286.

**ART 390. Workshop in Art. (3 Credits)**

A review and critique of advanced problems in art: two-dimensional, three-dimensional, or design. May be repeated for a maximum of nine credits (three per semester). Prerequisites: junior or senior status and instructor permission. Students must have completed 300-level course in their chosen emphasis.

**ART 392. Directed Study. (1-6 Credits)****ART 397. Special Topics. (1-6 Credits)****ART 398. Field Study in Art. (1 Credit)**

A 7-10 day course offered at differing national or international sites by Art faculty. Field study classes offer a variety of educational experiences, including workshops, museum/gallery/artist studio visits, study of art historically significant sites, in combination with course lectures and assignments. May be taken up to three times for credit as an Art elective by Art majors or minors. Prerequisite: students must have taken minimally one university-level Art course.

**ART 400. Artist's Portfolio/Senior Exhibition. (3 Credits)**

A Capstone Course in which students develop a portfolio of recent work which enhances preparation for the Senior Exhibition, a career in art, gallery representation, or application to graduate school. Prerequisite: senior standing.

**ART 403. Advanced Ceramics I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 303.

**ART 404. Advanced Ceramics II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 403.

**ART 405. Advanced Ceramics III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 403.

**ART 419. Advanced Drawing. (3 Credits)**

An advanced study in figure drawing with emphasis on the figure, expanding visual awareness by developing control of drawing as a tool for research and invention. Problems progress from simple structural analysis to more sophisticated exploration of subject matter, and finally to individual interpretation. Prerequisite: ART 319 and B.F.A. candidate.



**ART 421. Art of Mesoamerica and the Andean of South America. (3 Credits)**

A survey of the arts of the Pre-contact civilizations in Middle America and the Andes. The art and architecture of these ancestral peoples are examined within their cultural contexts. Prerequisite: junior standing or instructor permission.

**ART 422. Native American Art of North America. (3 Credits)**

A survey of the arts of the indigenous (First Nations) civilizations of North America, from antiquity to the present era. The art and architecture of these peoples and artists are examined contextually. Prerequisite: minimum junior standing or instructor permission.

**ART 424. Modern Art History, Aesthetics, Theory, and Criticism. (3 Credits)**

An exploration of trends and developments in the Western tradition of the visual arts from the mid-nineteenth century to the present, considering Modernism, Post-Modernism, and recent tendencies. The visual arts of these periods are viewed through the lens of theories and ideas that have powered change in Western art, including current revisionist and theoretical considerations in Art and Art History. Prerequisite: minimum junior standing or instructor permission.

**ART 430. Advanced Sculpture I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 330.

**ART 431. Advanced Sculpture II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 430.

**ART 432. Advanced Sculpture III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 431.

**ART 435. Advanced Jewelry I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 335.

**ART 436. Advanced Jewelry II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 435.

**ART 437. Advanced Jewelry III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 436.

**ART 446. Advanced Photography I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 346.

**ART 447. Advanced Photography II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 446.

**ART 448. Advanced Photography III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 447.

**ART 457. Advanced Printmaking I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 357.

**ART 458. Advanced Printmaking II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 457.

**ART 459. Advanced Printmaking III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 458.

**ART 470. Advanced Design and Illustration I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 370.

**ART 471. Advanced Design and Illustration II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 470.

**ART 472. Advanced Design and Illustration III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 471.

**ART 475. Advanced Magazine Production I. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 375 and instructor permission.

**ART 476. Advanced Magazine Production II. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 475 and instructor permission.

**ART 477. Advanced Magazine Production III. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 476 and instructor permission.

**ART 480. Advanced Painting I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisites: ART 380.

**ART 481. Advanced Painting II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 480.

**ART 482. Advanced Painting III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 481.



**ART 486. Advanced Watercolor I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisites: ART 386.

**ART 487. Advanced Watercolor II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 486.

**ART 488. Advanced Watercolor III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 487.

**ART 490. Workshop in Art. (3 Credits)**

A review and critique of advanced problems in art: two-dimensional, three-dimensional, or design. May be repeated for a maximum of nine credits (three credits per semester). Prerequisites: senior standing and instructor permission. Students must have completed a 400-level course in chosen emphasis.

**ART 491. Seminar in Art. (3 Credits)**

An investigation and evaluation of contemporary topics in art. Students are exposed to artistic expression through visiting artist programs, exhibitions, and workshops. Students develop individual research topics. Prerequisites: B.F.A. candidate and senior standing.

**ART 492. Directed Study. (1-6 Credits)**

Individualized instruction for advanced students who have taken all the courses in a particular art area and wish to pursue the area further. Prerequisite: junior or senior status with at least 15 credits in Art.

**ART 497. Special topics. (1-6 Credits)****ART 499. Internship in Art. (1-12 Credits)**

Supervised practical experiences in art for advanced students. With faculty approval, credit earned in this course may be applied to the Major or Minor in Art. Prerequisite: instructor permission.

## Art Bachelor of Arts Degree Program Requirements

All majors require a total of 24 credits of Art Foundation Courses in addition to specific Art emphasis course requirements. A senior exhibition or an art history senior thesis is required of all majors. A quality representation of the student's artwork from their junior and senior years is used for the senior exhibition.

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0

ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

## Art Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 36 credits is required, including the 24-credit Art Foundation Courses and 12 credits of Art electives (nine credits must be at the 300- or 400 -level).

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematic: for the Liberal Arts (GT-MA1)	3
Gen Ed/Minor	General Education or Minor course	3
		<b>Credits</b>
		<b>16</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed/Minor	General Education or Minor course	6
Credits		15
<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intro Studio Art Course	3
ART 222	Art History I	3
Gen Ed/Minor	General Education or Minor course	9
Credits		15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intermediate Studio Course	3
Gen Ed/Minor	General Education or Minor course	9
ART 223	Art History II	3
Credits		15
<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intro/Advanced Studio Art Course	3
ART 319	Intermediate Drawing	3
Gen Ed/Minor	General Education or Minor course	9
Credits		15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
Intermediate/Advanced Studio Art Course		3

Gen Ed/Minor	General Education or Minor course	12
Credits		15
<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 400	Artist's Portfolio/Senior Exhibition	3
Intro/Advanced Studio Art Course		3
ART/Minor	ART Elective or Minor course	3
Gen Ed/Minor	General Education or Minor course	6
Credits		15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
Intermediate/Advanced Studio Art Course		3
ART/Minor	ART Elective or Minor course	3
Gen Ed/Minor	General Education or Minor course	9
Credits		15
Total Credits		121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Art Comprehensive Major: Studio Art Emphasis

### Program Requirements

#### Painting, Photography, Printmaking, Ceramics, Jewelry, and/or Sculpture

A minimum of 54 credits is required, including the 24-credit Art Foundation Courses, 24 credits of Art electives (nine credits must be at the 300- or 400-level), and six credits of non-art supporting courses selected in consultation with an Art advisor.

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART	Intro Studio Art Course	6
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART	Intermediate Studio Course	6
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART	Intro/Advanced Studio Art Course	3
Elective	Supporting Non-Art course	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intermediate Advanced Studio Course	6
Elective	Supporting Non-Art course	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intro/Advanced Studio Art Course	12

ART 400	Artist's Portfolio/ Senior Exhibition	3
	Credits	15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intermediate/Advanced Studio Course	9
ART	Intro/Advanced Art course	6
	Credits	15
	Total Credits	121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Art Comprehensive Major: Graphic Design Emphasis

### Program Requirements

A minimum of 54 credits is required, including the 24-credit Art Foundation Courses, three credits of Art electives, three credits of non-art supporting courses selected in consultation with an Art advisor:

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
ART 319	Intermediate Drawing	3
Total Credits		24

And the following 24 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 246	Introduction to Photography	3
ART 257	Introduction to Printmaking	3
ART 270	Introduction to Graphic Design and Illustration	3
ART 283	Introduction to Airbrush	3
<b>Spring Offerings</b>		
ART 370	Intermediate Graphic Design	3
ART 271	Calligraphy/Typography	3
<b>Offered both Fall and Spring</b>		
ART 470	Advanced Design and Illustration I	3
ART 471	Advanced Design and Illustration II	3
Total Credits		24

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematic: for the Liberal Arts (GT-MA1)	3
Gen Ed	General Education	3
		Credits
		16

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
		Credits
		15

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3

ART 246 or ART 257 or ART 280	Introduction to Photography or Introduction to Printmaking or Introduction to Painting	3
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ART 270	Introduction to Graphic Design and Illustration	3
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Gen Ed	General Education	6
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	Credits	15
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**Spring**

ART 000	Exhibition and Convocation Attendance	0
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ART 223	Art History II	3
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ART 271	Calligraphy/ Typography	3
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ART 370	Intermediate Graphic Design	3
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ART	Intermediate ART Elective	3
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Gen Ed	General Education	3
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	Credits	15
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**Year Three**

**Fall**

ART 000	Exhibition and Convocation Attendance	0
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ART 470 or ART 471	Advanced Design and Illustration I or Advanced Design and Illustration II	3
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ART 246 or ART 257 or ART 280	Introduction to Photography or Introducti to Printmak or Introducti to Painting	3
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ART	Intro ART Elective	3
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Elective	Supporting non-Art course	3
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Gen Ed	General Education	3
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	Credits	15
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<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 319	Intermediate Drawing	3
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ART 471 or ART 470	Advanced Design and Illustration II or Advanced Design and Illustration I	3
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ART	Intermediate Advanced ART Elective	6
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Elective	Supporting non ART course	3
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	Credits	15
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**Year Four**

**Fall**

ART 000	Exhibition and Convocation Attendance	0
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ART 246 or ART 257 or ART 280 or ART 319 or ART 470 or ART 471	Introduction to Photography or Introducti to Printmak or Introducti to Painting or Intermed Drawing or Advance Design and Illustrati I or Advance Design and Illustrati II	3
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ART 400	Artist's Portfolio/ Senior Exhibition	3
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ART	Intro/ Intermediate Advanced ART Elective	3
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ART	Intermediate/ Advanced ART Elective	6
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	Credits	15
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Spring			
ART 000	Exhibition and Convocation Attendance	0	
ART 470 or ART 471 or ART 319	Advanced Design and Illustration I or Advance Design and Illustration II or Intermed Drawing	3	
ART	Intermediate/Advanced ART Elective	12	
	Credits	15	
	Total Credits	121	

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Art Comprehensive Major: K- 12 Art Education Licensure Emphasis

### Program Requirements

This program provides students with Art content coursework necessary to earn the State of Colorado License in Art Education for K-12 teaching. Specific Education courses which are also required for Art Education Licensure are arranged through the Education Department (see description under Education).

A minimum of 48 credits is required, including the 24-credit Art Foundation Courses:

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0

ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

And the following 24 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 203	Introduction to Ceramics	3
ART 230	Introduction to Sculpture	3
ART 235	Introduction to Jewelry	3
ART 257	Introduction to Printmaking	3
ART 280	Introduction to Painting	3
ART 283	Introduction to Airbrush	3
<b>Spring Offerings</b>		
Select two of the following:		6
ART 271	Calligraphy/Typography	
ART 303	Intermediate Ceramics	
ART 330	Intermediate Sculpture	
ART 357	Intermediate Pintmaking	
ART 380	Intermediate Painting	
<b>Total Credits</b>		<b>24</b>

It is recommended that students majoring in the Art Education Licensure Emphasis include COM 119 Introduction to Film, and MUS 140 Introduction to Music (GT-AH1), in their General Education Liberal Arts Area III electives.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematic: for the Liberal Arts (GT-MA1)	3
Gen Ed	General Education	3
		<b>Credits</b> 16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3



COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART	Intro Studio Art Elective	6
EDUC 000	Education Gateway Course	0
Gen Ed	General Education	6
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART	Intermediate Studio Art Elective	6
Gen Ed	General Education	6
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART	Intro Studio Art Elective	6
Gen Ed	General Education	3
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intermediate Studio Art Elective	9
Gen Ed	General Education	6
		Credits 15

<b>Year Four</b>		
<b>Fall</b>		
EDUC 340	Application of Pedagogy and Practice	3
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 409	Secondary Student Teaching	3
		Credits 15
<b>Spring</b>		
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 409	Secondary Student Teaching	3
EDUC 410	K-12 Student Teaching	3
EDUC 420	Application of Classroom Strategies to Engage All Learners	3
EDUC 424	Differentiated Applying Learner-Centered Instruction	3
		Credits 15
		Total Credits 121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

# Art Comprehensive Major: Art History and Theory Emphasis

## Program Requirements

A minimum of 54 credits is required, including the 24 credits of Art Foundation Courses, six credits of Art electives, six credits of non-art supporting courses selected in consultation with an Art History advisor:

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

And the following 18 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 324	Art Criticism and Critical Theory in Contemporary Art	3
ART 421	Art of Mesoamerica and the Andean of South America <sup>1</sup>	3
ART 422	Native American Art of North America <sup>1</sup>	3
<b>Spring Offerings</b>		
ART 321	American Art: Colonial to Modern <sup>1</sup>	3
ART 325	Women Artists <sup>1</sup>	3
ART 424	Modern Art History, Aesthetics, Theory, and Criticism	3
<b>Total Credits</b>		<b>18</b>

<sup>1</sup> Offered every other year.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3

ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART	Intro Art Elective	3
Gen Ed	General Education	9
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART 319	Intermediate Drawing	3
Gen Ed	General Education	9
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intro Art Elective	3
ART 324	Art Criticism and Critical Theory in Contemporary Art	3

ART 421 or ART 422	Art of Mesoameric and the Andean of South America or Native America Art of North America	3
ART/Minor	ART or Minor related Elective	6

Credits 15

**Spring**

ART 000	Exhibition and Convocation Attendance	0
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ART 321 or ART 325	American Art: Colonial to Modern or Women Artists	3
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ART 424	Modern Art History, Aesthetics, Theory, and Criticism	3
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ART/Minor	ART or Minor related Elective	6
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Elective	Non ART Elective	3
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Credits 15

**Year Four**

**Fall**

ART 000	Exhibition and Convocation Attendance	0
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ART 400	Artist's Portfolio/ Senior Exhibition	3
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ART/Minor	ART or Minor related Elective	9
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Elective	Non ART Elective	3
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Credits 15

**Spring**

ART 000	Exhibition and Convocation Attendance	0
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ART 422 or ART 421	Native American Art of North America or Art of Mesoamerica and the Andean of South America	3
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ART/Minor	ART or Minor related Elective	12
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Credits 15

Total 121

Credits

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Art History Emphasis (with a 3+2 Master of Arts in Gallery and Museum Management)

The Art History Comprehensive Emphasis allows students to complete the B.A. in ART (Art History and Theory) and the Master in Gallery Management and Exhibits Specialization at Western in five years. To remain qualified for the 3+2 Concurrent Degree Program, at the end of the junior year in the major, each student must have:

- maintained a 3.0 cumulative GPA, and 3.0 within the emphasis in the major;
- completed two junior and two senior art history classes, having earned a B or above in each course;
- begun their senior art history thesis (which will be used as their writing sample);
- provided three letters of recommendation, at least one of which is to be an academic reference from the student's major at Western, and one of which is preferably professional;
- written an 800-100 word Personal Statement to the MGES program, detailing early career ambitions and ideas/connections for the eventual Master's Capstone project.

Upon satisfactory completion of these requirements, students will be designated as "MGES candidates with provisional acceptance." Upon completion of the final undergraduate credits of the Western B.A. after Year Four of this plan, students will be designated as "MGES degree seeking students." Students who have completed all other requirements of the 3+2 Concurrent Degree Program and all Western undergraduate requirements, yet choose to leave the MGES program before Year Five, will still have completed the ART undergraduate emphasis in Art History and have earned 120 credits necessary for a Western undergraduate degree.

A minimum of 54 credits is required, including the 24 credits of Art Foundation Courses:

Code	Title	Credits
<b>Art Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 400	Artist's Portfolio/Senior Exhibition	3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
ART 319	Intermediate Drawing	3
<b>Total Credits</b>		<b>24</b>

Six credits of Art electives, six credits of non-Art supporting courses selected in consultation with an Art History advisor, and the following 18 credits:

Code	Title	Credits
Six credits of ART electives		6
Six credits of non-ART supporting courses (selected in consultation with an Art History Advisor)		6
<b>Fall offerings</b>		
ART 324	Art Criticism and Critical Theory in Contemporary Art	3
ART 421	Art of Mesoamerica and the Andean of South America <sup>1</sup>	3
ART 422	Native American Art of North America <sup>1</sup>	3
<b>Spring offerings</b>		
ART 321	American Art: Colonial to Modern <sup>1</sup>	3
ART 325	Women Artists <sup>1</sup>	3
ART 424	Modern Art History, Aesthetics, Theory, and Criticism	3
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> These courses are only offered every other year.

Code	Title	Credits
<b>Year Four MGMM courses</b>		
MGMM 600	Orientation and Practicum	3
MGMM 601	Exhibition Principles I	3
MGMM 602	Exhibition Principles II	3

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MGES must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the MGES program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/gallery-management-exhibits/>).

### Major: B.A. in Art – Art History AND M.A. IN GALLERY & MUSEUM MANAGEMENT (3+2 Concurrent Degree Program)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
Gen Ed	Area I	6
HWTR 100	First Year Seminar	1
MATH 113	Statistical Thinking (GT-MA1)	3
		<b>Credits</b> 16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Area I	6
		<b>Credits</b> 15
<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART	ART 200 level elective	3
Gen Ed	Area II (w/lab)	4
Gen Ed	Area III	3
Elective	Elective course	3
		<b>Credits</b> 16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3

ART 321 or ART 325	American Art: Colonial to Modern or Women Artists	3
ART	ART 300 level elective	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Area III	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART 324	Art Criticism and Critical Theory in Contemporary Art	3
ART 421 or ART 422	Art of Mesoameric and the Andean of South America or Native American Art of North America	3
Elective	Elective course	7
		Credits 16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 321 or ART 325	American Art: Colonial to Modern or Women Artists	3
ART 400	Artist's Portfolio/ Senior Exhibition	3
Elective	Elective course	3
Elective	Upper Division Elective	3
Gen Ed	Area III	3
		Credits 15

<b>Summer</b>		
MGMM 600	Orientation and Practicum	3
		Credits 3
<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 421 or ART 422	Art of Mesoamerica and the Andean of South America or Native American Art of North America	3
Elective	Upper Division Elective	6
MGMM 601 or MGMM 612	Exhibition Principles I or Business Principles I	3
		Credits 12
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 424	Modern Art History, Aesthetics, Theory, and Criticism	3
Elective	Upper Division Elective	6
MGMM 602 or MGMM 613	Exhibition Principles II or Business Principle II	3
		Credits 12
		Total 120
		Credits

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.



## Art Bachelor of Fine Arts Degree Program Requirements

To receive and maintain Bachelor of Fine Arts (B.F.A.) in Art candidate status each semester, students must continuously create artwork outside of course assignments that exhibits the highest quality and creativity. When students receive B.F.A. in Art candidate status, they must report to their advisor for continuance in the program. The advisor is responsible for critiques, guidance, and assistance in the completion of the senior exhibition.

At the completion of the B.F.A. Foundation Program, students' portfolios should demonstrate the criteria identified by the Art faculty and B.F.A. acceptance form. The review committee will identify students' portfolios that reflect Bachelor of Fine Arts in Art degree potential.

Students wishing to apply for candidacy to the Bachelor of Fine Arts in Art Program must: apply no earlier than the spring of their sophomore year and no later than the fall of their junior year, present a portfolio of recent art works, specify an emphasis of study, be in good academic standing, and have completed the following courses with a minimum grade of "C":

Code	Title	Credits
ART 119	Foundation Drawing I	3
ART 120	Foundation Drawing II	3
ART 171	Foundation Design: Two-Dimensional	3
ART 172	Foundation Design: Three-Dimensional	3

All Bachelor of Fine Arts in Art Majors require the 36-credit BFA Foundation Courses. All Art courses must be selected in consultation with an Art advisor.

A senior exhibition is required of all majors. A quality representation of students' artwork from the junior and senior years is used for the senior exhibition.

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

## Design Art: Graphic Design Emphasis Program Requirements

A minimum of 63 credits is required, including the 36-credit BFA Foundation Courses:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And the following 27 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 246	Introduction to Photography	3
ART 257	Introduction to Printmaking	3
ART 270	Introduction to Graphic Design and Illustration	3
ART 271	Calligraphy/Typography	3
<b>Spring Offerings</b>		
ART 370	Intermediate Graphic Design	3
<b>Offered both Fall and Spring</b>		
ART 375	Intermediate Magazine Production (one semester required)	3
ART 470	Advanced Design and Illustration I	3
ART 471	Advanced Design and Illustration II	3
ART 472	Advanced Design and Illustration III	3
<b>Total Credits</b>		<b>27</b>
<b>Course</b>	<b>Title</b>	<b>Credits</b>
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3

ART 171	Foundation Design: Two-Dimensional	3	
ENG 102	Academic Writing (GT-CO1)	3	
HWTR 100	First Year Seminar	1	
MATH 105	Mathematic: for the Liberal Arts (GT-MA1)	3	
Gen Ed	General Education	3	
		Credits	16
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 120	Foundation Drawing II	3	
ART 172	Foundation Design: Three-Dimensional	3	
COM 202	Academic Writing and Inquiry (GT-CO2)	3	
Gen Ed	General Education	6	
		Credits	15
<b>Year Two</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 222	Art History I	3	
ART 246 or ART 257	Introduction to Photography or Introduction to Printmaking	3	
ART 270	Introduction to Graphic Design and Illustration	3	
Gen Ed	General Education	6	
		Credits	15
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 223	Art History II	3	
ART 271	Calligraphy/Typography	3	
ART 370	Intermediate Graphic Design	3	

Gen Ed	General Education	6	
		Credits	15
<b>Year Three</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 257 or ART 246	Introduction to Printmaking or Introduction to Photography	3	
ART 375	Intermediate Magazine Production	3	
ART	Intro ART Elective	6	
Gen Ed	General Education	3	
		Credits	15
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 319	Intermediate Drawing	3	
ART 470	Advanced Design and Illustration I	3	
ART	300-400 level Art History course	3	
ART	Intermediate ART Elective	3	
Gen Ed	General Education	3	
		Credits	15
<b>Year Four</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 400	Artist's Portfolio/Senior Exhibition	3	
ART 471	Advanced Design and Illustration II	3	
ART 491	Seminar in Art	3	
ART	Intro/Advanced ART Elective	6	
		Credits	15

Spring		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART 472	Advanced Design and Illustration III	3
ART	300-400 level Art History course	3
ART	Intermediate Advanced ART Elective	6
Credits		15
Total Credits		121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Three-Dimensional Art: Ceramics Emphasis

### Program Requirements

A minimum of 63 credits is required, including the 36-credit BFA Foundation Courses, six credits of Art electives:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		

ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
Total Credits		36

And the following 21 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 203	Introduction to Ceramics	3
ART 230	Introduction to Sculpture	3
ART 235	Introduction to Jewelry	3
<b>Spring Offerings</b>		
ART 303	Intermediate Ceramics	3
<b>Offered both Fall and Spring</b>		
ART 403	Advanced Ceramics I	3
ART 404	Advanced Ceramics II	3
ART 405	Advanced Ceramics III	3
Total Credits		21

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
Credits		16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
Credits		15

<b>Year Two</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 203	Introduction to Ceramics	3	
ART 222	Art History I	3	
ART 230 or ART 235	Introduction to Sculpture or Introduction to Jewelry	3	
ART	Intro ART Elective	3	
Gen Ed	General Education	3	
		Credits	15
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 223	Art History II	3	
ART 370	Intermediate Graphic Design	3	
ART	Intermediate ART Elective	3	
Gen Ed	General Education	6	
		Credits	15
<b>Year Three</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 235 or ART 230	Introduction to Jewelry or Introduction to Sculpture	3	
ART 303	Intermediate Ceramics	3	
ART	Intro/Advanced ART Elective	3	
Gen Ed	General Education	6	
		Credits	15
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 319	Intermediate Drawing	3	
ART 403	Advanced Ceramics I	3	

ART	300-400 level Art History course	3	
ART	Intermediate Advanced ART Elective	3	
Gen Ed	General Education	3	
		Credits	15
<b>Year Four</b>			
<b>Fall</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 400	Artist's Portfolio/Senior Exhibition	3	
ART 404	Advanced Ceramics II	3	
ART 491	Seminar in Art	3	
ART	Intro/Advanced ART Elective	6	
		Credits	15
<b>Spring</b>			
ART 000	Exhibition and Convocation Attendance	0	
ART 405	Advanced Ceramics III	3	
ART 419	Advanced Drawing	3	
ART	300-400 level Art History course	3	
ART	Intermediate/Advanced ART Elective	6	
		Credits	15
		Total Credits	121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

# Three-Dimensional Art: Jewelry Emphasis

## Program Requirements

A minimum of 63 credits is required, including the 36-credit BFA Foundation Courses, six credits of Art electives

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And the following 21 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 203	Introduction to Ceramics	3
ART 230	Introduction to Sculpture	3
ART 235	Introduction to Jewelry	3
<b>Spring Offerings</b>		
ART 335	Intermediate Jewelry	3
<b>Offered both Fall and Spring</b>		
ART 435	Advanced Jewelry I	3
ART 436	Advanced Jewelry II	3
ART 437	Advanced Jewelry III	3
<b>Total Credits</b>		<b>21</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3

ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 203 or ART 230	Introduction to Ceramics or Introduction to Sculpture	3
ART 222	Art History I	3
ART 235	Introduction to Jewelry	3
ART	Intro ART Elective	3
Gen Ed	General Education	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART 370	Intermediate Graphic Design	3
ART	Intermediate ART Elective	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>



**Year Three**

Fall		
ART 000	Exhibition and Convocation Attendance	0
ART 230 or ART 203	Introduction to Sculpture or Introduction to Ceramics	3
ART 335	Intermediate Jewelry	3
ART	Intro/Advanced ART Elective	3
Gen Ed	General Education	6
		Credits 15

Spring		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART 435	Advanced Jewelry I	3
ART	300-400 Art History course	3
ART	Intermediate Advanced ART Elective	3
Gen Ed	General Education	3
		Credits 15

**Year Four**

Fall		
ART 000	Exhibition and Convocation Attendance	0
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 436	Advanced Jewelry II	3
ART 491	Seminar in Art	3
ART	Intro/Advanced ART Elective	6
		Credits 15

Spring		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART 437	Advanced Jewelry III	3

ART	300-400 level Art History course	3
ART	Intermediate/Advanced ART Elective	6
		Credits 15
		Total Credits 121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Three-Dimensional Art: Sculpture Emphasis

### Program Requirements

A minimum of 63 credits is required, including the 36-credit BFA Foundation Courses, six credits of Art electives:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And the following 21 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 203	Introduction to Ceramics	3
ART 230	Introduction to Sculpture	3
ART 235	Introduction to Jewelry	3
<b>Spring Offerings</b>		

ART 330	Intermediate Sculpture	3
<b>Offered both Fall and Spring</b>		
ART 430	Advanced Sculpture I	3
ART 431	Advanced Sculpture II	3
ART 432	Advanced Sculpture III	3
<b>Total Credits</b>		<b>21</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
<b>Credits</b>		<b>16</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 203 or ART 235	Introduction to Ceramics or Introduction to Jewelry	3
ART 222	Art History I	3
ART 230	Introduction to Sculpture	3

ART	Intro ART Elective	3
Gen Ed	General Education	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART 370	Intermediate Graphic Design	3
ART	Intermediate ART Elective	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 235 or ART 203	Introduction to Jewelry or Introduction to Ceramics	3
ART 330	Intermediate Sculpture	3
ART	Intro/Advanced ART Elective	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART 430	Advanced Sculpture I	3
ART	300-400 level Art History course	3
ART	Intermediate Advanced ART Elective	3
Gen Ed	General Education	3
<b>Credits</b>		<b>15</b>

<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 400	Artist's Portfolio/Senior Exhibition	3
ART 431	Advanced Sculpture II	3
ART 491	Seminar in Art	3
ART	Intro/Advanced ART Elective	6
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART 432	Advanced Sculpture III	3
ART	300-400 level Art History course	3
ART	Intermediate/Advanced ART Elective	6
		Credits 15
		Total Credits 121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Two-Dimensional Art: Painting Emphasis

### Program Requirements

A minimum of 63 credits is required including the 36-credit BFA Foundation Courses, six credits of Art electives:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		

ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And 21 credits from the following, which must include 15 credits from one painting medium (painting or watercolor):

Code	Title	Credits
<b>Fall Offerings</b>		
ART 280	Introduction to Painting	3
ART 283	Introduction to Airbrush	3
ART 286	Introduction to Watercolor	3
<b>Spring Offerings</b>		
ART 380	Intermediate Painting	3
ART 386	Intermediate Watercolor	3
<b>Offered both Fall and Spring</b>		
ART 480	Advanced Painting I	3
ART 481	Advanced Painting II	3
ART 482	Advanced Painting III	3
ART 486	Advanced Watercolor I	3
ART 487	Advanced Watercolor II	3
ART 488	Advanced Watercolor III	3
<b>Total Credits</b>		<b>33</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
		Credits 16
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
		Credits 15

**Year Two**

<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART 280	Introduction to Painting	3
ART 286	Introduction to Watercolor	3
ART	Intro ART Elective	3
Gen Ed	General Education	3
		Credits 15

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART 380 or ART 386	Intermediate Painting or Intermed Watercol	3
ART	Intermediate ART Elective	3
Gen Ed	General Education	6
		Credits 15

**Year Three**

<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 480 or ART 486	Advanced Painting I or Advanced Watercolor I	3
ART	Intro ART Elective	3
ART	Intro/Advanced ART Elective	3
Gen Ed	General Education	6
		Credits 15

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
ART 481 or ART 486	Advanced Painting II or Advance Watercol I	3
ART	300-400 level Art History course	3
ART	Intermediate Advanced ART Elective	3
Gen Ed	General Education	3
		Credits 15

**Year Four**

<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 482 or ART 487	Advanced Painting III or Advanced Watercolor II	3
ART 491	Seminar in Art	3
ART	Intro/Advanced ART Elective	6
		Credits 15

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART 488	Advanced Watercolor III	3
ART	300-400 level Art History course	3
ART	Intermediate/Advanced ART Elective	6
		Credits 15
		Total Credits 121

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Two-Dimensional Art: Photography Emphasis

### Program Requirements

A minimum of 63 credits is required including the 36-credit BFA Foundation Courses, six credits of Art electives:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3
ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And the following 21 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 246	Introduction to Photography	3
ART 270	Introduction to Graphic Design and Illustration	3
<b>Spring Offerings</b>		
ART 346	Intermediate Photography	3
ART 370	Intermediate Graphic Design	3
<b>Offered both Fall and Spring</b>		
ART 446	Advanced Photography I	3
ART 447	Advanced Photography II	3
ART 448	Advanced Photography III	3
<b>Total Credits</b>		<b>21</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
		<b>Credits</b>
		<b>16</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
		<b>Credits</b>
		<b>15</b>
<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART 246	Introduction to Photography	3
ART 270	Introduction to Graphic Design and Illustration	3
OR		
ART	Intro ART Elective	
Gen Ed	General Education	6
		<b>Credits</b>
		<b>15</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0



ART 223	Art History II	3
ART 346	Intermediate Photography	3
ART 370	Intermediate Graphic Design	3
OR		
ART	Intermediate ART Elective	
Gen Ed	General Education	6
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART	Intro ART Elective	
OR		
ART 270	Introduction to Graphic Design and Illustration	3
ART 446	Advanced Photography I	3
ART	Intro ART Elective	3
Gen Ed	General Education	6
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319 or ART 370	Intermediate Drawing or Intermed Graphic Design	3
ART 447	Advanced Photography II	3
ART	300-400 level Art History course	3
ART	Intermediate/Advanced ART Elective	3
Gen Ed	General Education	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 400	Artist's Portfolio/Senior Exhibition	3
ART 448	Advanced Photography III	3
ART 491	Seminar in Art	3
ART	300-400 level Art History course	
OR		
ART 319	Intermediate Drawing	3
ART	Intro/Advanced ART Elective	3
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART	300-400 level Art History course	3
ART	Intermedite/Advanced ART Elective	9
		Credits 15
		Total 121
		Credits

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Two-Dimensional Art: Printmaking Emphasis

### Program Requirements

A minimum of 63 credits is required including the 36-credit BFA Foundation Courses, six credits of Art electives:

Code	Title	Credits
<b>BFA Foundation Courses</b>		
<b>Fall Offerings</b>		
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ART 222	Art History I	3
ART 319	Intermediate Drawing	3

ART 400	Artist's Portfolio/Senior Exhibition	3
ART 491	Seminar in Art	3
Art History (300 level)		3
<b>Spring Offerings</b>		
ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
ART 223	Art History II	3
ART 419	Advanced Drawing	3
Art History (400 level)		3
<b>Offered both Fall and Spring</b>		
ART 000	Exhibition and Convocation Attendance (six semesters with "S" grade required)	0
<b>Total Credits</b>		<b>36</b>

And the following 21 credits:

Code	Title	Credits
<b>Fall Offerings</b>		
ART 246	Introduction to Photography	3
ART 257	Introduction to Printmaking	3
<b>Spring Offerings</b>		
ART 357	Intermediate Printmaking	3
<b>Offered both Fall and Spring</b>		
ART 457	Advanced Printmaking I	3
ART 458	Advanced Printmaking II	3
ART 459	Advanced Printmaking III	3
One of the following:		3
ART 280	Introduction to Painting	
ART 286	Introduction to Watercolor	
<b>Total Credits</b>		<b>21</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 119	Foundation Drawing I	3
ART 171	Foundation Design: Two-Dimensional	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education	3
HWTR 100	First Year Seminar	1
MATH 105	Mathematics for the Liberal Arts (GT-MA1)	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 120	Foundation Drawing II	3
ART 172	Foundation Design: Three-Dimensional	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 222	Art History I	3
ART 246 or ART 280 or ART 286	Introduction to Photography or Introduction to Painting or Introduction to Watercolor	3
ART 257	Introduction to Printmaking	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 223	Art History II	3
ART 286	Introduction to Watercolor	3
<b>OR</b>		
ART	Intro ART Elective	
ART 357	Intermediate Printmaking	3
Gen Ed	General Education	6
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0

ART 280 or ART 246 or ART 280	Introduction to Painting or Introduct to Photogr or Introduct to Painting	3
ART 457	Advanced Printmaking I	3
ART	Intro/ Advances ART Elective	6
Gen Ed	General Education	3
		Credits 15
<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319 or ART 286	Intermediate Drawing or Introduct to Watercol	3
ART 458	Advanced Printmaking II	3
ART	300-400 level Art History course	3
ART	Intermediate/ Advanced ART Elective	6
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 319	Intermediate Drawing	3
OR		
ART	300 or 400 level Art History	3
ART	Intro/ Advanced ART Elective	3
ART 400	Artist's Portfolio/ Senior Exhibition	3
ART 459	Advanced Printmaking III	3
ART 491	Seminar in Art	3
		Credits 15

<b>Spring</b>		
ART 000	Exhibition and Convocation Attendance	0
ART 419	Advanced Drawing	3
ART	300-400 level Art History course	3
Intermediate/Advanced Art Elective		9
		Credits 15
		Total 121
		Credits

Courses listed in the Fall are only offered in Fall. Courses listed in the Spring are only offered in the Spring. With the exception of ART 286 Introduction to Watercolor, and ART 271 Calligraphy/Typography and their Intermediate counterparts, Intro classes are exclusively offered in the Fall and Intermediate courses are offered exclusively in the Spring. Advanced offerings are available for all disciplines every semester.

ART 000 Exhibition and Convocation Attendance and ART 319 Intermediate Drawing are offered in both the Fall and the Spring.

## Art Minor

A minimum of 18 credits is required:

Code	Title	Credits
ART 119	Foundation Drawing I	3
ART 120	Foundation Drawing II	3
ART 171	Foundation Design: Two-Dimensional	3
ART 172	Foundation Design: Three-Dimensional	3
Art electives		3
One of the following:		3
ART 222	Art History I	
ART 223	Art History II	
Total Credits		18

## Web Design and Development Minor

A minimum of 24 credits is required:

Code	Title	Credits
ART 171	Foundation Design: Two-Dimensional	3
ART 270	Introduction to Graphic Design and Illustration	3
ART 271	Calligraphy/Typography	3
ART 370	Intermediate Graphic Design	3
CS 160	Introduction to Web Design	3
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 250	Web Applications Development I	3
Total Credits		24

## Biology (BIOL)

The Biology Program provides a comprehensive educational experience consistent with the liberal arts philosophy of the University. The

contemporary curriculum includes hands-on learning through laboratory and field experience. Small classes and low student-to-faculty ratios allow meaningful interaction between biology students and faculty, both in and out of the classroom. Professors advise students' academic scheduling and career options. Students are encouraged to conduct research projects with faculty and to participate in internships with private entities and local agencies.

Biology majors receive broad training in the life sciences leading to a variety of careers. Our graduates pursue entry-level careers in biological research, education, and applied sciences such as wildlife biology, fisheries, and forestry. The Biology Major prepares graduates to succeed in graduate school and professional schools in disciplines such as medicine, dentistry, veterinary medicine, physical therapy, ecology, and wildlife biology. The Program's flexibility allows students to specialize in areas of their interest.

Seven emphases culminating in Bachelor of Science degrees are offered: Wildlife and Conservation Biology, Environmental Biology and Ecology, Pre-Medicine/Cell and Molecular Biology, Pre-Nursing, Pre-Physical Therapy, Secondary (Education) Licensure, and General Biology. Three 5-year accelerated sequence program emphases culminating in Bachelor of Science and Masters degrees are offered: Ecology, Ecology and Environmental Management, and Health Sciences. All majors receive training in fundamental biological principles and in supporting sciences appropriate for each emphasis.

The Wildlife and Conservation Biology Emphasis is recommended for students interested in a career in wildlife ecology or management or in conservation biology. Students graduating with this emphasis may continue their education in graduate programs, obtain entry level positions with state and federal natural resources agencies, work for non-profit conservation organizations, or obtain employment with environmental consulting firms. Students may choose to take all the courses required to meet the educational component for certification through The Wildlife Society.

The Environmental Biology and Ecology Emphasis is recommended for students with career interests in environmental biology including ecology, environmental science, and natural resource management. Students with this emphasis may continue in graduate programs in ecological research.

The Pre-Medicine/Cell and Molecular Biology Emphasis is recommended for students pursuing careers in biotechnology, graduate programs in laboratory biology, and professional school in most health fields, including medicine, veterinary medicine, dentistry, pharmacy, and physician assistantships. Because the admission requirements of these different schools vary greatly, students must consult with their advisors to design a curriculum that meets their professional interests.

The Pre-Nursing Emphasis is designed for students planning to enter professional programs in nursing, medical technology, chiropractics, optometry, physical therapy, and public health. Because the admission requirements of these schools vary greatly, students must consult with their advisors to design a curriculum that meets their professional interests.

The Pre-Physical Therapy Emphasis is designed primarily for students planning to enter a professional program in physical therapy. Pursuit of this emphasis may also prove beneficial for students interested in occupational therapy or sports medicine. Since the admission requirements of healthcare-related professional programs vary greatly,

students must consult with their advisors to design a curriculum that meets their long-term goals.

The Secondary Licensure Emphasis qualifies students for the State of Colorado License in Secondary Science Education.

The General Biology Emphasis is our most flexible major. Students pursuing this emphasis work closely with their academic advisor to select from a variety of upper division elective courses and supporting science courses to create a self-designed major in areas such as botany, zoology, molecular ecology, and integrative biology. This emphasis allows students to integrate the study of structure and function at all levels of biological organization from molecules to ecosystems and across all branches of the tree of life.

The Ecology Emphasis allows students to complete the B.S. in Biology and the Master of Science in Ecology in five years. Students graduating with this emphasis are prepared for professional careers in federal and state natural resource agencies and related organizations and businesses.

The Ecology and Environmental Management Emphasis allows students to complete the B.S. in Biology and the Master in Environmental Management (MEM) in five years. Students graduating with this emphasis are prepared for environmental jobs and to assume constructive roles in local, national, and global communities.

The Health Sciences Emphasis allows students to complete the B.S. in Biology and the Master of Science in High Altitude Exercise Physiology (HAEP) in five years. Students graduating with this emphasis gain more hands-on patient experience, preparing them to enter professional programs in various health fields.

## Program Requirements

The courses listed for each of the following emphases are the minimum requirements. Higher-level supporting courses may be appropriate for students pursuing certain careers. Students should consult with their advisors for proper course selections. All majors require a Capstone Course.

- Biology Comprehensive Major: Environmental Biology and Ecology Emphasis (p. 57)
- Biology Comprehensive Major: General Biology Emphasis (p. 59)
- Biology Comprehensive Major: Pre-Medicine/Cell and Molecular Biology Emphasis (p. 61)
- Biology Comprehensive Major: Pre-Nursing Emphasis (p. 62)
- Biology Comprehensive Major: Pre-Physical Therapy (p. 64)
- Biology Comprehensive Major: Secondary Licensure Emphasis (p. 65)
- Biology Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/biology/biology-comprehensive-secondary-licensure-3-2/>)
- Biology Comprehensive Major: Wildlife and Conservation Biology Emphasis (p. 67)
- Biology Minor (p. 69)
- Ecology and Environmental Management Emphasis (with a 3+2 Master in Environmental Management) (p. 69)
- Ecology Emphasis (with a 3+2 Master of Science in Ecology) (p. 72)

- Health Sciences Emphasis (with a 3+2 Master of Science in High Altitude Exercise Physiology) (p. 75)

## Substitutions

The following substitutions may be used to satisfy biology degree requirements: CHEM 331 Organic Chemistry I, CHEM 332 Organic Chemistry II, CHEM 334 Organic Chemistry Laboratory I, and CHEM 335 Organic Chemistry Laboratory II may be substituted for CHEM 231 Introduction to Organic Chemistry and Biochemistry and CHEM 234 Introductory Organic and Biochemistry Laboratory; PHYS 170 Principles of Physics I (with laboratory) (GT-SC1) and PHYS 171 Principles of Physics II (with laboratory) (GT-SC1) may be substituted for PHYS 140 Introductory Physics (with laboratory) (GT-SC1); PHYS 200 General Physics I (with laboratory) (GT-SC1) and PHYS 201 General Physics II (with laboratory) (GT-SC1) may be substituted for PHYS 170 Principles of Physics I (with laboratory) (GT-SC1) and PHYS 171 Principles of Physics II (with laboratory) (GT-SC1).

## Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement (some may be specific to the selected emphasis): BIOL 495 Senior Seminar, BIOL 496 Senior Thesis, EDUC 409 Secondary Student Teaching, or ESS 601 Quantitative Research Methods.

## Biology Courses

### BIOL 120. Studies in Biology (GT-SC2). (3 Credits)

An introduction to selected biological topics and the methods of science through an exploration of current topics such as evolution, bioethics and conservation biology. Students may only take this course once for credit. GT-SC2

### BIOL 130. Environmental Biology (GT-SC2). (3 Credits)

An introduction to basic biological principles as they apply to interactions between organisms and their environment. Consideration is given to biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics, and evolution with a special emphasis on human impacts on these biological systems. This course establishes a strong foundation in applied biology from a scientific perspective. GT-SC2

### BIOL 135. Environmental Biology Laboratory (GT-SC1). (1 Credit)

An experimental approach in both the field and laboratory to explore fundamental biological principles including biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics and evolution. Additional course fee applies. Prerequisite or corequisite: BIOL 130. GT-SC1

### BIOL 150. Biological Principles (with laboratory) (GT-SC1). (4 Credits)

An introduction to the central unifying concepts of biology including the biochemical foundations of life, cell structure and function, cell metabolism, genetics, and evolution. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English. GT-SC1

### BIOL 151. Diversity and Patterns of Life (with laboratory). (4 Credits)

An overview of organismal diversity and evolution. Through a taxonomic survey, students are introduced to prokaryotic and eukaryotic diversity and evolution including microorganisms, fungi, plants, and animals. Fundamentals of evolution including the history of life, evidence for common ancestry, mechanisms of evolutionary change, and speciation are covered. Organismic structure, function, and ecology are also explored. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English.

### BIOL 197. Special Topics. (1-6 Credits)

### BIOL 200. Environmental and Public Health (GT-SC2). (3 Credits)

An appraisal of man's surroundings which influence his health, including an introduction to the societal structure designed to cope with health problems. Of particular benefit to those who plan to major in the social sciences or enter the field of public health. GT-SC2

### BIOL 201. Introduction to Microbiology (with laboratory). (4 Credits)

A study of the basic aspects of microbiology for allied health students that includes an introduction to the identification, physiology, growth and control of microbes. Laboratory exercises will emphasize aseptic, pure culture, and identification techniques. This course can only be used to fulfill graduation requirement for students in the allied health biology emphasis. Additional course fee applies.

### BIOL 292. Independent Study. (1-4 Credits)

### BIOL 297. Special Topics. (1-6 Credits)

### BIOL 300. Basic Nutrition. (3 Credits)

An introduction to the science of human nutrition. Consideration is given to the chemical nature and functions of the major groups of nutrients, the function of the digestive system, energy metabolism and balance, weight control, and nutrition for fitness. Human nutrition during the life span is also addressed. Prerequisites: BIOL 150; and CHEM 101 or CHEM 111.

### BIOL 301. General Ecology. (3 Credits)

An introduction to basic ecological principles and their relationships to natural systems. Human impact on the natural systems is assessed. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: COM 202.

### BIOL 302. Ecology Laboratory and Recitation. (2 Credits)

An experimental approach in both field and laboratory to explore fundamental ecological principles. Students gather and analyze data to address ecological hypotheses, learn practical ecological skills (performing field techniques, using statistical and graphical tools, and interpreting ecological software), and develop oral and written communication skills. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and CHEM 113. Prerequisite or corequisite: BIOL 301.

### BIOL 310. Cell Biology. (3 Credits)

An introduction to cellular function and structure. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: CHEM 231 or CHEM 331; and COM 202.

### BIOL 312. Genetics (with recitation). (4 Credits)

A course in Mendelian inheritance, linkage, chromosomal aberrations, molecular genetics, gene regulation, genetic engineering, and population genetics. Prerequisites: BIOL 301, BIOL 310, CHEM 231, and CHEM 234; or CHEM 331.



**BIOL 313. Cell and Genetics Laboratory. (2 Credits)**

An introduction to experimentation and laboratory techniques used in cell biology, physiology, and genetics, including experimental design, data analysis, and presentation of research results. Additional course fee applies. Prerequisite or corequisite: BIOL 312.

**BIOL 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. BIOL 317 and MATH 317 cannot both be taken for credit. Prerequisites: BIOL 312 and MATH 213.

**BIOL 320. Ornithology (with laboratory and recitation). (4 Credits)**

An introduction to the study of bird evolution, ecology, and conservation. This course has a strong field component providing frequent opportunities to observe birds in their native environments. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission

**BIOL 322. Mammalogy (with laboratory and recitation). (4 Credits)**

An introduction to the study of mammal taxonomy, evolution, ecology and conservation. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 327. Field Entomology (with laboratory). (4 Credits)**

An introduction to the world of the most diverse and abundant form of animal life on Earth through an experiential, field, and laboratory class. The course emphasizes field study, collection and preservation, identification, ecology, and natural history. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 342. Microbiology (with laboratory). (4 Credits)**

An introduction to microbial morphology, identification, physiology, genetics, and microbiology laboratory techniques. A brief consideration is given to fungi. Additional course fee applies. Prerequisites: Biology Nucleus

**BIOL 352. Botany (with laboratory). (4 Credits)**

Using field and laboratory experiences this course explores the diversity within the plant kingdom using a comparative approach to examine evolutionary trends and relationships. Students are introduced to the structure and function of plants through an investigation of plant cells, tissues, organs, and basic physiological processes. Economic importance, human uses, and significance of plants to society are emphasized. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and ENG 102; or instructor permission.

**BIOL 353. Rocky Mountain Flora. (3 Credits)**

A field and laboratory course focusing on identification of flowering plants common to the Western Slope of the Colorado Rocky Mountains. This course covers methods of plant collection and preservation, field identification, natural history, and ecology as well as local plants of particular human interest, including those that are medically important, edible, and poisonous. Additional course fee applies. Prerequisites: BIOL 150 and BIOL 151; or instructor permission.

**BIOL 355. Spring Fungi Rocky Mountains (with laboratory). (3 Credits)**

An introduction to the enigmatic kingdom of Fungi. Fungal classification, life cycles, morphology, development, symbioses, and ecological and economic significance will be explored through lecture, lab, and field experiences. Methods of fungal collection, preservation, and identification will be covered with a focus on spring and snowbank fungi of the Rocky Mountains. Prerequisites: BIOL 150 and 151.

**BIOL 362. Evolution. (3 Credits)**

This course provides a comprehensive overview of evolutionary processes, mechanisms, and analytical techniques. Topics include population genetics, conservation genetics, phylogenetic analysis, adaptation, behavioral evolution, sexual selection, and speciation. Evolutionary perspectives in human health and medicine, conservation biology, agriculture, natural resource management, biotechnology, global change, and emerging diseases are considered. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or Both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 372. Human Anatomy and Physiology I (with laboratory). (4 Credits)**

An introduction to regulatory mechanisms which maintain normal body function. Specific topics include cytology, histology, integumentary system, skeletal system, muscular system, and nervous system. The course is designed for pre-nursing and exercise and sport science students. Additional course fee applies. Prerequisites: BIOL 150; CHEM 231 or CHEM 111.

**BIOL 373. Human Anatomy and Physiology II (with laboratory). (4 Credits)**

A continuation of BIOL 372 Human Anatomy and Physiology I. Specific topics include immunology, cardiovascular system, respiratory system, digestive system, excretory system, reproductive system, and endocrine system. Additional course fee applies. Prerequisite: BIOL 372.

**BIOL 392. Independent Study in Biology. (1-4 Credits)**

A study in a specific area of biology under the direction of a faculty member. May be taken for a maximum of four credits. Graded Satisfactory/Unsatisfactory only.

**BIOL 397. Special Topics. (1-10 Credits)****BIOL 398. Biology Teaching Practicum. (1 Credit)**

Under faculty supervision, students participate in the development of laboratory and field experience exercises, as well as in their instruction and execution. Specifically designed for students serving as teaching assistants in Biology. May be taken for a maximum of 3 credits. Graded Satisfactory/Unsatisfactory only. Prerequisite: Biol 150, Biol 151, and instructor permission

**BIOL 420. Molecular Biology (with laboratory). (4 Credits)**

A study of the molecular mechanisms by which cellular processes are controlled in prokaryotic and eukaryotic cells. Topics include the biochemistry of macromolecular processes, the structure of genes and chromosomes, the genetic and molecular techniques used to study gene expression, and the transcriptional and translational control of gene expression. The laboratory includes recombinant DNA techniques to manipulate the genome of a model organism. Additional course fee applies. Prerequisites: BIOL 312 and CHEM 471.

**BIOL 430. Wildlife Ecology and Management (with laboratory). (4 Credits)**

Principles of ecology are applied to population and habitat management towards wildlife conservation. Tools used by wildlife biologists to restore endangered species, harvest sustainable populations, reduce overpopulated species, and to monitor and study populations are emphasized. Habitat management approaches are discussed, along with human dimensions in wildlife conservation. A field component allows students to investigate wildlife populations and habitat issues in the Gunnison Basin. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.



**BIOL 431. Wildlife Techniques Workshop. (1 Credit)**

A one week intensive field course focuses on wildlife conservation issues and wildlife management techniques such as trapping and marking wildlife, radio telemetry, population monitoring, GPS and GIS, and wildlife conflict resolution. The course includes a trip outside the basin; a field trip course fee is required. This course meets the week prior to the start of the fall semester. Prerequisite: BIOL 301 or instructor permission. Co-requisite: BIOL 430.

**BIOL 435. Animal Behavior. (3 Credits)**

An introduction to the study of animal behavior. This course emphasizes the importance of ecology and evolution in understanding animal behavior. Prerequisites: Biology Nucleus or instructor permission.

**BIOL 440. Conservation Biology. (3 Credits)**

This course addresses the reduction in biological diversity of the planet and suggested solutions to prevent further reduction. Integrating themes are drawn from scientific disciplines such as population genetics, ecology, evolutionary biology, botany, zoology, molecular biology, biochemistry, and wildlife management. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 444. Colorado Ecoregions. (3 Credits)**

A survey of the three main ecoregions of Colorado including the Great Plains, the Southern Rocky Mountains, and the Colorado Plateau. Students travel throughout Colorado and explore the ecology and natural history of the ecosystems by hiking, backpacking, and river rafting. Content includes an evolutionary perspective on ecosystem features and the adaptations of species characterizing each system, as well as applied issues in natural resources management. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 454. Developmental Biology (with laboratory). (4 Credits)**

An examination of the embryology of vertebrates, stressing mammalian embryonic development and comparisons with amphibians, reptiles, and birds. Additional course fee applies. Prerequisites: Biology 312.

**BIOL 467. Fisheries Biology. (3 Credits)**

An introduction to the science underlying fisheries and their management. Topics will include the morphology, evolution, ecology, behavior and conservation of fishes, including experimental design, data analysis and communication of results focusing primarily on freshwater fisheries and common fishes of Colorado. Marine fisheries will be covered briefly. Prerequisites: BIOL 301 or instructor permission.

**BIOL 474. Comparative Animal Physiology (with laboratory). (4 Credits)**

An analysis of function in invertebrates and vertebrates, utilizing an environmental approach and emphasizing evolutionary trends in physiological systems. Prerequisites: Biology Nucleus and PHYS 140 or PHYS 170 or PHYS 200.

**BIOL 476. Aquatic Ecology (with laboratory). (4 Credits)**

A study of physical, chemical, and biological parameters of lakes and streams in the functioning of freshwater eco-systems. Additional course fee applies. Prerequisites: Biology Nucleus and SCI 202; or instructor permission.

**BIOL 477. Plant Ecology (with laboratory). (3 Credits)**

An introduction to plant populations and communities, including their role within terrestrial ecosystems. Additional course fee applies. Prerequisites: Biol 301; or instructor permission

**BIOL 481. Forest Ecology (with laboratory). (4 Credits)**

Ecology of forest species, communities, landscapes, and ecosystems, with a focus on the Gunnison Basin. Topics include tree physiology, species interactions, fire and disturbance, succession, forest types, climate, forest management and restoration. Labs and field trips will provide hands-on experience and practical skills in tree identification, forest mensuration, vegetation sampling, statistics and GIS. Students will develop and conduct independent/group research projects. Additional course fee applies. Prerequisites: BIOL 301, MATH 213

**BIOL 492. Independent Study. (1-4 Credits)****BIOL 495. Senior Seminar. (1 Credit)**

An examination of biological subdisciplines through an investigation of the primary literature. The professional practices, procedures, and standards of the subdiscipline are discussed. This course may be repeated for credit and must be taken twice to fulfill the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 496. Senior Thesis. (2-4 Credits)**

An advanced research experience resulting in a Senior Thesis, supervised by a thesis committee of three faculty members including at least one biologist. A proposal of the project must be approved by the thesis committee prior to project initiation. In addition to completing the written thesis, students must present the results of their work in a departmental seminar. This course satisfies the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 497. Special topics. (1-6 Credits)****BIOL 606. Ecological Research Methods. (3 Credits)**

A field- and lab-based course that builds on the capacity for students to conceptualize and complete ecological research projects. Students identify ecological questions and develop research to address them. Scientific communication to varied stakeholders is emphasized throughout. Prerequisite: acceptance to the MS or MEM program.

**BIOL 613. Advanced Ecological Analysis. (3 Credits)**

Students gain knowledge and experience in advanced statistical analysis and simulation modeling using ecological data. Specific topics include linear and generalized linear models, mixed-effects models, general additive models, multivariate analysis, spatial analysis, and simulation models. Emphasis is placed on working with data, writing and commenting scripts, and use of a wide range of internet resources for the R language and environment. Prerequisites: admission to the MEM or MS programs.

**BIOL 620. Ornithology. (4 Credits)**

A graduate-level survey of bird evolution, ecology, and conservation. This course has a strong field component providing frequent opportunities to identify, observe, and conduct research on birds in their native environments. Prerequisite: acceptance to MS or MEM program.

**BIOL 622. Mammalogy. (4 Credits)**

An advanced overview of the current science of mammal taxonomy, evolution, ecology and conservation. Prerequisite: acceptance to MS or MEM program.

**BIOL 627. Field Entomology. (4 Credits)**

A detailed examination of the most diverse and abundant form of animal life on Earth through field and laboratory research. The course emphasizes field study, collection and preservation, identification, ecology, and natural history. Students develop familiarity with current scientific literature and complete a written research paper following peer-reviewed journal formatting. Prerequisite: acceptance to MS or MEM program.

**BIOL 630. Wildlife Ecology and Management. (4 Credits)**

Principles of ecology are applied to population and habitat management towards wildlife conservation. Tools used by wildlife biologists to restore endangered species, harvest sustainable populations, reduce overpopulated species, and to monitor and study populations are emphasized. Habitat management approaches are examined, along with human dimensions in wildlife conservation. Students will conduct field study to investigate populations and habitat issues, and develop best management practices for wildlife in the Gunnison Basin. Prerequisite: Admission to MS or MEM program. Co-requisite: BIOL 631.

**BIOL 631. Wildlife Techniques Workshop. (1 Credit)**

A one week intensive field course focuses on wildlife conservation issues and wildlife management techniques such as trapping and marking wildlife, radio telemetry, population monitoring, GPS and GIS, and wildlife conflict resolution. The course includes a trip outside the basin; a field trip course fee is required. This course meets the week prior to the start of the fall semester. Prerequisite: Admission to MS or MEM program, instructor permission. Co-requisite: BIOL 630.

**BIOL 640. Conservation Biology. (3 Credits)**

Conservation Biology is an applied science that addresses the reduction in biological diversity of the planet and suggests solutions to prevent further reduction. Conservation biology serves as an integrating link in biology drawing from scientific disciplines such as population genetics, ecology, evolutionary biology, botany, zoology, molecular biology, biochemistry and wildlife management. Prerequisite: acceptance to MS or MEM program.

**BIOL 652. Botany. (4 Credits)**

Using field and laboratory experiences this graduate level course explores the diversity within the plant kingdom using a comparative approach to examine evolutionary trends and relationships. Students are introduced to the structure and function of plants through an investigation of plant cells, tissues, organs, and basic physiological processes. Economic importance, human uses, and significance of plants to society are emphasized. Prerequisite: acceptance to MS or MEM program.

**BIOL 653. Rocky Mountain Flora. (3 Credits)**

A graduate level field and laboratory course focusing on identification of flowering plants common to the Western Slope of the Colorado Rocky Mountains. This course covers methods of plant collection and preservation, field identification, natural history, and ecology as well as local plants of particular human interest, including those that are medically important, edible, or which are poisonous. Prerequisite: acceptance to MS or MEM programs.

**BIOL 662. Evolution. (3 Credits)**

This graduate level course provides a comprehensive overview of evolutionary processes, mechanisms, and analytical techniques. Topics include population genetics, conservation genetics, phylogenetic analysis, adaptation, behavioral evolution, sexual selection, and speciation. Evolutionary perspectives in human health and medicine, conservation biology, agriculture, natural resource management, biotechnology, global change, and emerging diseases are considered. Prerequisite: acceptance to MEM or MS program.

**BIOL 667. Fisheries Biology and Management. (3 Credits)**

Graduate-level overview of the science underlying fisheries and their management. Topics include the morphology, evolution, ecology, behavior and conservation of fishes, including experimental design, data analysis, quantitative population modelling, and scientific communication of results focusing primarily on freshwater fisheries and common fishes of Colorado. Marine fisheries are covered briefly. Prerequisite: acceptance to MS or MEM program.

**BIOL 676. AQUATIC ECOLOGY W/LAB. (3 Credits)****BIOL 681. Forest Ecology. (4 Credits)**

Ecology of forest species, communities, landscapes, and ecosystems, with a focus on the southern Rocky Mountains. Topics include tree physiology, species interactions, fire and disturbance, succession, forest types, climate, forest management, and restoration. Labs and field trips provide hands-on experience and practical skills in tree identification, forest mensuration, vegetation sampling, statistics and GIS. Students gain broad familiarity with the scientific literature, develop and conduct a sophisticated independent research project, and communicate findings. Prerequisite: admission to MS or MEM program.

**BIOL 690. Ecology MS Proposal Development. (3 Credits)**

Students are required to develop a proposed research project in consultation with their academic advisor and present it in written and oral form to their thesis committee (composed of their advisor, another faculty member or PhD-level researcher, and an external project sponsor or reviewer). This course should be completed by the end of the spring semester of the first year to prepare students for summer research. Prerequisite: instructor permission.

**BIOL 692. Independent Study. (1-6 Credits)**

Independent research in ecology. Prerequisite: instructor permission.

**BIOL 695. Ecology/ Conservation Thesis Research. (1-9 Credits)**

Students conduct research adhering to their thesis proposal, complete a written thesis, and defend their thesis. Students must also explicitly connect the research project with relevant and real-world efforts to achieve the broader impacts of ecology and conservation science in society. This is a repeatable course. Prerequisite: BIOL 690.

**BIOL 696. Fisheries/ Wildlife Thesis Research. (1-9 Credits)**

Students conduct research adhering to their thesis proposal, complete a written thesis, and defend their thesis. Students must also explicitly connect the research project with relevant and real-world efforts to achieve the broader impacts of fisheries and wildlife science in society. This is a repeatable course. Prerequisite: BIOL 690.

**BIOL 697. Special Topics in Ecology. (1-4 Credits)**

## Biology Comprehensive Major: Environmental Biology and Ecology Emphasis

### Program Requirements

The Environmental Biology and Ecology Emphasis requires a minimum of 58 credits, including the 26-credit Biology Nucleus, 17 additional credits in Biology, and 15 credits of supporting courses:

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3

CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology Courses</b>		
BIOL 302	Ecology Laboratory and Recitation	2
Select six credits in two or more of the following systems and applications courses:		6
BIOL 362	Evolution	
BIOL 430	Wildlife Ecology and Management (with laboratory)	
BIOL 431	Wildlife Techniques Workshop	
BIOL 440	Conservation Biology	
BIOL 444	Colorado Ecoregions	
BIOL 476	Aquatic Ecology (with laboratory)	
BIOL 477	Plant Ecology (with laboratory)	
BIOL 481	Forest Ecology (with laboratory)	
Select at least two of the following organismal courses:		6-8
BIOL 320	Ornithology (with laboratory and recitation)	
BIOL 322	Mammalogy (with laboratory and recitation)	
BIOL 327	Field Entomology (with laboratory)	
BIOL 352	Botany (with laboratory)	
BIOL 353	Rocky Mountain Flora	
BIOL 355	Spring Fungi Rocky Mountains (with laboratory)	
BIOL 467	Fisheries Biology	
Select at least two credits of Capstone Experience courses:		2
BIOL 495	Senior Seminar (may be repeated)	
BIOL 496	Senior Thesis	
Total Credits		16-18

Code	Title	Credits
<b>Minimum Supporting Courses</b>		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
Total Credits		15

### Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis, or EDUC 409 SECONDARY STUDENT TEACHING.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits
		15
<b>Spring</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Gen Ed	Arts & Humanities	3
MATH 141	Precalculus (GT-MA1)	4
		Credits
		15
<b>Year Two</b>		
<b>Fall</b>		
BIOL 301	General Ecology	3
BIOL 302	Ecology Laboratory and Recitation	2
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3

Gen Ed	Social Sciences	3
		Credits
		15
<b>Spring</b>		
BIOL 310	Cell Biology	3
Gen Ed	Arts & Humanities	3
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
Gen Ed	Social Sciences	3
		Credits
		16
<b>Year Three</b>		
<b>Fall</b>		
BIOL 312	Genetics (with recitation)	4
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
		Credits
		14
<b>Spring</b>		
BIOL	Biology Systems/Apps	3
BIOL	Biology Organismal Elective	4
		Credits
		7
<b>Year Four</b>		
<b>Fall</b>		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	2
Biology Systems/Apps		3
		Credits
		5
<b>Spring</b>		
Biology Organismal Elective		0
		Credits
		87

## Biology Comprehensive Major: General Biology Emphasis

### Program Requirements

The General Biology Emphasis requires a minimum of 51 credits including the 26-credit Biology Nucleus, 14 additional credits in Biology, and 11 credits of supporting courses:

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
<b>Total Credits</b>		<b>26</b>

Code	Title	Credits
<b>Required Biology courses</b>		
One of the following:		2
BIOL 302	Ecology Laboratory and Recitation	
BIOL 313	Cell and Genetics Laboratory	
Ten credits of the following:		10
300- and 400-level Biology courses		
CHEM 471	Biochemistry I	
SCI 499	Internship in Science	
At least two credits of Capstone Experience Courses:		2-5
BIOL 495	Senior Seminar	
BIOL 496	Senior Thesis	
<b>Total Credits</b>		<b>14-17</b>

Code	Title	Credits
<b>11 credits of supporting courses</b>		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
One of the following:		3-4
MATH 151	Calculus I (GT-MA1)	
MATH 213	Probability and Statistics	
<b>Total Credits</b>		<b>11-12</b>

### Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis, or EDUC 409 SECONDARY STUDENT TEACHING.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
MATH 140	College Algebra (GT-MA1)	3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111 & CHEM 112	General Chemistry I (GT-SC2) and General Chemistry Laboratory I (GT-SC1)	3
		Credits 14
<b>Spring</b>		
CHEM 113 & CHEM 114	General Chemistry II and General Chemistry Laboratory II	3
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
MATH 141	Precalculus (GT-MA1)	4
Arts & Humanities GE		3
		Credits 14
<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
BIOL 301	General Ecology	3
CHEM 231 or CHEM 331	Introduction to Organic Chemistry and Biochemistry or Organic Chemistry I	3

CHEM 234 or CHEM 334	Introductory Organic and Biochemistry Laboratory or Organic Chemistry Laboratory I	1
MATH 151 or MATH 213	Calculus I (GT-MA1) or Probability and Statistics	4
		Credits 14
<b>Spring</b>		
BIOL 310	Cell Biology	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
Arts & Humanities GE		3
Social Science GE		3
Social Science GE		3
		Credits 16
<b>Year Three</b>		
<b>Fall</b>		
Arts & Humanities GE		3
BIOL 302 or BIOL 313	Ecology Laboratory and Recitation or Cell and Genetics Laboratory	2
BIOL 312	Genetics (with recitation)	4
Social Science GE		3
		Credits 12
<b>Spring</b>		
Biology Elective		4
Biology Elective		4
		Credits 8
<b>Year Four</b>		
<b>Fall</b>		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
Biology Elective		3
		Credits 4
<b>Spring</b>		
Biology Elective		3
		Credits 3
Total		85
Credits		

# Biology Comprehensive Major: Pre-Medicine/Cell and Molecular Biology Emphasis

## Program Requirements

The Pre-Medicine/Cell and Molecular Biology Emphasis requires a minimum of 67 credits, including the 26-credit Biology Nucleus, 19 additional credits in Biology and/or Chemistry, and 22 credits of supporting courses:

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology and Chemistry courses</b>		
BIOL 313	Cell and Genetics Laboratory	2
Fifteen credits of the following:		15
BIOL 317	Genome Analysis (with laboratory)	
BIOL 342	Microbiology (with laboratory)	
BIOL 373	Human Anatomy and Physiology II (with laboratory)	
BIOL 420	Molecular Biology (with laboratory)	
BIOL 454	Developmental Biology (with laboratory)	
BIOL 474	Comparative Animal Physiology (with laboratory)	
CHEM 472	Biochemistry II	
CHEM 474	Biochemistry Laboratory	
Select at least two credits of Capstone Experience Courses:		2
BIOL 495	Senior Seminar (may be repeated)	
BIOL 496	Senior Thesis	
Total Credits		19

Code	Title	Credits
<b>Minimum Supporting Courses</b>		
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 471	Biochemistry I	3
One of the following:		3-4
MATH 151	Calculus I (GT-MA1)	
MATH 213	Probability and Statistics	

Select one of the following:		8
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)	
Total Credits		22-23

## Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis or EDUC 409 SECONDARY STUDENT TEACHING.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 15
<b>Spring</b>		
Arts & Humanities GE		3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141	Precalculus (GT-MA1)	4
		Credits 15



**Year Two****Fall**

BIOL 310	Cell Biology	3
BIOL 301	General Ecology	3
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3
MATH 151 or MATH 213	Calculus I (GT-MA1) or Probability and Statistics	4

Credits 17

**Spring**

CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1
BIOL 312	Genetics (with recitation)	4
BIOL 313	Cell and Genetics Laboratory	2
Social Science GE		3
Arts & Humanities GE		3

Credits 16

**Year Three****Fall**

CHEM 471	Biochemistry I	3
Social Science GE		3
Biology Elective		4
PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4

Credits 14

**Spring**

PHYS 171 or PHYS 200	Principles of Physics II (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
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Biology Elective	4
Social Science GE	3
Arts & Humanities GE	3
Credits	14

**Year Four****Fall**

BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	2
Biology Elective		4
Credits		6

**Spring**

Biology Elective		3
Credits		3
Total Credits		100

## Biology Comprehensive Major: Pre-Nursing Emphasis

### Program Requirements

The Pre-Nursing Emphasis requires a minimum of 54 credits including the 26-credit Biology Nucleus, 17 additional credits in Biology, and 11 credits of supporting courses. Appropriate microbiology, chemistry, and physics courses should be selected in consultation with an advisor.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology courses</b>		
BIOL 300	Basic Nutrition	3
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
One of the following:		4
BIOL 201	Introduction to Microbiology (with laboratory)	
BIOL 342	Microbiology (with laboratory)	
Select at least two credits of Capstone Experience Courses:		2
BIOL 495	Senior Seminar (may be repeated)	
BIOL 496	Senior Thesis	
Total Credits		17

Code	Title	Credits
<b>Minimum supporting courses</b>		
Appropriate Microbiology, Chemistry and Physics courses should be selected in consultation with an advisor.		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4

## Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis or EDUC 409 SECONDARY STUDENT TEACHING.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 15
<b>Spring</b>		
Arts & Humanities GE 3		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1

MATH 141	Precalculus (GT-MA1)	4
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
BIOL 301	General Ecology	3
CHEM 231 or CHEM 331	Introduction to Organic Chemistry and Biochemistry or Organic Chemistry I	3
CHEM 234 or CHEM 334	Introductory Organic and Biochemistry Laboratory or Organic Chemistry Laboratory I	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3
		Credits 13
<b>Spring</b>		
Arts & Humanities GE 3		
BIOL 310	Cell Biology	3
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
		Credits 13
<b>Year Three</b>		
<b>Fall</b>		
Arts & Humanities GE 3		
BIOL 312	Genetics (with recitation)	4
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
		Credits 14
<b>Spring</b>		
BIOL 300	Basic Nutrition	3
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
		Credits 7

## Year Four

Fall		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
BIOL 201 or BIOL 342	Introduction to Microbiology (with laboratory) or Microbiology (with laboratory)	4
		Credits 5
		Total Credits 82

## Biology Comprehensive Major: Pre-Physical Therapy

The Pre-Physical Therapy Emphasis requires a minimum of 74 credits, including the 26-credit Biology Nucleus, 10 additional credits in Biology, and 38 credits of supporting courses.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology courses</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
At least two credits of Capstone Experience courses:		2
BIOL 495	Senior Seminar	
BIOL 496	Senior Thesis	2-4
Total Credits		12-14

Code	Title	Credits
<b>Minimum supporting courses:</b>		
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 471	Biochemistry I	3

ESS 185	Lifetime Wellness	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
MATH 213	Probability and Statistics	3
PSY 200	Statistics and Data Analysis	3
At least one of the following:		3
PSY 270	Development Psychology	
PSY 368	Psychopathology	
And either:		8
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)	
Total Credits		38

## Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis or EDUC 409 SECONDARY STUDENT TEACHING.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 213	Probability and Statistics	3
Credits		15

<b>Spring</b>			ESS 331	Exercise Physiology Lab	1
BIOL 151	Diversity and Patterns of Life (with laboratory)	4	PHYS 170	Principles of Physics I (with laboratory) (GT-SC1)	4
CHEM 113	General Chemistry II	3		Credits	15
CHEM 114	General Chemistry Laboratory II	1	<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3	ESS 380	Biomechanics	3
ESS 185	Lifetime Wellness	3	General Education courses		
PSY 100	General Psychology (GT-SS3)	3	PHYS 171	Principles of Physics II (with laboratory) (GT-SC1)	4
	Credits	17	Psychology Elective course		3
<b>Year Two</b>				Credits	16
<b>Fall</b>			<b>Year Four</b>		
BIOL 310	Cell Biology	3	<b>Fall</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4	BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
CHEM 331	Organic Chemistry I	3	ESS 430	Topics in Clinical Exercise Physiology	3
CHEM 334	Organic Chemistry Laboratory I	1	General Education course		3
General Education course		3		Credits	7
	Credits	14		Total	101
<b>Spring</b>				Credits	
BIOL 301	General Ecology	3	<b>Program Requirements</b>		
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4	The Secondary Licensure Emphasis requires a minimum of 59 credits including the 26-credit Biology Nucleus, eight additional credits in Biology and/or ESS, and 25 credits in supporting courses.		
BIOL 300	Basic Nutrition	3	Students must fulfill the requirements for the Secondary Licensure Option (p. 139) (described under Education). Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible.		
CHEM 332	Organic Chemistry II	3	All Biology majors require the 26-credit Biology Nucleus.		
CHEM 335	Organic Chemistry Laboratory II	1	<b>Code</b>	<b>Title</b>	<b>Credits</b>
General Education course		3	<b>Biology Nucleus</b>		
	Credits	17	BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
<b>Year Three</b>			BIOL 151	Diversity and Patterns of Life (with laboratory)	4
<b>Fall</b>			BIOL 301	General Ecology	3
BIOL 312	Genetics (with recitation)	4	BIOL 310	Cell Biology	3
CHEM 471	Biochemistry I	3	BIOL 312	Genetics (with recitation)	4
ESS 330	Exercise Physiology	3	CHEM 111	General Chemistry I (GT-SC2)	3
			CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
			CHEM 113	General Chemistry II	3

## Biology Comprehensive Major: Secondary Licensure Emphasis

### Program Requirements

The Secondary Licensure Emphasis requires a minimum of 59 credits including the 26-credit Biology Nucleus, eight additional credits in Biology and/or ESS, and 25 credits in supporting courses.

Students must fulfill the requirements for the Secondary Licensure Option (p. 139) (described under Education). Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3

CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
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**Required Biology and/or ESS courses**

BIOL 201	Introduction to Microbiology (with laboratory)	4
or BIOL 342	Microbiology (with laboratory)	

Select one of the following: 4-8

ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	
BIOL 372 & BIOL 373	Human Anatomy and Physiology I (with laboratory) and Human Anatomy and Physiology II (with laboratory)	

Total Credits 8-12

Code	Title	Credits
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**Minimum supporting courses**

CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
MATH 213	Probability and Statistics	3
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 120	Meteorology (GT-SC2)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4

Total Credits 25

## Capstone Course Requirement

EDUC 409 Secondary Student Teaching fulfills the Capstone Requirement for students completing this emphasis.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENG 102	Academic Writing (GT-CO1)	3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3

CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Credits		15

**Spring**

Arts & Humanities GE		3
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4

CHEM 113	General Chemistry II	3
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CHEM 114	General Chemistry Laboratory II	1
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MATH 141	Precalculus (GT-MA1)	4
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Credits 15

**Year Two****Fall**

BIOL 301	General Ecology	3
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3

CHEM 234	Introductory Organic and Biochemistry Laboratory	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3

ESS 201 or BIOL 372	Essentials of Human Anatomy and Physiology (with Lab) or Human Anatomy and Physiology I (with laboratory)	4
PHYS 120	Meteorology (GT-SC2)	3

Credits 17

**Spring**

Arts & Humanities GE		3
BIOL 310	Cell Biology	3
MATH 213	Probability and Statistics	3

Social Science GE		3
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Social Science GE		3
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Credits 15

**Year Three****Fall**

Arts & Humanities GE		3
BIOL 201 or BIOL 342	Introduction to Microbiology (with laboratory) or Microbio (with laborato	4
BIOL 312	Genetics (with recitation)	4
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
Social Science GE		3
	Credits	18

**Spring**

EDUC 000	Education Gateway Course	0
EDUC 340	Application of Pedagogy and Practice	3
GEOL 201	Historical Geology (with laboratory)	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
	Credits	14

**Year Four****Fall**

EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environments	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 409	Secondary Student Teaching	3
	Credits	15

**Spring**

EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 409	Secondary Student Teaching	3
EDUC 420	Application of Classroom Strategies to Engage All Learners	3
EDUC 424	Differentiation: Applying Learner- Centered Instruction	3
	Credits	12
	Total	121
	Credits	

## Biology Comprehensive Major: Wildlife and Conservation Biology Emphasis

### Program Requirements

The Wildlife and Conservation Biology Emphasis requires a minimum of 67 credits, including the 26-credit Biology Nucleus, 23 additional credits in Biology, and 18 credits of supporting courses.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology courses</b>		
BIOL 302	Ecology Laboratory and Recitation	2
BIOL 430	Wildlife Ecology and Management (with laboratory)	4
BIOL 431	Wildlife Techniques Workshop	1
BIOL 353	Rocky Mountain Flora	3
One of the following:		3
BIOL 362	Evolution	
BIOL 440	Conservation Biology	



At least two of the following:		6-8
BIOL 320	Ornithology (with laboratory and recitation)	
BIOL 322	Mammalogy (with laboratory and recitation)	
BIOL 327	Field Entomology (with laboratory)	
BIOL 352	Botany (with laboratory)	
BIOL 355	Spring Fungi Rocky Mountains (with laboratory)	
BIOL 444	Colorado Ecoregions	
BIOL 467	Fisheries Biology	
BIOL 476	Aquatic Ecology (with laboratory)	
BIOL 481	Forest Ecology (with laboratory)	
Select at least two credits of Capstone Experience Courses:		2
BIOL 495	Senior Seminar (may be repeated)	
BIOL 496	Senior Thesis	
<b>Total Credits</b>		<b>21-23</b>

Code	Title	Credits
<b>Minimum supporting courses</b>		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOG 340	Introduction to Geographic Information Systems	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
<b>Total Credits</b>		<b>18</b>

**Capstone Course Requirement**

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 SENIOR SEMINAR, BIOL 496 Senior Thesis , or EDUC 409 SECONDARY STUDENT TEACHING.

**Graduation Requirements**

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1

ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
Arts & Humanities GE		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141	Precalculus (GT-MA1)	4
Social Science GE		3
<b>Credits</b>		<b>18</b>

<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
BIOL 301	General Ecology	3
BIOL 302	Ecology Laboratory and Recitation	2
BIOL 353	Rocky Mountain Flora	3
CHEM 231 or CHEM 331	Introduction to Organic Chemistry and Biochemistry or Organic Chemistry I	3
CHEM 234 or CHEM 334	Introductory Organic and Biochemistry Laboratory or Organic Chemistry Laboratory I	1
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
Arts & Humanities GE		
BIOL 310	Cell Biology	3
GEOG 340	Introduction to Geographic Information Systems	3

MATH 213	Probability and Statistics	3
Social Science GE		3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
BIOL 312	Genetics (with recitation)	4
BIOL 430	Wildlife Ecology and Management (with laboratory)	4
BIOL 431	Wildlife Techniques Workshop	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
		Credits 13
<b>Spring</b>		
Arts & Humanities GE		3
BIOL 362 or BIOL 440	Evolution or Conservation Biology	3
Biology Elective		
Social Science GE		3
		Credits 9
<b>Year Four</b>		
<b>Fall</b>		
BIOL 495 or BIOL 496	Senior Seminar or Senior Thesis	1
Biology Elective		4
		Credits 5
<b>Spring</b>		
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
		Credits 4
		Total Credits 94

## Biology Minor

A minimum of 18 credits is required, including:

Code	Title	Credits
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
Biology electives		10
Total Credits		18

## Ecology and Environmental Management Emphasis (with a 3+2 Master in Environmental Management)

The Environmental Management emphasis allows students to complete the B.S. in Biology (BIOL) and the Master in Environmental Management (MEM) at Western in five years. To remain qualified for the 3+2, after 67 credits each student must have:

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. In addition to meeting the requirements above, and after Junior Year (holding to the same GPA standards as outlined above) and completion of BIOL nucleus plus one systems and application course and one organismal course in the requirements (100 credits in this plan—see "Degree Plan" tab), the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Upon completion of the final 26 credits of the Western B.S. after Year Four of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still have completed the BIOL undergraduate emphasis in Environmental Management and have earned the 120 credits necessary for a Western undergraduate degree.

## Program Requirements

The Ecology and Environmental Management Emphasis requires a minimum of 83 credits, including the 26-credit Biology Nucleus, 19 additional credits in Biology, 15 credits of supporting courses, and 23 credits of MEM coursework. In the fifth year, an additional 23 credits of MEM coursework results in the MEM degree.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1

CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
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**Required Biology Courses**

BIOL 302	Ecology Laboratory and Recitation	2
Select six credits in two or more of the following systems and applications courses:		6

BIOL 362	Evolution	
BIOL 430	Wildlife Ecology and Management (with laboratory)	
BIOL 431	Wildlife Techniques Workshop	
BIOL 440	Conservation Biology	
BIOL 444	Colorado Ecoregions	
BIOL 476	Aquatic Ecology (with laboratory)	
BIOL 477	Plant Ecology (with laboratory)	
BIOL 481	Forest Ecology (with laboratory)	

Select two of the following organismal courses: 6-8

BIOL 320	Ornithology (with laboratory and recitation)	
BIOL 322	Mammalogy (with laboratory and recitation)	
BIOL 327	Field Entomology (with laboratory)	
BIOL 352	Botany (with laboratory)	
BIOL 353	Rocky Mountain Flora	
BIOL 355	Spring Fungi Rocky Mountains (with laboratory)	
BIOL 467	Fisheries Biology	

Select at least two credits of Capstone Experience courses: 2

BIOL 495	Senior Seminar (may be repeated)	
BIOL 496	Senior Thesis	

Total Credits 16-18

Code	Title	Credits
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**Minimum supporting courses**

CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4

Total Credits 15

Code	Title	Credits
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**Core MEM Courses**

ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3

One of the following from the MEM emphasis: 3

Sustainable and Resilient Communities Emphasis:

ENVS 616	Environmental Organization Development and Management	
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Global Sustainability Emphasis:

ENVS 617	Global Sustainability	
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Integrative and Public Land Management Emphasis:

ENVS 618	Public Lands Management	
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Total Credits 23

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.S. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

**For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).**

**Capstone Course Requirement**

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 (<https://western-preview.courseleaf.com/search/?P=BIOL%20495>) SENIOR SEMINAR, BIOL 496 , or EDUC 409 (<https://western-preview.courseleaf.com/search/?P=EDUC%20409>) SECONDARY STUDENT TEACHING.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
MATH 140	College Algebra (GT-MA1)	3
ENG 102	Academic Writing (GT-CO1)	3
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
HWTR 100	First Year Seminar	1
		Credits 15
<b>Spring</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
MATH 141	Precalculus (GT-MA1)	4
General Education course (Area I)		3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1

COM 202	Academic Writing and Inquiry (GT-CO2)	3
<hr/>		Credits 18
<b>Year Two</b>		
<b>Fall</b>		
BIOL 301	General Ecology	3
BIOL 302	Ecology Laboratory and Recitation	2
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
General Education course (Area I)		3
<hr/>		Credits 16
<b>Spring</b>		
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
MATH 213	Probability and Statistics	3
General Education courses		6
Elective		3
<hr/>		Credits 16
<b>Summer</b>		
SCI 499	Internship in Science	1-5
67 credits completed (Submit 3+2 application materials by July 1)		
<hr/>		Credits 1-5
<b>Year Three</b>		
<b>Fall</b>		
BIOL 310	Cell Biology	3
Biology Elective (Organismal or Systems Biology elective)		4
General Education courses		6
<hr/>		Credits 13
<b>Spring</b>		
BIOL 312	Genetics (with recitation)	4
Biology Elective (Organismal or Systems Biology elective)		4
Electives		6
<hr/>		Credits 14

<b>Summer</b>		
ENVS 601	Introduction to Environmental Management	5
<hr/>		Credits 5
<b>Year Four</b>		
<b>Fall</b>		
Biology Elective (Organismal or Systems Biology elective)		3
ENVS 605	Science of Environment Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environment Management	3
BIOL 495	Senior Seminar	1
<hr/>		Credits 13
<b>Spring</b>		
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 616 or ENVS 618	Environmental Organization Development and Management or Public Lands Management	3
Biology Elective (Organismal or Systems Biology elective)		3
BIOL 495	Senior Seminar	1
<hr/>		Credits 13
<b>Summer</b>		
ENVS 690	MEM Project Development	5
<hr/>		Credits 5
<b>Year Five</b>		
<b>Fall</b>		
ENVS 620 or ENVS 625	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management	3

ENVS 625 or ENVS 620	Studies in Integrative and Public Land Managemen or Studies in Sustaina and Resilient Commur	3
ENVS 694	Master's Project and Portfolio	3-6
		Credits 9-12
<b>Spring</b>		
ENVS 620 or ENVS 625	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management	3
ENVS 694	Master's Project and Portfolio	6
		Credits 9
		Total 147-154 Credits

## Ecology Emphasis (with a 3+2 Master of Science in Ecology)

The Ecology emphasis allows students to complete the B.S. in Biology and the Master of Science in Ecology (Ecology MS) at Western in five years. To remain qualified for the 3+2, after 67 credits each student must have:

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- completed BIOL 150, BIOL 151, BIOL 301, and MATH 213
- fulfilled the 3-credit Internship or employment requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- confirmed acceptance by an Ecology MS faculty advisor;
- written a Statement of Purpose to the Ecology MS program, detailing early career ambitions and ideas/connections for the eventual Master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the Ecology MS Coordinator will recommend denial of acceptance to the Graduate Studies Dean and the School of ENVS Executive Director, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree.

In addition to meeting the requirements above, after satisfactorily completing the GRE, and after Junior Year (holding to the same GPA standards as outlined above) and completion of BIOL nucleus plus one systems and application course and one organismal course in the requirements (94 credits in this plan—see "Degree Plan" tab), if the student is accepted by a faculty advisor into the program, the School of Graduate Studies will designate the student as an "Ecology MS candidate with provisional acceptance." At this point the student must also declare their MS emphasis. Upon completion of the final 26 to 28 credits of the Western B.S. after Year Four of this plan, the School of Graduate Studies may designate the student as an "Ecology MS degree seeking student." After Year Four, students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements (120 total credits, 40 upper-division credits, general education requirements, the BIOL undergraduate courses listed under the Ecology emphasis, and the 18 credits of Ecology MS emphasis courses that come from the MS in Year 4), yet choose to leave the Ecology MS program before Year 5, will still have completed the BIOL undergraduate emphasis in Ecology and have earned the 120 credits necessary for a Western undergraduate degree.

The Ecology Emphasis requires a minimum of 78 credits, including the 26-credit Biology Nucleus, a minimum of 16 additional credits in Biology, 18 credits of supporting courses, and 18 credits of Ecology MS coursework. In the fifth year, a minimum of 21 additional credits of Ecology MS coursework results in the MS in Ecology degree.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology Courses</b>		
BIOL 302	Ecology Laboratory and Recitation	2
At least 6 credits in two or more of the following systems and applications courses:		6
BIOL 362	Evolution	
BIOL 430	Wildlife Ecology and Management (with laboratory)	
BIOL 431	Wildlife Techniques Workshop	
BIOL 440	Conservation Biology	
BIOL 476	Aquatic Ecology (with laboratory)	
BIOL 477	Plant Ecology (with laboratory)	
BIOL 481	Forest Ecology (with laboratory)	
Select two of the following organismal courses:		6-8
BIOL 320	Ornithology (with laboratory and recitation)	
BIOL 322	Mammalogy (with laboratory and recitation)	

BIOL 327	Field Entomology (with laboratory)	
BIOL 352	Botany (with laboratory)	
BIOL 353	Rocky Mountain Flora	
BIOL 467	Fisheries Biology	
Select at least two credits of Capstone Experience courses:		2
BIOL 495	Senior Seminar	
BIOL 496	Senior Thesis	
Total Credits		16-18

Code	Title	Credits
<b>Minimum supporting courses</b>		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3
CHEM 234	Introductory Organic and Biochemistry Laboratory	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
At least three credits of Internship courses		3
SCI 499	Internship in Science	
Total Credits		18

Code	Title	Credits
<b>Core Ecology MS courses, to be taken in Year 4 of 3+2 (Year 1 of MS):</b>		
BIOL 606	Ecological Research Methods	3
BIOL 613	Advanced Ecological Analysis	3
BIOL 690	Ecology MS Proposal Development	3
One or more of the following to be taken in Fall Year 4 of 3+2 (Fall 1 of MS):		3-4
Biology Elective (620 or above, excluding 690, 695, 696)		
ENVS 608	Environmental Politics and Policy	
ENVS 611	Integrative Skill in Environmental Management	
ENVS 623	Studies in Environmental Management	
ENVS 625	Studies in Integrative and Public Land Management	
One or more of the following to be taken in Spring Year 4 of 3+2 (Spring 1 of MS):		3-4
Biology Elective (620 or above, excluding 690, 695, 696)		
ENVS 615	Science of Climate Mitigation and Adaptation	
ENVS 618	Public Lands Management	
ENVS 623	Studies in Environmental Management	
ENVS 625	Studies in Integrative and Public Land Management	
Total Credits		15-17

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete the M.S. in Ecology must follow the balance of their declared emphasis curriculum.

Upon the acceptance of MS proposals (BIOL 690), MS candidates must be continuously enrolled for at least 1 credit of BIOL 695 or 696 until successful thesis defense.

**For a full description of the required Graduate coursework, please see the appropriate MS program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/ecology/>).**

Code	Title	Credits
<b>21 credits of the following:</b>		
Biology elective (620 or above, excluding 690, 695, 696)		3-4
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 618	Public Lands Management	3
ENVS 623	Studies in Environmental Management	1-6
ENVS 625	Studies in Integrative and Public Land Management	3
Including at least 6 credits of the following:		6
BIOL 695	Ecology/ Conservation Thesis Research	
BIOL 696	Fisheries/ Wildlife Thesis Research	
Total Credits		25-31

### Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: BIOL 495 (<https://western-preview.courseleaf.com/search/?P=BIOL%20495>) SENIOR SEMINAR, BIOL 496, or EDUC 409 (<https://western-preview.courseleaf.com/search/?P=EDUC%20409>) SECONDARY STUDENT TEACHING.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
<b>General Education courses</b>		
ENG 102	Academic Writing (GT-CO1)	3
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
HWTR 100	First Year Seminar	1
<b>Credits</b>		
<b>15</b>		
<b>Spring</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
MATH 141	Precalculus (GT-MA1)	4
<b>General Education courses (Area I)</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1



COM 202	Academic Writing and Inquiry (GT-CO2)	3	ENVS 608	Environment Politics and Policy	3
			or		
<b>Year Two</b>					
<b>Fall</b>					
BIOL 301	General Ecology	3	ENVS 611	Integrative Skill in Environment Management	3
			or		
BIOL 302	Ecology Laboratory and Recitation	2	ENVS 623	Studies in Environment Management	3
			or		
CHEM 231	Introduction to Organic Chemistry and Biochemistry	3	ENVS 625	Studies in Integrative and Public Land Management	3
			AND:		
CHEM 234	Introductory Organic and Biochemistry Laboratory	1	BIOL 495	Senior Seminar	1
			Other General Education courses	0-3	
GEOL 101	Physical Geology (GT-SC2)	3	Biology Elective (Organismal or Systems Biology Elective)		
			Credits 25-29		
GEOL 105	Physical Geology Laboratory (GT-SC1)	1	<b>Spring</b>		
			BIOL 613	Advanced Ecological Analysis	3
General Education courses (Area I)			Two of the following:		
Credits 16			BIOL 620-689 (Graduate electives in Ecology)		
<b>Spring</b>			OR		
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4	ENVS 615	Science of Climate Mitigation and Adaptation	3
			or		
MATH 213	Probability and Statistics	3	ENVS 618	Public Lands Management	3
			or		
General Education courses			ENVS 623	Studies in Environment Management	1-6
Elective			or		
Credits 16			ENVS 625	Studies in Integrative and Public Land Management	3
<b>Year Three</b>			AND:		
<b>Fall</b>			BIOL 690	Ecology MS Proposal Development	3
BIOL 310	Cell Biology	3	BIOL 495	Senior Seminar	1
Biology Elective (Organismal or Systems Biology Elective)			Other General Education courses		
General Education courses			Credits 23-32		
Elective or Biology Elective (Organismal or Systems Biology Elective)					
Credits 13					
<b>Spring</b>					
BIOL 312	Genetics (with recitation)	4			
Biology Elective (Organismal or Systems Biology Elective)					
General Education					
Elective or Biology Elective (Organismal or Systems Biology Elective)					
Credits 14					
<b>Year Four</b>					
<b>Fall</b>					
BIOL 606	Ecological Research Methods	3			
Two of the following:			6-7		
BIOL 620-689 (Graduate Electives in Ecology)					
OR					

Summer		
BIOL 695 or BIOL 696	Ecology/ Conservation Thesis Research or Fisheries Wildlife Thesis Research	3
Credits		3
Year Five		
Fall		
Nine credits of the following:		9
BIOL 695	Ecology/ Conservation Thesis Research	1-9
BIOL 696	Fisheries/ Wildlife Thesis Research	1-9
BIOL 600 or above (Graduate electives in Ecology)		
ENVS 623	Studies in Environment Management	1-6
ENVS 625	Studies in Integrative and Public Land Management	3
Credits		15-36
Spring		
Nine credits of the following:		9
BIOL 695	Ecology/ Conservation Thesis Research	1-9
BIOL 696	Fisheries/ Wildlife Thesis Research	1-9
BIOL 600 or above (Graduate electives in Ecology)		
ENVS 623	Studies in Environmental Management	1-6
ENVS 625	Studies in Integrative and Public Land Management	3
Credits		15-36
Total		173-228
Credits		

## Health Sciences Emphasis (with a 3+2 MS in High Altitude Exercise Physiology)

The Health Sciences Emphasis allows students to complete the BS in Biology and the MS in High Altitude Exercise Physiology (HAEP) in five years. To remain qualified for the Health Sciences Emphasis, students must meet requirements at certain points in their academic progression. By the end of the second academic year, the student must have earned 63 credits and completed ESS 185 Lifetime Wellness; BIOL 372 Human Anatomy and Physiology I (with laboratory) and

BIOL 373 Human Anatomy and Physiology II (with laboratory); CHEM 331 Organic Chemistry I, CHEM 332 Organic Chemistry II, CHEM 334 Organic Chemistry Laboratory I, and CHEM 335 Organic Chemistry Laboratory II; all 100-level required science courses; and 15 credits of Liberal Arts General Education courses in Areas I and III. By the end of the third academic year, the student must have earned 95 credits and fulfill all the HAEP application requirements listed below.

Upon earning 95 credits by the end of the third year, the student must have:

- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Earned a C or better in all major coursework.
- Completed all General Education requirements.
- Completed all but 6 credits of the undergraduate course requirements for the Health Sciences Emphasis. See MAJOR MAP at [western.edu/biol](http://western.edu/biol).
- Completed the application for the 3+2 HAEP program by satisfying the following:
  - Written, submitted and discussed a Letter of Intent with the HAEP program Director and his or her advisor. The Letter of Intent should include preliminary research interests and career goals. This letter will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.
  - Requested, and the School of Graduate Studies must have received, two letters of recommendation. At least one letter must be from a Western faculty member. Recommendation letters will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.
  - Submitted a current résumé. The resume will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.
  - Paid the \$50 School of Graduate Studies application fee.

Upon satisfying all the requirements listed above, the School of Graduate Studies will consider the student a "HAEP candidate with provisional acceptance."

Upon earning 120 credits by the end of the fourth year, the student must have:

- Completed all undergraduate Health Sciences Emphasis coursework.
- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Completed 18 graduate level ESS credits, with at least a 3.0 GPA.

At this time, the School of Graduate Studies will consider the student a "HAEP M.S. degree seeking student."

The Health Sciences Emphasis requires a minimum of 83 credits, including the 26-credit Biology Nucleus, 8 additional credits in Biology, 31 credits of supporting courses, and 18 credits of HAEP coursework.

All Biology majors require the 26-credit Biology Nucleus.

Code	Title	Credits
<b>Biology Nucleus</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4

CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Total Credits		26

Code	Title	Credits
<b>Required Biology Courses:</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
Total Credits		8

Code	Title	Credits
<b>Minimum supporting courses:</b>		
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 471	Biochemistry I	3
ESS 185	Lifetime Wellness	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
MATH 213	Probability and Statistics	3
PSY 100	General Psychology (GT-SS3)	3
One of the following:		4-8
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
Total Credits		31-35

Code	Title	Credits
<b>Year four HAEP courses:</b>		
ESS 600	Advanced Statistics	3
ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumentation-Lab	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3
ESS 640	Environmental Exercise Physiology I	3
ESS 675	Clinical Exercise Programming-Lab	3
Total Credits		18

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.S. conferral. Students electing to complete a MS in HAEP must follow the balance of the HAEP curriculum.

**For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/high-altitude-exercise-physiology/#programrequirements>).**

### Capstone Course Requirement

The following courses in the Biology Major fulfill the capstone course requirement: ESS 601 Quantitative Research Methods.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
Elective		3
		Credits
		15
<b>Spring</b>		
ESS 185	Lifetime Wellness	3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3
PSY 100	General Psychology (GT-SS3) ((Gen Ed))	3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
		Credits
		17
<b>Year Two</b>		
<b>Fall</b>		
General Education courses		6
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
Elective		3
		Credits
		17
<b>Spring</b>		
General Education courses		6

BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1
Credits		14

**Year Three****Fall**

General Education courses			3
ESS 330	Exercise Physiology	3	
ESS 331	Exercise Physiology Lab	1	
CHEM 471	Biochemistry I	3	
BIOL 301	General Ecology	3	
Elective		3	
Credits		16	

**Spring**

PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
ESS 380	Biomechanic	3
BIOL 310	Cell Biology	3
Elective <sup>6</sup>		
Credits		10

**Year Four****Fall**

MATH 213	Probability and Statistics	3
ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumental Lab	3
ESS 640	Environmental Exercise Physiology I	3
Credits		12

**Spring**

BIOL 312	Genetics (with recitation)	4
ESS 600	Advanced Statistics	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3

ESS 675	Clinical Exercise Programmin Lab	3
Credits		13

**Year Five****Fall**

ESS 641	Environment Physiology Ii	3
ESS 650	Thesis Proposal Development	3
ESS 698	Practicum/ Internship	1-6
Credits		7-12

**Spring**

ESS 612	Exercise Biochemistr	3
ESS 695	Thesis	6
Credits		9
Total		130-135
Credits		

## Business Administration (BUAD)

The Business Administration Program is designed to produce graduates who possess skills and abilities needed to succeed in the business world of the 21st century. An emphasis is placed on critical thinking skills, communication skills, liberal arts breadth, and the fundamental business concepts essential for successful careers in business. Each of the degree options is organized to develop a thorough understanding of the fundamental concepts of business. In addition to conceptual knowledge, each student develops the ability to apply specific principles in a specialty of the student's choosing. These principles are taught through a program that has three essential elements.

The Base Curriculum consists of a group of courses mainly outside of the Business area that covers the basic competencies needed to succeed in the upper-division Business requirements. These courses have been selected to ensure basic knowledge in the areas of communication, reasoning, and critical thinking required for upper-division study. The second element is the Business Administration Nucleus, comprised of a core of Business courses focusing on principles in the areas of communication, marketing, management, and law. These courses form the fundamental business concepts required in all emphasis areas and represent the bulk of the requirements for the Standard Program in Business Administration.

The third element consists of a group of courses in the area in which the student wishes to acquire additional technical skills. In the Standard Program, the courses are in an area outside of Business Administration where the student is required to attain at least a minor. In the other emphasis areas offered by the department (management, marketing, entrepreneurship, Latin American business, professional land and resource management, and resort management), the student has additional requirements that develop skills necessary to succeed in the chosen area.

The Management Emphasis provides opportunities to develop the necessary expertise to enter a training program for managerial-level employees in any size business. These courses place emphasis on

learning both essential management principles and their application in the highly competitive world of business.

The Marketing Emphasis is designed to prepare students for entry-level positions in strategic marketing, sales, marketing research, and promotion. Students are encouraged to relate their studies in related disciplines, such as Communications and Economics, to the study of marketing.

The Innovation, Creativity, and Entrepreneurship (ICE) Emphasis prepares students to think and act as a leader who challenges the status quo. Students experience cutting edge innovation and design-thinking techniques necessary for solving the ever changing commercial, social, and environmental challenges of tomorrow. ICE students master the ability to recognize opportunity, frame problems, think creatively, manage risk, and launch organizations.

The Latin American Business Emphasis prepares students for entry-level positions in international organizations that specialize in Latin America. The program is highly interdisciplinary with a solid business core. In addition to business fundamentals, the student will develop an understanding of the predominant language and culture of Latin America and its history, together with the broad concepts of international economics.

The Energy Management Emphasis is designed to prepare students for entry-level positions as land negotiators. Students learn land and resource management principles through knowledge and perspectives of business administration, economics, geology, and environmental studies. The program is designed to prepare students to work in the business side of energy and mineral exploration.

The Resort Management Emphasis prepares students for entry-level management positions in the hospitality industry. With a solid foundation in business, a student is well prepared to succeed in specific courses in resort management and equipped with employment-ready skills upon graduation. Students are required to complete 400 hours of work experience in the industry prior to graduation to provide practical experience in the field.

Graduate study in business (MS or MBA) is possible regardless of undergraduate major. However, students lacking sufficient quantitative and analytical skills may find it difficult at best. These skills can be acquired by completing the Base Curriculum previously described and by adding a higher level math class than required for the undergraduate degree.

To graduate, all business majors must have a "C-" or better in all courses required in the major.

## Programs

- Business Administration Comprehensive Major: Energy Management Emphasis (p. 82)
- Business Administration Comprehensive Major: Finance Emphasis (p. 84)
- Business Administration Comprehensive Major: Innovation, Creativity, and Entrepreneurship Emphasis (ICE) (p. 86)
- Business Administration Comprehensive Major: Latin American Business Emphasis (p. 87)
- Business Administration Comprehensive Major: Management Emphasis (p. 89)

- Business Administration Comprehensive Major: Marketing Emphasis (p. 90)
- Business Administration Comprehensive Major: Resort Management Emphasis (p. 92)
- Business Administration Major: Standard Program (p. 94)
- Business Administration Minor (p. 96)
- Business Administration Minor - Business Analytics (p. 96)
- Business Administration Minor - Business Law (p. 96)
- Business Administration Minor - Energy Management (<https://catalog.western.edu/undergraduate/programs/business-administration/energy-management-minor/>)
- Business Administration Minor - Innovation, Creativity, and Entrepreneurship (ICE) (p. 96)
- Business Administration Minor - Sales (p. 97)
- Business Management Emphasis (with a 3+2 Master in Environmental Management) (p. 97)
- Business Management Emphasis (with a 3+2 Outdoor Industry Master in Business Administration) (p. 99)

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 Strategic Management (Standard Major or Management, Marketing, Latin American Emphases) or BUAD 494 Innovation, Creativity, and Entrepreneurship: Launch (ICE: Launch) (Innovation, Creativity, and Entrepreneurship Emphasis) or BUAD 495 Prospect Economics and Evaluation (Energy Management Emphasis).

## Business Administration Courses

### BUAD 100. Business in Society. (3 Credits)

A study of the role of business in modern society. Topics include the private enterprise system, consumerism, management functions, major functional areas of large business, vital areas of small-business operation, and the environment of business.

### BUAD 101. Business of Life. (3 Credits)

This course helps students begin building the foundations of four critical life skills: economic decision making, managing personal finances, personal branding and creating change. Students learn the basics of objective decision making, managing budgets and filing income taxes, creating and projecting a personal image, and using creativity and innovation within organizations and personal lives.

### BUAD 150. Introduction to Hospitality. (3 Credits)

An introduction to hospitality management, including historical developmental patterns, current business trends, and future international expectations. Current job market, working environments, personal risks, and rewards are explored.

### BUAD 185. Business Communication. (3 Credits)

A study of the fundamentals, principles, and practices of effective written communication, including concepts of appearance, language, and psychology of tone and persuasiveness as applied to the business letter, memorandum, email, spreadsheet, and report. Presentation skills are also discussed and practiced. Prerequisites: ENG 102 with a minimum grade of "C-".

### BUAD 197. Special Topics. (1-6 Credits)

**BUAD 202. Energy Management Professional Development. (1 Credit)**

Designed specifically for Energy Management students. It is intended to provide students with hands on, real world professional awareness. Prerequisite: Instructor permission

**BUAD 206. Personal Finance. (3 Credits)**

Designed to help students plan the handling of their finances in everyday business transactions. Topics include budgeting, credit, savings, insurance, income tax, investments, and estate planning.

**BUAD 210. Legal Environment of Business. (3 Credits)**

Provides students an ability to sense the occasions when a lawyer should be consulted for guidance in avoiding legal mistakes. A study is made of the ordinary legal aspects of common business transactions, including the topics of social forces, contracts, personal property, and agency.

**BUAD 220. Spreadsheets and Analysis. (3 Credits)**

Students learn to utilize spreadsheets to organize, manipulate, analyze, and present data and information in business settings.

**BUAD 230. Evolution of the Oil Economy. (3 Credits)**

Studies the evolution of global oil and gas development and its economic and geopolitical effects. The relationships between oil technology, economics, social and political institutions, and the unique cultures in oil-producing regions are investigated. Additionally students study a multi-disciplinary approach to understanding how oil affects economic development and commerce.

**BUAD 240. Strategic Negotiations. (3 Credits)**

Merges theory with practice, offering students a hands-on opportunity to learn negotiation and communication skills. Students study how to develop personal negotiation plans and preparation methods, analyze other parties' interests, identify and implement solutions for mutual gain, communicate effectively, and successfully draft agreements. Students practice and refine both their personal and professional negotiation and communication skills using realistic mock scenarios to negotiate, compose, and evaluate agreements. Prerequisite: COM 202 with a minimum grade of "C-".

**BUAD 270. Principles of Marketing. (3 Credits)**

An introduction to the fundamental concepts of marketing, including consumer demand and behavior, segmentation, advertising, marketing research, product development, distribution, pricing, the internet as a marketing agent, and global marketing issues. The student is exposed to the most basic tools, factors, and marketing principles administered by management in establishing policy, planning, and complex problem solving. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 24 credits; or instructor permission.

**BUAD 275. Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset). (3 Credits)**

The ICE mindset comprises the underlying beliefs and assumptions that drive the behavior enabling people to create positive change. This course takes the approach that anyone (not just those who want to start businesses) can benefit from understanding and applying an innovative, creative, and entrepreneurial mindset to any situation that demands change in their life. Students are immersed in learning about the fundamental aspects of an ICE mindset and the unlimited opportunities it can provide.

**BUAD 292. Independent Study. (1-6 Credits)****BUAD 297. Special Topics. (6 Credits)****BUAD 299. Internship. (3 Credits)**

A course designed specifically for freshmen- and sophomore-level students. Internships provide guided, counseled, and progressive experience under a dual-tutelage program of a businessperson and an academican. An academically monitored activity to assure quality experience. Graded Satisfactory/Unsatisfactory only.

**BUAD 300. Business Ethics. (3 Credits)**

A study of how ethics apply to business organizations today. Special emphasis is placed on developing moral reasoning. The course provides multiple perspectives on actual cases and ethical dilemmas faced by organizations with an emphasis on allowing students to think through ethical problems. Topics studied include moral philosophies, moral agency and development, ethical underpinnings of free markets and economic systems, and ethical concerns with the environment, future generations, and other stakeholders such as employees and consumers. Prerequisites: completion of Base Curriculum; BUAD 185 or COTH 202; or instructor permission.

**BUAD 301. Topics in Business Administration. (1-6 Credits)**

Provides an opportunity for students to examine current issues, topics, problems, and trends within the field.

**BUAD 302. Energy Management Professional Development II. (1 Credit)**

Designed specifically for Energy Management students. It is intended to provide students with hands on, real world professional awareness. Prerequisite: Junior or senior standing and instructor permission.

**BUAD 305. Applied Energy Seminar. (3 Credits)**

Introduction to the energy industry, including fossil fuel and renewable energy use and development. Explores topics including global energy production and consumption, energy efficiency, infrastructure, grid systems and transmission, and environmental and social impacts of energy development with an emphasis on regulation, policy, and the oil and gas industry. Prerequisite: COM 202.

**BUAD 311. Business Analytics. (3 Credits)**

This course covers managerial statistical tools in descriptive and predictive analytics, including regression. Other topics covered include forecasting, risk analysis, simulation, data mining, and decision analysis. Prerequisites: BUAD 220 or CS 120; ECON 216 or MATH 213.

**BUAD 315. Business Law. (3 Credits)**

Study includes: legal attributes of different business entities, employment and agency, intellectual property, securities, antitrust, sales, products liability, secured and unsecured lending, suretyship, bankruptcy, and real and personal property. Prerequisite: BUAD 210.

**BUAD 320. Property and Contracts. (3 Credits)**

An introduction to basic property and contract law with a focus on land management. Topics include the basic rules of contract and real property law, the land survey systems, legal descriptions, recording statutes, public records examination, surface and mineral ownership, interest types in property, concurrent estates, calculating ownership and revenue associated with mineral development, methods of acquiring property, conveyancing, title research, mineral leasing, and ethics. Prerequisite: BUAD 210.



**BUAD 321. Oil and Gas Agreements. (3 Credits)**

Introduces the preparation, negotiation, and drafting of contracts and agreements used in land management and the petroleum industry. This course covers the knowledge and skills a petroleum land professional is expected to exhibit in drafting and negotiating commonly used contracts with a focus on upstream agreements including but not limited to: oil and gas leases, surface use agreements, farmout agreements, AMI's, joint operating agreements, master service agreements, seismic agreements, pooling agreements, purchase and sale agreements, and exchange agreements. Prerequisites: BUAD 320; or instructor permission.

**BUAD 322. Financial Planning. (3 Credits)**

An exploration of the fundamental issues of financial planning. Students gain an understanding of the concepts of the financial planning process, the economic environment, the time value of money, the legal environment, financial analysis, and ethical and professional considerations in financial planning. Prerequisite: Completion of Base Curriculum.

**BUAD 325. Management Information Systems. (3 Credits)**

A study of how managers can and should be involved with systems planning, development, and implementation; what information systems resources are available to managers for decision support; and how information and technology can be used to support business strategy. Also, this course takes a managerial approach to information systems concepts and applications in business, while exposing the student to various types of software in the business sector. Prerequisite: BUAD 220 or CIS 120.

**BUAD 327. Social Media Marketing. (3 Credits)**

Students build their social media marketing skills by utilizing projects that give students hands on experience implementing social media marketing strategies. Upon completion, students should be able to use social media technologies to create and improve marketing efforts for businesses. Prerequisite: BUAD 270.

**BUAD 331. Food and Beverage Management. (3 Credits)**

Prepares students for management of sales, food cost controls, beverage cost controls, labor, personnel, sanitation, and market analysis as they relate to the resort industry. Prerequisites: completion of Base Curriculum; BUAD 150; or instructor permission.

**BUAD 332. Rental and Retail Management. (3 Credits)**

An introduction to operating rental and retail-profit centers as part of a corporation involved in the resort industry. Topics covered include managing personnel, equipment, training, traffic flow, buying, forecasting, and accounting. Prerequisites: completion of Base Curriculum; BUAD 150; or instructor permission.

**BUAD 333. Organizational Behavior. (3 Credits)**

Provides students an understanding of human behavior in organizations today. Students will become familiar with the basic dimensions of organizational behavior covering topics such as leadership, motivation, management of people, and group dynamics. The course stresses an experimental approach as well as the personal nature of the material and how this relates to the complexities of behavior in and of organizations. Prerequisite: BUAD 185 or COM 202; or instructor permission.

**BUAD 334. Lodging Operations. (3 Credits)**

A focus on organizational structure and front office positions. Topics covered include reservation, registration and rooming process; management, financial, and policy control procedures; and organization, staffing, and functions of housekeeping departments Prerequisite: completion of Base Curriculum; BUAD 150; or instructor permission. Class will be held at Crested Butte Mountain Resort.

**BUAD 335. Marketing Communications. (3 Credits)**

Advertising, sales promotions, media utilization, public relations, and personal selling are highlighted in this course. Legal regulations and ethical considerations in mass media advertising and promotions are also covered. Finally, the student is exposed to the principles of planning and budgeting for such media events. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ACC 201 with a minimum grade of "C-"; BUAD 270; or instructor permission.

**BUAD 337. Hospitality Law and Risk Management. (3 Credits)**

Provides an awareness of the rights and responsibilities that the law grants to or imposes upon a hotelkeeper and illustrates the possible consequences of failure to satisfy legal obligations. Also included is risk management as a means of mitigating exposure to lawsuits and fines. Prerequisites: BUAD 150; BUAD 210; or instructor permission.

**BUAD 340. Global Business. (3 Credits)**

An advanced course with application of management and marketing principles to the inter-national marketplace. Cultural, political, and geographic differences are analyzed in order to develop market strategies for global markets. Prerequisite: BUAD 185 or COM 202; or instructor permission.

**BUAD 342. Environmental Law. (3 Credits)**

An introduction to the history, principles, and enforcement of environmental law with a focus on certain major environmental laws, including the National Environmental Policy Act, Clean Air Act, Clean Water Act, and other laws, acts, and policies. Certain hot topics in natural resource law are also addressed. Students recognize the interplay between environmental laws and various industries, including the energy industry. Prerequisite: BUAD 210.

**BUAD 343. Sales I. (3 Credits)**

A focus on the habits, thinking, perspective and skills needed to understand professional selling. Students learn the SPIN model and engage in significant amounts of presentation practice and skills building. Students will choose a company, product or service to serve as their role play model for the semester. Prerequisite: BUAD 270.

**BUAD 345. Consumer Behavior. (3 Credits)**

Utilizing theories from the behavioral sciences, this course provides an in-depth examination of the individual customer learning and decision-making processes, segmentation, as well as culture, subculture, and social class relationships with marketing. Students develop an understanding of consumers' shopping behavior, utilization of different marketing channels, perception of products, and reactions to advertising and other selling methods. Prerequisites: completion of Base Curriculum; BUAD 270; or instructor permission.

**BUAD 350. Human Resource Management. (3 Credits)**

Provides students with an understanding of the functions, content and challenges of Human Resource Management (HRM) in organizations today. Insights will be developed on basic dimensions of HRM such as recruitment, selection, performance management, rewards and retention, as well as particular challenges concerning strategic HRM and global environments. Emphasis is placed on how the complexities of HRM relate to students' past and future experiences as members of organizations. Prerequisites: BUAD 185 or COM 202 or instructor permission.

**BUAD 360. Managerial Finance. (3 Credits)**

An introductory course to the field of managed finance, covering such topics as financial analysis, time value of money, risk/return analysis, capital budgeting, working capital management, cost of capital, optimal capital structure. Prerequisites: Completion of Business Administration Base Curriculum; or Energy Management Base Curriculum; or instructor permission.

**BUAD 363. Business and the Environment. (3 Credits)**

A focus on the impact on the environment of human presence and absence. There is a consideration of various 'green practices' that result in both positive environmental impacts and cost savings to industry, and examination of governmental initiatives regarding various business practices and their expected impacts on the environment, on businesses' bottom lines, and on consumers. Course material emphasizes videos, readings, and guest lectures. Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 370. Exploration Production Processes. (3 Credits)**

Provides students with an introduction to engineering in exploration and production, focusing on oil and gas upstream and midstream engineering processes and their interface with land functions. Concepts discussed in this course include: seismic, exploration, well-site selection and preparation, drilling, wellbore integrity, completions, hydraulic fracturing, facilities, separating, treating, processing, transportation, pipelines, and well-site reclamation. Prerequisites: BUAD 305. Prerequisite or corequisite GEOL 101 and GEOL 105; or instructor permission.

**BUAD 375. Innovation, Creativity, and Entrepreneurship: Toolkit (ICE: Toolkit). (3 Credits)**

This course helps students identify and frame business and other societal problems that are characterized by complexity, uncertainty, volatility, and ambiguity. Students learn to think problems through by understanding the situation and framing problems in new ways that might alter how they generate and evaluate solutions. Prerequisite: ACC 201; BUAD 275; or instructor permission.

**BUAD 380. Commercial Lending & Credit Analysis. (3 Credits)**

The study of the principles of commercial lending to corporate customers by commercial banks. The course will examine the 5 "C's" of credit, (Character, Capacity, Collateral, Conditions, and Capital), as well as the complete commercial lending function with emphasis on the analysis of corporate financial statements to determine the creditworthiness of commercial loan requests. Special emphasis will be placed on asset-based lending facilities, valuation of collateral, the collection of credit information and its analysis, and the risk-based pricing of commercial loans. Prerequisite: BUAD 360.

**BUAD 382. ICE: Make. (3 Credits)**

An introduction to prototyping - the stage of innovation where ideas come to life. Building prototypes is a low-cost and risk-averse way to get ideas into the hands of the appropriate people. This is an intensive, hands-on learning experience that will equip students to prototype products, services, interactions, and environments. Students learn methods that innovators use to quickly build prototypes, learn best practices for testing those ideas in the field, and collecting real user feedback to iterate efficiently. Prerequisite: BUAD 275.

**BUAD 384. Sales II. (3 Credits)**

An extension of Sales I that focuses on the habits and tools professional sellers in the marketplace. Students engage in significant amounts of presentation practice and skill building. In addition to practice, students will be involved in "real" selling experiences at various times during the semester. Prerequisite: BUAD 343.

**BUAD 392. Independent Study. (1-6 Credits)****BUAD 397. Special Topics. (6 Credits)**

Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 402. Commercial Bank Management. (3 Credits)**

The study of the various risks banks face, not only in day-to-day operations, but potential long term exposure to outside uncontrollable forces including regulatory challenges and changes. Topics such as asset-liability management, interest rate volatility, reserve management, capital adequacy and others are covered. Also covered will be a commercial bank's interaction with the Federal Reserve. This course will be augmented with cases and the American Bankers Association's computer simulation game BANKEXEC. Prerequisite: BUAD 360.

**BUAD 406. ICE: Field. (3 Credits)**

For students who have a business concept that they envision pursuing after graduation that they have analyzed and vetted in other courses. The primary focus is to aid those students to get as close to launch as possible, or if already launched to get as close as possible to accelerated growth. Prerequisite: BUAD 275.

**BUAD 410. Water Law. (3 Credits)**

A comprehensive case law study of water, addressing the historical development of the riparian and prior appropriation doctrines, groundwater allocation issues, Federal and Indian water rights doctrines, public rights in water and water as a shared resource both intrastate and interstate, together with a brief review of certain environmental laws that specifically address water issues. Prerequisite: BUAD 210.

**BUAD 415. Portfolio Management. (3 Credits)**

A study of portfolio management with an emphasis on customizing asset allocation strategies and tactics for the individual and institutional investors. Several financial portfolio optimization models will be studied. The trade-off between risk and return on investments will also be emphasized. Also covered is how asset derivatives and hedges can be applied to either reduce risk, increase profitability, or both. Prerequisite: BUAD 360.

**BUAD 420. Oil and Gas Law. (3 Credits)**

A comprehensive study of oil and gas law & regulations. The course addresses the historical development of the law as it relates to the conservation of oil and gas, the rights and duties of operators and landowners, implied covenants, titles and conveyances, contracts, pooling and unitization, and other oil and gas development issues. Students also learn about the oil and gas regulatory scheme at the federal, state, and local levels. This course analyzes laws and regulations in light of recent technologic advances, such as the emergence of horizontal drilling and hydraulic fracturing. Prerequisites: Admission into The Energy Management Program; BUAD 210, BUAD 305, BUAD 320; or instructor permission.

**BUAD 425. Marketing Research. (3 Credits)**

The focus of this course is the collection, analysis, and interpretation of marketing data for reporting research information necessary to make informed marketing decisions. Students develop skills in defining research problems, designing surveys, experiments, and observational studies, managing data collection, performing data analysis, and communicating results. Prerequisites: completion of Base Curriculum; BUAD 270; or instructor permission. BUAD 335 and BUAD 345 recommended.

**BUAD 428. Sales III. (3 Credits)**

Students continue to learn the SPIN Selling Model while mentoring students in the first sales class. Also included are leadership models, including Covey's Seven Habits of Highly Effective People. Prerequisites: BUAD 343 and BUAD 384.

**BUAD 460. Advanced Managerial Finance. (3 Credits)**

The study of financial decision-making theory and practice which deals with major issues in the managing the inflows and outflows of a firm's funds from the chief financial officer's (CFO) perspective. Other topics include financial analysis, forecasting financial needs, sources and use of funds, efficient allocation of funds within the firm, firm and security valuation techniques, risk/return decisions, capital budgeting, optimal capital structure composition, and the firm's relationships with investors, financial markets, and financial institutions. Prerequisite: BUAD 360.

**BUAD 461. Investments. (3 Credits)**

A study of the many investments available for individual portfolios. Emphasis is placed on the risks inherent in investments and the methods and techniques of analysis used in selecting securities for investments. Prerequisite: completion of Base Curriculum; BUAD 360; or instructor permission.

**BUAD 482. Hospitality Operations Management. (3 Credits)**

An integration of management functions learned in previous classes into a workable approach to profitable resort operations. Students are encouraged to take this course during their last semester; graduating seniors are given priority in enrollment. Prerequisite: completion of Base Curriculum; BUAD 331; BUAD 332; BUAD 334; BUAD 337; BUAD 360; or instructor permission. Class will be held at Crested Butte Mountain Resort.

**BUAD 491. Strategic Management. (3 Credits)**

The formal analysis of an organization's macro and industry environment; its mission and goals; and strategy formulation, implementation, and control. This is a capstone course which integrates the student's knowledge from the areas of accounting, finance, marketing, and management. Students are encouraged to take this course during their last semester; graduating seniors are given priority in enrollment. Prerequisites: completion of Base Curriculum; BUAD 185; BUAD 333 or 350; BUAD 360; and senior standing.

**BUAD 492. Independent Study. (1-6 Credits)**

A singular investigation into a unique problem to be determined jointly by the researcher and the advisor. Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 494. Innovation, Creativity, and Entrepreneurship: Launch (ICE: Launch). (3 Credits)**

This course provides real world, hands on learning on what it's like to actually start an organization. Students talk to customers, partners, competitors, as they encounter the chaos and uncertainty of how a startup actually works. Prerequisite: Base curriculum; BUAD 275; BUAD 375; or instructor permission.

**BUAD 495. Prospect Economics and Evaluation. (3 Credits)**

Synthesizes previous coursework, focusing on the application of advanced concepts in finance, economics, law, regulatory schemes, mergers and acquisitions, negotiations, contract drafting, geology, engineering, title, leasing and environmental, social, and political issues. Prerequisites: BUAD 305, BUAD 320, BUAD 321, BUAD 360, GEOL 240 prerequisite or corequisite; or instructor permission.

**BUAD 497. Special Topics. (1-6 Credits)**

Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 499. Internship in Business Administration. (1-6 Credits)**

A course designed specifically for junior- and senior-level students. Internships provide guided, counseled, and progressive experience under a dual-tutelage program of a businessperson and an academician. An academically monitored activity to assure quality experience. Graded Satisfactory/Unsatisfactory only. Prerequisite: completion of Base Curriculum; or instructor permission.

## Business Administration Comprehensive Major: Energy Management Emphasis Program Requirements

Admission to the program: All students wishing to major in the Energy Management (EM) emphasis in Business Administration must be formally admitted to the program. Students who have already completed a BA/BS in Business or Accounting will be considered to have completed most of the Energy Management Base Curriculum and Energy Management Nucleus upon admission to the program, and will need to take only the following courses (7 credits) to complete these requirements: BUAD 240 Strategic Negotiations, BUAD 311 Business Analytics, and at least one of the following: BUAD 202 Energy Management Professional Development, BUAD 302 Energy Management Professional Development II.

A minimum of 83 credits is required, including the 21-credit Energy Management Base Curriculum, the 19 to 20- credit Energy Management Nucleus:

Code	Title	Credits
<b>Energy Management Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 216	Statistics for Business and Economics	3
MATH 232	Applied Calculus for the Managerial and Social Science	3
BUAD 220	Spreadsheets and Analysis	3
Total Credits		21

Code	Title	Credits
<b>Energy Management Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 240	Strategic Negotiations	3
BUAD 270	Principles of Marketing	3
BUAD 333	Organizational Behavior	3
BUAD 360	Managerial Finance	3
Select at least one of the following:		1-2
BUAD 202	Energy Management Professional Development	
BUAD 302	Energy Management Professional Development II	
Total Credits		19-20

And the following emphasis courses:

Code	Title	Credits
<b>Energy Management Emphasis</b>		
BUAD 230	Evolution of the Oil Economy	3
BUAD 305	Applied Energy Seminar	3
BUAD 320	Property and Contracts	3
BUAD 321	Oil and Gas Agreements	3
BUAD 370	Exploration Production Processes	3
BUAD 410	Water Law	3
BUAD 420	Oil and Gas Law	3
BUAD 495	Prospect Economics and Evaluation	3
ECON 370	Natural Resource Economics	3
ENVS 350	U.S. and Western Environmental Politics	3
GEOG 340	Introduction to Geographic Information Systems	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 240	Introduction to Petroleum and Mining Geology	3
One of the following elective courses:		
COM 274	Public Relations Communication	
COM 372	Issues Management	
<b>Total Credits</b>		<b>43</b>

Students must maintain a cumulative GPA of 3.0 to continue in and graduate from Energy Management Program. Students may take both BUAD 202 Energy Management Professional Development and BUAD 302 Energy Management Professional Development II depending on when they enter Western and Energy Management. Take these in consultation with your Energy Management advisor.

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 495 PROSPECT ECONOMICS & EVALUATN.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1

HWTR 100	First Year Seminar	1
MATH 232	Applied Calculus for the Managerial and Social Science	3
<b>Credits</b>		<b>14</b>
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3
Gen Ed	Area III	3
<b>Credits</b>		<b>16</b>
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
BUAD 305	Applied Energy Seminar	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Gen Ed	Area I	
Gen Ed	Area III	
<b>Credits</b>		<b>12</b>
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area III	3
GEOL 240	Introduction to Petroleum and Mining Geology	3
<b>Credits</b>		<b>15</b>
<b>Year Three</b>		
<b>Fall</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 230	Evolution of the Oil Economy	3

BUAD 240	Strategic Negotiations	3
BUAD 410	Water Law	3
	Credits	15
<b>Spring</b>		
BUAD 202 or BUAD 302	Energy Management Professional Development or Energy Management Professional Development II	1
BUAD 321	Oil and Gas Agreements	3
BUAD 333	Organizational Behavior	3
BUAD 420	Oil and Gas Law	3
ECON 370	Natural Resource Economics	3
ENVS 350	U.S. and Western Environment Politics	3
	Credits	16
<b>Summer</b>		
BUAD 499	Internship in Business Administration (optional, but strongly recommended)	3
	Credits	3
<b>Year Four</b>		
<b>Fall</b>		
BUAD 320	Property and Contracts	3
BUAD 360	Managerial Finance	3
BUAD 370	Exploration Production Processes	3
COM 274	Public Relations Communication	3
GEOG 340	Introduction to Geographic Information Systems	3
	Credits	15
<b>Spring</b>		
BUAD 495	Prospect Economics and Evaluation	3
Elective	Elective	12
	Credits	15
	Total Credits	121

# Business Administration Comprehensive Major: Finance Emphasis

## Program Requirements

A minimum of 57 credits is required, including the 21-credit Business Administration Base Curriculum, the 15-credit Business Administration Nucleus:

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<b>Total Credits</b>		<b>21-22</b>

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
<b>Total Credits</b>		<b>15</b>

And the following courses:

Code	Title	Credits
BUAD 322	Financial Planning	3
BUAD 402	Commercial Bank Management	3
BUAD 460	Advanced Managerial Finance	3
BUAD 461	Investments	3

BUAD 491	Strategic Management	3
Two of the following:		6
BUAD 380	Commercial Lending & Credit Analysis	
BUAD 415	Portfolio Management	
ECON 361	Money, Banking, and Financial Markets	
Total Credits		21

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 14
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
BUAD 185	Business Communication	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3

Gen Ed	Area III	3
		Credits 15
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3
Elective	Elective	3
		Credits 15

<b>Year Three</b>		
<b>Fall</b>		
BUAD 210	Legal Environment of Business	3
BUAD 240	Strategic Negotiations	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
ECON 361	Money, Banking, and Financial Markets	3
		Credits 15

<b>Spring</b>		
BUAD 333 or BUAD 350	Organizational Behavior or Human Resource Management	3
BUAD 380 or BUAD 415	Commercial Lending & Credit Analysis or Portfolio Manager	3
BUAD 460	Advanced Managerial Finance	3
Elective	Elective	6
		Credits 15

<b>Summer</b>		
BUAD 322	Financial Planning	3
		Credits 3

<b>Year Four</b>		
<b>Fall</b>		
BUAD 402	Commercial Bank Management	3
BUAD 461	Investments	3
Elective	Elective	9
		Credits 15

<b>Spring</b>		
BUAD 491	Strategic Management	3



Elective	Elective	9
	Credits	12
	Total	120
	Credits	

# Business Administration Comprehensive Major: Innovation, Creativity, and Entrepreneurship Emphasis (ICE)

## Program Requirements

Admission to the program: All students who wish to major in the ICE emphasis in Business Administration must be formally admitted to the program. For admission, a student must complete and submit an application for admission.

A minimum of 63 credits is required, including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus,

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
Total Credits		21-22

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	

BUAD 350	Human Resource Management	
Total Credits		15

And the following:

Code	Title	Credits
ACC 255	Business Structure and Taxes	3
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	3
BUAD 375	Innovation, Creativity, and Entrepreneurship: Toolkit (ICE: Toolkit)	3
BUAD 382	ICE: Make	3
BUAD 406	ICE: Field	3
BUAD 494	Innovation, Creativity, and Entrepreneurship: Launch (ICE: Launch)	3
Select nine credits of the following electives:		9
BUAD 240	Strategic Negotiations	
BUAD 311	Business Analytics	
BUAD 315	Business Law	
BUAD 327	Social Media Marketing	
BUAD 333	Organizational Behavior	
BUAD 335	Marketing Communications	
BUAD 340	Global Business	
BUAD 343	Sales I	
BUAD 345	Consumer Behavior	
Total Credits		27

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 494 INNOV.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Credits		14

<b>Spring</b>			
ACC 201	3	Introduction to Financial Accounting	3
ECON 201	3	Macroeconomics (GT-SS1)	3
Gen Ed	4	Natural Sciences w/lab	4
Gen Ed	3	Area I	3
Gen Ed	3	Area III	3
		Credits	16
<b>Year Two</b>			
<b>Fall</b>			
ACC 202	3	Introduction to Managerial Accounting	3
COM 202	3	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	3	Statistics for Business and Economics	3
Elective	3	Elective	3
Gen Ed	3	Area III	3
		Credits	15
<b>Spring</b>			
BUAD 220	3	Spreadsheets and Analysis	3
BUAD 270	3	Principles of Marketing	3
ECON 202	3	Microeconomics	3
Gen Ed	3	Area I	3
Gen Ed	3	Area III	3
		Credits	15
<b>Year Three</b>			
<b>Fall</b>			
BUAD 185	3	Business Communication	3
BUAD 210	3	Legal Environment of Business	3
BUAD 275	3	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	3
Elective	6	Elective	6
		Credits	15
<b>Spring</b>			
ACC 255	3	Business Structure and Taxes	3
BUAD 333 or BUAD 350	3	Organizational Behavior or Human Resource Management	3

BUAD 375	3	Innovation, Creativity, and Entrepreneur Toolkit (ICE: Toolkit)	3
Elective	3	Elective	3
Elective	3	ICE Elective	3
		Credits	15
<b>Year Four</b>			
<b>Fall</b>			
BUAD 360	3	Managerial Finance	3
BUAD 382	3	ICE: Make	3
Elective	6	Elective	6
Elective	3	ICE Elective	3
		Credits	15
<b>Spring</b>			
BUAD 406	3	ICE: Field	3
BUAD 494	3	Innovation, Creativity, and Entrepreneur Launch (ICE: Launch)	3
Elective	6	Elective	6
Elective	3	ICE Elective	3
		Credits	15
		Total Credits	120

## Business Administration Comprehensive Major: Latin American Business Emphasis Program Requirements

A minimum of 60 credits is required including the 21-credit Base Curriculum, the 15- credit Business Administration Nucleus:

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<b>Total Credits</b>		<b>21-22</b>

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		15

And the following courses:

Code	Title	Credits
BUAD 340	Global Business	3
BUAD 491	Strategic Management	3
ECON 303	International Economics and Globalization	3
HIST 260	Latin American History (GT-H11) (or another appropriate History course)	3
Select three credits of the following:		3
BUAD 311	Business Analytics	
BUAD 335	Marketing Communications	
BUAD 345	Consumer Behavior	
BUAD 350	Human Resource Management	
Select three of the following, based on proficiency:		9
SPAN 101	Elementary Spanish I	
SPAN 102	Elementary Spanish II	
SPAN 201	Intermediate Spanish I	
SPAN 202	Intermediate Spanish II	
SPAN 341	Latin American Civilization and Culture	
Total Credits		24

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits
		14
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroecono (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area III	3
HIST 260	Latin American History (GT-H11)	3
		Credits
		16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Elective	Elective	3
Gen Ed	Area III	3
		Credits
		15
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits
		15
<b>Year Three</b>		
<b>Fall</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3

Elective	Elective	3
Elective	Emphasis Elective	3
Elective	Spanish Elective	3
		Credits
<b>Spring</b>		15
BUAD 311	Business Analytics	3
BUAD 333 or BUAD 350	Organization Behavior or Human Resource Management	3
BUAD 340	Global Business	3
Elective	Elective	3
Elective	Spanish Elective	3
		Credits
<b>Year Four</b>		15
<b>Fall</b>		
BUAD 360	Managerial Finance	3
ECON 303	International Economics and Globalization	3
Elective	Elective	6
Elective	Spanish Elective	3
		Credits
<b>Spring</b>		15
BUAD 491	Strategic Management	3
Elective	Elective	12
		Credits
		15
		Total Credits
		120

## Business Administration Comprehensive Major: Management Emphasis Program Requirements

A minimum of 57 credits is required, including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus (students must take BUAD 333 Organizational Behavior in the Nucleus):

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3

BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
Total Credits		21-22

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		15

And the following courses:

Code	Title	Credits
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	3
BUAD 311	Business Analytics	3
BUAD 350	Human Resource Management	3
BUAD 491	Strategic Management	3
Select three of the following electives:		9
BUAD 101	Business of Life <sup>1</sup>	
BUAD 150	Introduction to Hospitality <sup>1</sup>	
BUAD 300	Business Ethics	
BUAD 315	Business Law	
BUAD 325	Management Information Systems	
BUAD 335	Marketing Communications	
BUAD 337	Hospitality Law and Risk Management	
BUAD 340	Global Business	
BUAD 345	Consumer Behavior	
BUAD 499	Internship in Business Administration <sup>1</sup>	
ECON 303	International Economics and Globalization	
Total Credits		21

<sup>1</sup> No more than three credits from BUAD 101 Business of Life, BUAD 150 Introduction to Hospitality, or BUAD 499 Internship in Business Administration may be used to satisfy the elective requirement.

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 14
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroecono (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Elective	Elective	3
Gen Ed	Area III	3
		Credits 15

<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	3
BUAD 311	Business Analytics	3
Elective	Elective	3
		Credits 15
<b>Spring</b>		
BUAD 333	Organizational Behavior	3
BUAD 350	Human Resource Managemen	3
Elective	Elective	6
Elective	Emphasis Elective	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
BUAD 360	Managerial Finance	3
Elective	Elective	9
Elective	Emphasis Elective	3
		Credits 15
<b>Spring</b>		
BUAD 491	Strategic Managemen	3
Elective	Elective	12
		Credits 15
		Total Credits 120

# Business Administration Comprehensive Major: Marketing Emphasis

## Program Requirements

A minimum of 63 credits is required, including the 21-credit Base Curriculum, the 15- credit Business Administration Nucleus:

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<b>Total Credits</b>		<b>21-22</b>

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
<b>Total Credits</b>		<b>15</b>

And the following courses:

Code	Title	Credits
BUAD 327	Social Media Marketing	3
BUAD 335	Marketing Communications	3
BUAD 343	Sales I	3
BUAD 345	Consumer Behavior	3
BUAD 425	Marketing Research	3
BUAD 491	Strategic Management	3
Select nine credits of the following electives:		9
BUAD 101	Business of Life <sup>1</sup>	
BUAD 150	Introduction to Hospitality <sup>1</sup>	
BUAD 300	Business Ethics	
BUAD 311	Business Analytics	
BUAD 315	Business Law	
BUAD 325	Management Information Systems	

BUAD 350	Human Resource Management	
BUAD 384	Sales II	
BUAD 428	Sales III	
BUAD 499	Internship in Business Administration <sup>1</sup>	
CS 160	Introduction to Web Design	
COM 372	Issues Management	
<b>Total Credits</b>		<b>27</b>

<sup>1</sup> No more than three credits from BUAD 101 Business of Life, BUAD 150 Introduction to Hospitality, or BUAD 499 Internship in Business Administration may be used to satisfy the elective requirement.

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		<b>Credits</b>
		<b>14</b>
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3
Gen Ed	Area III	3
		<b>Credits</b>
		<b>16</b>
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3



COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Elective	Elective	3
Gen Ed	Area III	3
		Credits 15
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 343	Sales I	3
BUAD 345	Consumer Behavior	3
Elective	Elective	3
		Credits 15
<b>Spring</b>		
BUAD 327	Social Media Marketing	3
BUAD 333 or BUAD 350	Organization Behavior or Human Resource Manager	3
BUAD 335	Marketing Communications	3
Elective	Elective	3
Elective	Emphasis Elective	3
		Credits 15
<b>Summer</b>		
BUAD 499	Internship in Business Administration (optional, but recommended)	3
		Credits 3
<b>Year Four</b>		
<b>Fall</b>		
BUAD 360	Managerial Finance	3
BUAD 425	Marketing Research	3
Elective	Elective	9
		Credits 15

<b>Spring</b>		
BUAD 491	Strategic Management	3
Elective	Elective	9
Elective	Emphasis Elective	3
		Credits 15
		Total Credits 123

## Business Administration Comprehensive Major: Resort Management Emphasis Program Requirements

A minimum of 63 credits is required, including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<b>Total Credits</b>		<b>21-22</b>

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	

BUAD 350	Human Resource Management	
Total Credits		15

And the following 27 credits:

Code	Title	Credits
BUAD 150	Introduction to Hospitality	3
BUAD 331	Food and Beverage Management	3
BUAD 332	Rental and Retail Management	3
BUAD 334	Lodging Operations	3
BUAD 337	Hospitality Law and Risk Management	3
BUAD 363	Business and the Environment	3
BUAD 482	Hospitality Operations Management	3
BUAD 491	Strategic Management	3
Select one of the following:		3
BUAD 345	Consumer Behavior	
BUAD 350	Human Resource Management	
BUAD 499	Internship in Business Administration	
ROE 398	Program Planning (with laboratory)	
Total Credits		27

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 232	Applied Calculus for the Managerial and Social Science	3
		Credits 14
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3

Gen Ed	Area III	3
		Credits 16

**Year Two**

**Fall**

ACC 202	Introduction to Managerial Accounting	3
BUAD 150	Introduction to Hospitality	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3

Gen Ed	Area III	3
		Credits 15

**Spring**

BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3

		Credits 15
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**Year Three**

**Fall**

BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 331	Food and Beverage Management	3
BUAD 337	Hospitality Law and Risk Management	3
Elective	Elective	3

		Credits 15
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**Spring**

BUAD 332	Rental and Retail Management	3
BUAD 333 or BUAD 350	Organization Behavior or Human Resources Manager	3
BUAD 334	Lodging Operations	3
Elective	Elective	6

		Credits 15
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Summer		
BUAD 499	Internship in Business Administration (optional, but recommended)	3
		Credits 3
Year Four		
Fall		
BUAD 360	Managerial Finance	3
BUAD 363	Business and the Environment	3
Elective	Elective	6
Elective	Emphasis Elective	3
		Credits 15
Spring		
BUAD 482	Hospitality Operations Management	3
BUAD 491	Strategic Management	3
Elective	Elective	9
		Credits 15
		Total Credits 123

## Business Administration Major: Standard Program

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

The Standard Program requires a minimum of 45 credits including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus, BUAD 491 Strategic Management, and six credits of Business Administration electives. At least three credits of the six credits must be upper-division Business Administration electives, and no more than three credits may be from: BUAD 101 Business of Life, BUAD 150 Introduction to Hospitality, or BUAD 499 Internship in Business Administration. Electives should be chosen in consultation with an advisor. BUAD 397 Special Topics or BUAD 497 Special Topics courses are allowed to count toward the six-credit requirement only with departmental approval.

Code	Title	Credits
Base Curriculum		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	

One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
Total Credits		21-22

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
Business Administration Nucleus		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		15

### Business Administration and Environment and Sustainability Coordinated Double Major

If a student elects to complete a Business Administration Major: Standard Program and the coordinated Environmental Studies Major: Standard Program, the student must complete the nine credits of upper-division Business Administration electives by taking ECON 370 Natural Resource Economics, BUAD 363 Business and the Environment, and BUAD 410 Water Law.

### Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
Year One		
Fall		
BUAD 101	Business of Life	3
ENG 102	Academic Writing (GT-CO1)	3

Gen Ed	Natural Sciences w/lab	4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
		Credits 14
<b>Spring</b>		
ACC 201	Introduction to Financial Accounting	3
ECON 201	Macroecono (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
Elective	Elective	3
Gen Ed	Area III	3
		Credits 15
<b>Spring</b>		
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
ECON 202	Microeconomics	3
Gen Ed	Area I	3
Gen Ed	Area III	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
Elective	Elective	3
Elective	Minor course	6
		Credits 15
<b>Spring</b>		
BUAD 333	Organization Behavior	3
BUAD	Upper Division Elective	3

Elective	Elective	3
Elective	Minor course	6
		Credits 15
<b>Summer</b>		
BUAD 499	Internship in Business Administration (optional, but recommended)	3
		Credits 3
<b>Year Four</b>		
<b>Fall</b>		
BUAD 360	Managerial Finance	3
Elective	Elective	3
Elective	Minor course	6
Elective	Minor course OR Elective	3
		Credits 15
<b>Spring</b>		
BUAD 491	Strategic Managemen	3
Elective	Elective	12
		Credits 15
		Total 123
		Credits

## Business Administration Major: Standard Program

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<b>Total Credits</b>		<b>21-22</b>

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the

requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		15

## Program Requirements

All standard majors require a minor in a second discipline or a second major.

The Standard Program requires a minimum of 45 credits including the 18-credit Base Curriculum, the 15-credit Business Administration Nucleus, BUAD 491 Strategic Management, and nine credits of Business Administration electives. At least six credits of the nine credits must be upper-division Business Administration electives, and no more than three credits may be from: BUAD 100 Business in Society, BUAD 150 Introduction to Hospitality, or BUAD 499 Internship in Business Administration. Electives should be chosen in consultation with an advisor. BUAD 397 Special Topics or BUAD 497 Special Topics courses are allowed to count toward the nine-credit requirement only with departmental approval.

### Business Administration and Environment and Sustainability Coordinated Double Major

If a student elects to complete a Business Administration Major: Standard Program and the coordinated Environmental Studies Major: Standard Program, the student must complete the nine credits of upper-division Business Administration electives by taking ECON 370 Natural Resource Economics, BUAD 363 Business and the Environment, and BUAD 410 Water Law.

## Business Administration Minor

A minimum of 18 credits is required, including one upper-division Business Administration elective and the following:

Code	Title	Credits
ACC 201	Introduction to Financial Accounting	3
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
One of the following:		3
BUAD 101	Business of Life	
BUAD 150	Introduction to Hospitality	
Total Credits		15

## Business Administration Minor - Business Analytics

The following 18 credits are required:

Code	Title	Credits
BUAD 220	Spreadsheets and Analysis	3
BUAD 270	Principles of Marketing	3
BUAD 311	Business Analytics	3
ECON 316	Econometrics	3
One of the following:		3
ECON 201	Macroeconomics (GT-SS1)	
ECON 202	Microeconomics	
One of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 213	Probability and Statistics	
Total Credits		18

## Business Administration Minor - Business Law

A minimum of 21 credits are required.

Code	Title	Credits
BUAD 210	Legal Environment of Business	3
BUAD 240	Strategic Negotiations	3
BUAD 315	Business Law	3
BUAD 363	Business and the Environment	3
One of the following:		3
BUAD 342	Environmental Law	
BUAD 410	Water Law	
Two of the following:		6
POLS 180	Introduction to American Politics (GT-SS1)	
POLS 300	Constitutional Law I	
POLS 301	Constitutional Law II	
Total Credits		21

## Business Administration Minor - Innovation, Creativity, and Entrepreneurship (ICE)

A minimum of 18 credits is required, including the three required courses plus nine credits of electives from the list below:

Code	Title	Credits
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	3
BUAD 375	Innovation, Creativity, and Entrepreneurship: Toolkit (ICE: Toolkit)	3
BUAD 494	Innovation, Creativity, and Entrepreneurship: Launch (ICE: Launch)	3
Select three of the following:		9
ACC 201	Introduction to Financial Accounting	

BUAD 101	Business of Life
BUAD 210	Legal Environment of Business
BUAD 240	Strategic Negotiations
BUAD 270	Principles of Marketing
BUAD 345	Consumer Behavior
BUAD 382	ICE: Make
BUAD 406	ICE: Field
BUAD 499	Internship in Business Administration
<hr/>	
Total Credits	18

## Business Administration Minor - Sales

A minimum of 24 credits is required, including the following courses:

Code	Title	Credits
ACC 201	Introduction to Financial Accounting	3
BUAD 240	Strategic Negotiations	3
BUAD 270	Principles of Marketing	3
BUAD 327	Social Media Marketing	3
BUAD 335	Marketing Communications	3
BUAD 343	Sales I	3
BUAD 384	Sales II	3
BUAD 428	Sales III	3
<hr/>		
Total Credits	24	

## Business Management Emphasis (with a 3+2 Master in Environmental Management)

The Business Management emphasis allows students to complete the B.A. in Business Administration (BUAD) and the Master in Environmental Management (MEM) at Western in five years. To remain qualified for the 3+2, upon earning 66 credits each student must have:

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with a lab), and one statistics course;
- fulfilled the 3-credit internship requirement with a B or above and a positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. Upon meeting the requirements above, and after Junior Year holding to the same GPA and general performance standards outlined above, the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose

to leave the MEM program before Year 5, will still have completed the undergraduate emphasis in Business Administration and have earned the 120 credits necessary for a Western undergraduate degree.

The Business Management Emphasis requires a minimum of 48 credits including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus, BUAD 491 Strategic Management, and nine credits of Business Administration electives.

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
<hr/>		
Total Credits		21-22

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
<hr/>		
Total Credits		15

At least six credits of the nine credits must be upper-division Business Administration electives, and no more than three credits may be from: BUAD 101 Business of Life and BUAD 150 Introduction to Hospitality. An internship, BUAD 499 Internship in Business Administration, is required. Electives should be chosen in consultation with an advisor. BUAD 397 Special Topics or BUAD 497 Special Topics courses are allowed to count toward the nine-credit requirement only with Business School approval.



Code	Title	Credits
<b>Core MEM Requirements:</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
Select one of the following MEM Emphases:		3
Sustainable and Resilient Communities Emphasis:		
ENVS 616	Environmental Organization Development and Management	
Global Sustainability Emphasis:		
ENVS 617	Global Sustainability	
Integrative and Public Land Management Emphasis:		
ENVS 618	Public Lands Management	
Total Credits		23

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

**Capstone Course Requirement**

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

**Graduation Requirements**

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

**Major: B.A. in Business Administration and Master of Environmental Management (3 + 2)**

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
MATH 140	College Algebra (GT-MA1)	3
Gen Ed	General Education	3
Gen Ed	General Education Courses (Non-Science)	6
HWTR 100	First Year Seminar	1

ENG 102	Academic Writing (GT-CO1)	3
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ACC 201	Introduction to Financial Accounting	3
Gen Ed	General Education Course	3
Gen Ed	Science Course with Lab	4
ECON 202	Microeconomics	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
Gen Ed	Science Course with Lab	4
BUAD 185	Business Communication	3
BUAD 220	Spreadsheet and Analysis	3
ECON 216	Statistics for Business and Economics	3
		Credits 16
<b>Spring</b>		
BUAD 350 or BUAD 333	Human Resource Management or Organizational Behavior	3
BUAD 210	Legal Environment of Business	3
ECON 201	Macroeconomics (GT-SS1)	3
BUAD 270	Principles of Marketing	3
Gen Ed	General Education Course	3
		Credits 15
<b>Summer</b>		
BUAD 499 or ENVS 499	Internship in Business Administration or Internship in Environmental Studies	4

67 credit mark completed. Submit 3 + 2 application materials by July 1.

	Credits	4
<b>Year Three</b>		
<b>Fall</b>		
Gen Ed	General Education	3
BUAD 360	Managerial Finance	3
Gen Ed	General Education Course	3
BUAD 410	Water Law	3
Electives		3
	Credits	15
<b>Spring</b>		
BUAD 363	Business and the Environment	3
BUAD 491	Strategic Management	3
Electives		9
	Credits	15
<b>Summer</b>		
ENVS 601	Introduction to Environment Management	5
	Credits	5
<b>Year Four</b>		
<b>Fall</b>		
ENVS 605	Science of Environment Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environment Management	3
	Credits	9
<b>Spring</b>		
ENVS 612	Quantitative in Environment Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 616 or ENVS 617 or ENVS 618	Environment Organization Development and Management or Global Sustainable or Public Lands Manager	3
	Credits	9

<b>Summer</b>		
ENVS 690	MEM Project Development	5
	Credits	5

<b>Year Five</b>		
<b>Fall</b>		
ENVS 620 or ENVS 623 or ENVS 625	Studies in Sustainable and Resilient Communities (select six credits of) or Studies in Environmental Management or Studies in Integrative and Public Land Management	6
ENVS 694	Master's Project and Portfolio	3
	Credits	9

<b>Spring</b>		
ENVS 620 or ENVS 623 or ENVS 625	Studies in Sustainable and Resilient Communities (select three credits of) or Studies in Environmental Management or Studies in Integrative and Public Land Management	3
ENVS 694	Master's Project and Portfolio	6
	Credits	9
	Total Credits	143

## Business Management Emphasis (with a 3+2 Outdoor Industry Master in Business Administration)

The Business Management emphasis allows students to complete the B.A. in Business Administration (BUAD) and the Outdoor Industry Master in Business Administration (OI MBA) at Western in five years. To remain qualified for the 3+2, upon earning 66 credits each student must have:

- maintained at least a 3.0 cumulative GPA;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the OI MBA program, detailing work experience in the outdoor industry, early career ambitions, and ideas and connections for the eventual master's capstone.

At this point, if any aspect of a student's performance is found to be insufficient, the OI MBA Director may reject a 3+2 student from the OI MBA program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. Upon meeting the requirements above, and after Junior Year holding to the same GPA and general performance standards outlined above, the School of Graduate Studies will designate students as "OI MBA candidates with provisional acceptance." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the OI MBA program before Year 5, will still have completed the undergraduate emphasis in Business Management and have earned the 120 credits necessary for a Western undergraduate degree.

The Business Management Emphasis requires a minimum of 48 credits including the 21-credit Base Curriculum, the 15-credit Business Administration Nucleus, BUAD 491 Strategic Management, and nine credits of Business Administration electives.

Code	Title	Credits
<b>Base Curriculum</b>		
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
Select one of the following mathematics courses:		3-4
MATH 140	College Algebra (GT-MA1)	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1)	
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
MATH 213	Probability and Statistics	
ECON 216	Statistics for Business and Economics	
Total Credits		21-22

The 15-credit Business Administration Nucleus forms the core for each of the emphasis areas and also comprises the bulk of the Standard Program. It is important that the student achieve a high level of understanding of the basic fundamental concepts represented by these courses to be successful in the completion of the required upper-level course work and in their business career. If BUAD 350 Human Resource Management Human Resource Management is used to satisfy the requirements of the Business Administration Nucleus, then it cannot be used to satisfy the elective requirement within the major.

Code	Title	Credits
<b>Business Administration Nucleus</b>		
BUAD 185	Business Communication	3
BUAD 210	Legal Environment of Business	3

BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
One of the following:		3
BUAD 333	Organizational Behavior	
BUAD 350	Human Resource Management	
Total Credits		15

At least six credits of the nine credits must be upper-division Business Administration electives, and no more than three credits may be from: BUAD 101 Business of Life and BUAD 150 Introduction to Hospitality. An internship, BUAD 499 Internship in Business Administration, is required. Electives should be chosen in consultation with an advisor. BUAD 397 Special Topics or BUAD 497 Special Topics courses are allowed to count toward the nine-credit requirement only with Business School approval.

Code	Title	Credits
<b>Core MBA courses:</b>		
MBA 600	Sustainability Accounting	3
MBA 601	Managerial Economics	3
MBA 603	Leadership, Ethics, and Organizational Behavior	3
MBA 605	Competitive Dynamics in the Athletic and Outdoor Industry	3
MBA 606	Marketing and Brand Strategy in the Outdoor Industry	3
MBA 611	TOPICS IN OUTDOOR INDUSTRY	0
One of the following (based on desired concentration):		3
MBA 609	Sustainable Outdoor Product Development and Material Sourcing (Product Concentration)	
MBA 614	Sales and Customer Experience (Service Concentration)	
Total Credits		18

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete the MBA program must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MBA program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/business-administration-mba/>).

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Major: B.A. in Business Administration and Master of Business Administration (3 + 2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
MATH 140	College Algebra (GT-MA1)	3
BUAD 101	Business of Life	3
Gen Ed	General Education Courses (Non-Science)	3
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
BUAD 185	Business Communicat	3
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ACC 201	Introduction to Financial Accounting	3
Gen Ed	General Education Course	3
Gen Ed	Science Course with Lab	4
ECON 202	Microeconor	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ACC 202	Introduction to Managerial Accounting	3
Gen Ed	Science Course with Lab	4
Gen Ed	General Education Course	3
BUAD 220	Spreadsheets and Analysis	3
ECON 216 or MATH 213	Statistics for Business and Economics or Probabili and Statistic:	3
		Credits 16

<b>Spring</b>		
BUAD 350 or BUAD 333	Human Resource Management or Organiza Behavior	3
BUAD 210	Legal Environment of Business	3
ECON 201	Macroecono (GT-SS1)	3
Elective	Business Elective	3
Gen Ed	General Education Course	3
		Credits 15
<b>Summer</b>		
BUAD 499	Internship in Business Administrati	3
66 credit mark completed. Submit 3+2 application materials by July 1.		
		Credits 3
<b>Year Three</b>		
<b>Fall</b>		
BUAD 270	Principles of Marketing	3
BUAD 360	Managerial Finance	3
Gen Ed	General Education Course	3
Electives		6
		Credits 15
<b>Spring</b>		
BUAD 363	Business and the Environment	3
BUAD 491	Strategic Management	3
Electives		9
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
MBA 601	Managerial Economics	3
MBA 603	Leadership, Ethics, and Organizational Behavior	3
MBA 606	Marketing and Brand Strategy in the Outdoor Industry	3
Electives	Undergraduate Electives - Upper Division	3
		Credits 12
<b>Spring</b>		
MBA 600	Sustainability Accounting	3

MBA 605	Competitive Dynamics in the Athletic and Outdoor Industry	3
MBA 611	TOPICS IN OUTDOOR INDUSTRY	0
Electives	Undergraduate Electives - Upper Division	3
MBA 609 or MBA 614	Sustainable Outdoor Product Development and Material Sourcing or Sales and Customer Experience	3
		Credits 12
<b>Summer</b>		
MBA 607	Strategic MGT Business Models for the Outdoor Industry	3
		Credits 3
<b>Year Five</b>		
<b>Fall</b>		
MBA 602	Managerial Finance	3
MBA 604	Business Law for the Outdoor Industry	3
MBA 610 or MBA 608	Supply Chain and Logistics in the Outdoor Industry or Resort and Hospitality Management	3
		Credits 9
<b>Spring</b>		
MBA 607	Strategic MGT Business Models for the Outdoor Industry	3
MBA 691	Capstone Project	3

MBA 613 or MBA 615	Natural Resource Regulation and Economics or Sustainable Finance	3
		Credits 9
		Total Credits 141

## Certificates

### Writing Certificate

The Writing Certificate enhances students' skills in writing and analysis.

A complement to any major, the curriculum builds expertise in written communication and enables students to demonstrate credentials to employers and graduate programs.

To earn a Writing Certificate, students must earn a "B" or better in each course and complete the exit assessment survey. Students taking ENG 475 must earn a "satisfactory." The Writing Certificate does not meet graduation requirements for an academic minor.

A minimum of 12 credits is required, including:

Code	Title	Credits
One of the following:		3
ENG 205	Introduction to Creative Writing	3
ENG 250	Critical Approaches to Literature	3
Nine credits from the following, three of which must be from upper division English courses:		9
CHEM 302	Chemical Information Literacy and Communication	3
COM 241	Media Writing	3
COM 306	Scriptwriting	3
ENG 205	Introduction to Creative Writing	3
ENG 220	Grammar and the English Language	3
ENG 230	Environmental Literature (GT-AH2)	3
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	3
ENG 237	Women and Literature	3
ENG 238	Literary Culture of the American West	3
ENG 250	Critical Approaches to Literature	3
ENG 254	Popular Genre Fiction: Sci Fi Fantasy	3
ENG 255	Ancient World Literature (GT-AH2)	3
ENG 270	Folklore	3
ENG 300	Creative Writing: Fiction	3
ENG 301	Creative Writing: Poetry	3
ENG 302	Technical Writing	3
ENG 303	Creative Writing	3
ENG 305	Creative Writing: Non-Fiction	3
ENG 331	Literature and Ethnicity: Studies in:	3
ENG 334	Poetry: Studies in:	3
ENG 335	Drama: Studies in:	3
ENG 336	Prose: Studies in:	3
ENG 337	Women Writers	3
ENG 358	Global Literatures: Studies in: The Underworld	3

ENG 370	Myth and Culture
ENG 372	British Literature: Medieval and Renaissance Texts
ENG 373	British Literature: Milton through the Romantics
ENG 374	British Literature: The Victorians to the Present Day
ENG 384	American Literature Early to Civil War
ENG 385	American Literature-Civil War to Present
ENG 445	Literary Magazine Submission and Production
ENG 463	Major British Authors: Cont. Lit. & Film
ENG 464	Major American Authors:
ENG 475	Theories of Reading and Writing Discourse
ENVS 200	Writing the Environment
GEOL 302	Geoscience Writing
Total Credits 12	

## Professional Writing Certificate

The Professional Writing Certificate curriculum builds versatile skills in writing and analysis alongside more specialized forms of technical and professional writing. A complement to any major, the certificate signals expertise in professional writing to employers and graduate programs.

To earn a Professional Writing Certificate, students must earn a "B" or better in each course and complete the exit survey. Students taking ENG 475 must earn a "satisfactory." The Professional Writing Certificate does not meet graduation requirements for an academic minor.

A minimum of 15 credits is required including:

Code	Title	Credits
ENG 302	Technical Writing	3
One of the following:		3
ENG 205	Introduction to Creative Writing	
ENG 250	Critical Approaches to Literature	
Nine credits from the following, three of which must be from upper division English courses:		9
CHEM 302	Chemical Information Literacy and Communication	
COM 241	Media Writing	
COM 306	Scriptwriting	
ENG 205	Introduction to Creative Writing	
ENG 220	Grammar and the English Language	
ENG 230	Environmental Literature (GT-AH2)	
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	
ENG 237	Women and Literature	
ENG 238	Literary Culture of the American West	
ENG 250	Critical Approaches to Literature	
ENG 254	Popular Genre Fiction: Sci Fi Fantasy	
ENG 255	Ancient World Literature (GT-AH2)	
ENG 270	Folklore	
ENG 300	Creative Writing: Fiction	
ENG 301	Creative Writing: Poetry	
ENG 302	Technical Writing	
ENG 303	Creative Writing	
ENG 305	Creative Writing: Non-Fiction	
ENG 331	Literature and Ethnicity: Studies in:	

ENG 334	Poetry: Studies in:
ENG 335	Drama: Studies in:
ENG 336	Prose: Studies in:
ENG 337	Women Writers
ENG 358	Global Literatures: Studies in: The Underworld
ENG 370	Myth and Culture
ENG 372	British Literature: Medieval and Renaissance Texts
ENG 373	British Literature: Milton through the Romantics
ENG 374	British Literature: The Victorians to the Present Day
ENG 384	American Literature Early to Civil War
ENG 385	American Literature-Civil War to Present
ENG 445	Literary Magazine Submission and Production
ENG 463	Major British Authors: Cont. Lit. & Film
ENG 464	Major American Authors:
ENG 475	Theories of Reading and Writing Discourse
ENVS 200	Writing the Environment
GEOL 302	Geoscience Writing
Total Credits 15	

## Chemistry (CHEM)

Chemistry is the study of the principles that govern matter and the chemical transformations of matter. This fundamental discipline plays a pivotal role in all of the sciences. In fact, life itself is essentially a complicated system of interrelated chemical processes. In the study of Chemistry, the student is exposed to atomic and molecular structure, properties of matter, chemical reactions, and spectroscopy.

A student who successfully completes the Chemistry Major gains basic theoretical knowledge and practical experimental skills in areas of inorganic, organic, analytical, physical, and biochemistry. Courses in the supporting areas provide a basic foundation in calculus, physics, and subjects necessary to understanding modern chemical concepts. Coordinated laboratory experiences reinforce concepts presented in lecture classes. Students also benefit from "hands-on" use of modern chemical instrumentation and from student research, a requirement of every student majoring in Chemistry.

Knowledge of chemistry is necessary for all health and allied health professional programs, geochemistry, environmental science, and molecular biology. Students seeking entrance into professional and graduate programs in these areas are well-prepared as Chemistry majors. Employment opportunities (academic and research laboratories, governmental agencies, hazardous materials management, sales, environmental testing, and remediation) remain good for students possessing undergraduate degrees in Chemistry. Opportunities expand exponentially for those students who continue their training for a masters or doctoral degree. Chemistry graduates from Western have been successful in their careers because of the theoretical and practical training received in their areas of emphasis.

The Chemistry Major at Western consists of a comprehensive program offering three areas of emphasis selected according to the interests and career goals of the student. These emphases are: general chemistry, biochemistry, and secondary licensure.

The Secondary Licensure Emphasis in Chemistry qualifies students for the State of Colorado License in Science Education. Other Chemistry



emphases may also be used for licensure but may require additional classes. In addition, the student must fulfill the requirements of the Secondary Licensure Program (see description under Education).

- Chemistry Comprehensive Major: Biochemistry Emphasis (p. 105)
- Chemistry Comprehensive Major: General Chemistry Emphasis (p. 107)
- Chemistry Comprehensive Major: Secondary Licensure Emphasis (p. 108)
- Chemistry Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/chemistry/chemistry-comprehensive-secondary-licensure-3-2/>)
- Chemistry Minor (p. 109)

## Capstone Course Requirement

The following courses fulfill the capstone course requirement for the Chemistry Major: CHEM 494 Research Problem in Chemistry, or EDUC 409 Secondary Student Teaching (Secondary Licensure Emphasis).

## Chemistry Courses

### **CHEM 100. Contemporary Chemistry (GT-SC2). (3 Credits)**

An introductory course which addresses the basic facts and principles of chemistry, as well as the history of chemistry, practical aspects of chemistry, and relevance of chemistry. Topics covered in the course are dependent on the instructor and contemporary events. This course is designed for non-science majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

### **CHEM 101. Introduction to Inorganic Chemistry (GT-SC2). (3 Credits)**

A survey of inorganic chemistry, with an emphasis on chemical principles, atomic theory, periodic law, chemical equilibrium, equations, solutions, and descriptive chemistry of the elements. This course is designed for non-majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

### **CHEM 111. General Chemistry I (GT-SC2). (3 Credits)**

An introductory course designed for science majors focusing on principles and applications of chemistry. Previous experience with chemistry is expected. Topics covered are stoichiometry, bonding models, intermolecular forces, and periodic trends. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test score of 280 or above; or corequisite MATH 140 and ACT math score of 21 or above or SAT math score of 540 or above or Accuplacer Advanced Algebra and Functions test score of 245 or above; or instructor permission. GT-SC2

### **CHEM 112. General Chemistry Laboratory I (GT-SC1). (1 Credit)**

An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 111. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Corequisite: CHEM 111. GT-SC1

### **CHEM 113. General Chemistry II. (3 Credits)**

A continuation of CHEM 111. Topics covered are thermodynamics, kinetics, equilibrium, electrochemistry, and nuclear chemistry. Prerequisite: CHEM 111 with a minimum grade of C-.

### **CHEM 114. General Chemistry Laboratory II. (1 Credit)**

A continuation of CHEM 112. An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 113. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Prerequisite: CHEM 112. Corequisite: CHEM 113.

### **CHEM 121. General Chemistry for Engineers. (3 Credits)**

A single semester general chemistry course designed for engineering students. Previous experience with chemistry is expected. Topics include atomic structure, bonding models, stoichiometry, states of matter, intermolecular forces, thermodynamics (including calorimetry, enthalpy, entropy and Gibbs free energy), and equilibrium. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer university-level mathematics test score of 65 or above.

### **CHEM 197. Special Topics. (1-6 Credits)**

Special Topics.

### **CHEM 231. Introduction to Organic Chemistry and Biochemistry. (3 Credits)**

A descriptive survey course which introduces the essential topics and applications of organic chemistry and biochemistry. The course is designed for non-majors who need the second semester of a one-year chemistry core that includes general, organic, and biochemistry. This course may not be counted for credit toward the Chemistry Major or Minor. Prerequisite: CHEM 101 or CHEM 113.

### **CHEM 234. Introductory Organic and Biochemistry Laboratory. (1 Credit)**

An introductory laboratory to accompany CHEM 231. Experiments focus on reactions of organic functional groups, organic synthesis, and the chemistry of biological molecules. This course may not be counted for credit toward the Chemistry Major or Minor. Additional course fee applies. Prerequisite or corequisite: CHEM 231.

### **CHEM 292. Independent Study. (1-6 Credits)**

### **CHEM 297. Special Topics. (1-6 Credits)**

Special topics.

### **CHEM 302. Chemical Information Literacy and Communication. (3 Credits)**

In this course designed for chemistry majors, students learn about the organization of the chemical literature, important resources for navigating the literature of chemistry, and methods for selecting the most appropriate resources. Students will work on effective written, oral and graphical communication for chemistry and the sciences. Prerequisites: COM 202, CHEM113 and CHEM114.

### **CHEM 306. Analytical Chemistry (with laboratory). (4 Credits)**

A lecture/laboratory course involving principles, techniques and calculations involved with quantitative analysis of substances. Includes solution chemistry, gravimetric, volumetric, redox, and pH determinations. Additional course fee applies. Prerequisites: CHEM 113 and CHEM 114.

### **CHEM 331. Organic Chemistry I. (3 Credits)**

First semester course of a two semester organic chemistry sequence. This course is an in depth study of saturated and unsaturated hydrocarbons. Topics include their naming, electronic structure, bonding, reactivity, stereochemistry, and reaction mechanisms Prerequisite: CHEM 113.

**CHEM 332. Organic Chemistry II. (3 Credits)**

A continuation of CHEM 331. This course discusses spectroscopic analysis, physical, and chemical properties of organic functional groups. Emphasis includes synthesis, mechanisms, and reactions of aromatic compounds, carbonyl containing compounds, and amines. Prerequisite: CHEM 331.

**CHEM 334. Organic Chemistry Laboratory I. (1 Credit)**

An accompanying laboratory course for CHEM 331, serving as an introduction to basic macro- and micro- scale organic techniques used to separate, isolate, and characterize organic compounds. Methods utilized include distillation, extraction, chromatography, Infrared (IR) spectroscopy. Additional course fee applies. Prerequisite: CHEM 114. Corequisite: CHEM 331.

**CHEM 335. Organic Chemistry Laboratory II. (1 Credit)**

This lab is a continuation of CHEM 334, with an expansion in scope that allows incorporation of more complex synthetic problems. The lab will employ the use of thin layer chromatography (TLC) to follow reaction progress along with NMR spectroscopy to determine reaction outcomes. Additional course fee applies. Prerequisite: CHEM 334. Corequisite: CHEM 332.

**CHEM 397. Special Topics. (1-6 Credits)**

Special Topics

**CHEM 406. Instrumental Analysis (with laboratory). (4 Credits)**

A lecture/laboratory course examining the theory and techniques of instrumental methods of quantitative analysis, including spectrophotometric methods, electrochemical methods, and chromatography. Additional course fee applies. Prerequisite: CHEM 306

**CHEM 451. Physical Chemistry I. (3 Credits)**

A detailed study of thermodynamics, phase equilibria, kinetic theory and chemical kinetics. Prerequisites: CHEM 113, MATH 251, and PHYS 201

**CHEM 452. Physical Chemistry II. (3 Credits)**

A continuation of CHEM 451, which examines quantum chemistry, atomic, and molecular structure and spectra, photochemistry, and statistical mechanics. Offered in alternate years. Prerequisites: CHEM 451.

**CHEM 454. Physical Chemistry Laboratory. (2 Credits)**

An experimental-techniques course in physical chemistry (including computer-assisted instruction), with emphasis on thermodynamics, chemical kinetics, quantum chemistry, statistical mechanics, and spectroscopy. Offered in alternate years. Additional course fee applies. Corequisite: CHEM 452 or PHYS 452.

**CHEM 461. Advanced Inorganic Chemistry. (3 Credits)**

Inorganic chemistry based on principles of bonding, structure, and reaction mechanisms. Chemistry of representative and transition elements and their compounds are covered. Offered in alternate years. Prerequisites: CHEM 113, CHEM 302, and MATH 251.

**CHEM 471. Biochemistry I. (3 Credits)**

Overview of the aqueous environment and its effects on solutes, including biomolecules. Other subject matters include the chemistry of proteins, carbohydrates, and lipids; the mechanisms and kinetics of enzymes; and the stoichiometry and chemistry underlying core metabolic processes, energy production, cellular respiration and the regulation of these processes. Prerequisites: BIOL 150 and CHEM 332

**CHEM 472. Biochemistry II. (3 Credits)**

A continuation of CHEM 471. The course integrates the study of metabolic processes and regulation to the synthesis of lipids and other biologically important molecules. Topics include membranes and molecular transport, biosignaling and receptors, hormonal regulation of metabolism, amino acid and nucleic acid synthesis, and nitrogen metabolism. Plant biochemistry, including photosynthesis and carbohydrate production are introduced as well. Prerequisite: CHEM 471

**CHEM 474. Biochemistry Laboratory. (2 Credits)**

Biochemical techniques laboratory course involving analytical experiments with proteins, nucleic acids and other biological molecules. Basic spectrophotometric techniques are introduced and utilized in biochemical research applications. Molecular separations using a variety of chromatographic techniques to purify and characterize enzymes from both native tissues and recombinant enzymes produced from bacterial systems are performed. Additional course fees apply. Prerequisite/ Corequisite: CHEM 471

**CHEM 494. Research Problem in Chemistry. (1-4 Credits)**

An advanced, supervised laboratory or literature research experience involving methods of chemical research in an area of analytical, physical, organic, or biochemistry. A research paper and oral presentation of research results is required. Prerequisite: CHEM 302.

**CHEM 497. Special Topics. (1-6 Credits)**

Special Topics

## Chemistry Comprehensive Major: Biochemistry Emphasis Program Requirements

A minimum of 67 credits is required including the 26-credit Chemistry Nucleus:

Code	Title	Credits
<b>Chemistry Nucleus</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
CHEM 302	Chemical Information Literacy and Communication	3
CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 451	Physical Chemistry I	3
Total Credits		26

And the following supporting courses:

Code	Title	Credits
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 310	Cell Biology	3
BIOL 312	Genetics (with recitation)	4
CHEM 471	Biochemistry I	3
CHEM 472	Biochemistry II	3

CHEM 474	Biochemistry Laboratory	2
CHEM 494	Research Problem in Chemistry	2-4
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4
PHYS 201	General Physics II (with laboratory) (GT-SC1)	4

Total Credits 41-43

**Course Title Credits**

**Year One**

**Fall**

BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Credits		15

**Spring**

Arts & Humanities GE		3
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141	Precalculus (GT-MA1)	4
Credits		15

**Year Two**

**Fall**

BIOL 310	Cell Biology	3
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3
MATH 151	Calculus I (GT-MA1)	4
Credits		14

**Spring**

CHEM 302	Chemical Information Literacy and Communication	3
CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1
MATH 251	Calculus II	4
Social Science GE		3
Credits		14

**Year Three**

**Fall**

Arts & Humanities GE		3
CHEM 471	Biochemistry I	3
CHEM 474	Biochemistry Laboratory	2
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4
Credits		12

**Spring**

Arts & Humanities GE		3
CHEM 472	Biochemistry II	3
PHYS 201	General Physics II (with laboratory) (GT-SC1)	4
Credits		10

**Year Four**

**Fall**

CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 451	Physical Chemistry I	3
Social Science GE		3
Credits		10

**Spring**

BIOL 312	Genetics (with recitation)	4
CHEM 494	Research Problem in Chemistry	1-4
Social Science GE		3
Credits		8-11

Total 98-101

Credits

# Chemistry Comprehensive Major: General Chemistry Emphasis

## Program Requirements

A minimum of 60 credits is required including the 26-credit Chemistry Nucleus:

Code	Title	Credits
<b>Chemistry Nucleus</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
CHEM 302	Chemical Information Literacy and Communication	3
CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 451	Physical Chemistry I	3
Total Credits		26

And the following:

Code	Title	Credits
CHEM 406	Instrumental Analysis (with laboratory)	4
CHEM 452	Physical Chemistry II	3
CHEM 454	Physical Chemistry Laboratory	2
CHEM 461	Advanced Inorganic Chemistry	3
CHEM 494	Research Problem in Chemistry	2-4
<b>Required supporting courses</b>		
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
MATH 252	Calculus III	4
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4
PHYS 201	General Physics II (with laboratory) (GT-SC1)	4
Total Credits		34-36

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
Social Science GE		3
Credits		14

<b>Spring</b>		
Arts & Humanities GE		3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141	Precalculus (GT-MA1)	4
Social Science GE		3
Credits		14

<b>Year Two</b>		
<b>Fall</b>		
Arts & Humanities GE		3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
MATH 151	Calculus I (GT-MA1)	4
Credits		14

<b>Spring</b>		
Arts & Humanities GE		3
CHEM 302	Chemical Information Literacy and Communication	3
CHEM 332	Organic Chemistry II	3
CHEM 335	Organic Chemistry Laboratory II	1
MATH 251	Calculus II	4
Credits		14

<b>Year Three</b>		
<b>Fall</b>		
CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 461	Advanced Inorganic Chemistry	3
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4
Social Science GE		3
Credits		14

<b>Spring</b>		
CHEM 406	Instrumental Analysis (with laboratory)	4
MATH 252	Calculus III	4

PHYS 201	General Physics II (with laboratory) (GT-SC1)	4
		Credits 12
<b>Year Four</b>		
<b>Fall</b>		
CHEM 451	Physical Chemistry I	3
		Credits 3
<b>Spring</b>		
CHEM 452	Physical Chemistry II	3
CHEM 454	Physical Chemistry Laboratory	2
CHEM 494	Research Problem in Chemistry	2
		Credits 7
		Total Credits 92

## Chemistry Comprehensive Major: Secondary Licensure Emphasis Program Requirements

Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible. A minimum of 67 credits is required including the 26-credit Chemistry Nucleus, the requirements for the Secondary Licensure Program (described under Education):

Code	Title	Credits
<b>Chemistry Nucleus</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
CHEM 302	Chemical Information Literacy and Communication	3
CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 332	Organic Chemistry II	3
CHEM 334	Organic Chemistry Laboratory I	1
CHEM 335	Organic Chemistry Laboratory II	1
CHEM 451	Physical Chemistry I	3
Total Credits		26

And the following:

Code	Title	Credits
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
MATH 151	Calculus I (GT-MA1)	4

MATH 251	Calculus II	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 120	Meteorology (GT-SC2)	3
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4
PHYS 201	General Physics II (with laboratory) (GT-SC1)	4
Total Credits		41

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
MATH 140	College Algebra (GT-MA1)	3
HWTR 100	First Year Seminar	1
Social Science GE		3
Arts & Humanities GE		3
		Credits 17

<b>Spring</b>		
Arts & Humanities GE		3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
COM 202	Academic Writing and Inquiry (GT-CO2)	3
MATH 141	Precalculus (GT-MA1)	4
Social Science GE		3
		Credits 17

<b>Year Two</b>		
<b>Fall</b>		
Arts & Humanities GE		3
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
CHEM 306	Analytical Chemistry (with laboratory)	4
CHEM 331	Organic Chemistry I	3
CHEM 334	Organic Chemistry Laboratory I	1
MATH 151	Calculus I (GT-MA1)	4
		Credits 19

<b>Spring</b>			
BIOL 151	Diversity and Patterns of Life (with laboratory)	4	
CHEM 302	Chemical Information Literacy and Communicational	3	
CHEM 332	Organic Chemistry II	3	
CHEM 335	Organic Chemistry Laboratory II	1	
Social Science GE		3	
MATH 251	Calculus II	4	
	Credits	18	
<b>Year Three</b>			
<b>Fall</b>			
BIOL 301	General Ecology	3	
CHEM 451	Physical Chemistry I	3	
GEOL 101	Physical Geology (GT-SC2)	3	
GEOL 105	Physical Geology Laboratory (GT-SC1)	1	
PHYS 120	Meteorology (GT-SC2)	3	
PHYS 200	General Physics I (with laboratory) (GT-SC1)	4	
	Credits	17	
<b>Spring</b>			
EDUC 000	Education Gateway Course	0	
EDUC 340	Application of Pedagogy and Practice	3	
GEOL 201	Historical Geology (with laboratory)	4	
PHYS 110	Introductory Astronomy (GT-SC2)	3	
PHYS 201	General Physics II (with laboratory) (GT-SC1)	4	
	Credits	14	
<b>Year Four</b>			
<b>Fall</b>			
EDUC 403	Instruction and Assessment in Content Area	3	
EDUC 404	Creating Positive Learning Environment	3	
EDUC 405	Data-driven Instructional Practices	3	
EDUC 406	Content Area Literacy	3	
EDUC 409	Secondary Student Teaching	3	
	Credits	15	
<b>Spring</b>			
EDUC 407	Maximizing Learning through 21st Century Skills	3	
EDUC 420	Application of Classroom Strategies to Engage All Learners	3	
EDUC 424	Differentiation: Applying Learner-Centered Instruction	3	
EDUC 409	Secondary Student Teaching	3	
	Credits	12	
	Total Credits	129	

## Chemistry Minor

The Chemistry Minor requires a minimum of 19 credits including the following:

Code	Title	Credits
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Select either Plan A, B, or C:		11

### Plan A

CHEM 331	Organic Chemistry I	
CHEM 332	Organic Chemistry II	
CHEM 334	Organic Chemistry Laboratory I	
CHEM 335	Organic Chemistry Laboratory II	
Chemistry elective (Chemistry course numbered 306 or above)		

### Plan B

CHEM 451	Physical Chemistry I	
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CHEM 452	Physical Chemistry II
CHEM 454	Physical Chemistry Laboratory
Chemistry elective (Chemistry course numbered 306 or above)	
<b>Plan C</b>	
CHEM 306	Analytical Chemistry (with laboratory)
CHEM 406	Instrumental Analysis (with laboratory)
Chemistry elective (Chemistry course numbered 306 or above)	
Total Credits	19

## Communication Arts (COM)

All acts of communication and self-expression are performative. The media through which humanity communicates and expresses itself is constantly evolving. Effectively engaging that media becomes a key skill in remaining versatile, marketable, and relevant within the larger cultural, social, and economic landscape. An individual with a comprehensive background in Strategic Communication, Film Studies, or Theatre and Performance can more easily interpret, analyze, and participate in the collaborative arenas of organizational and interpersonal communication, emergent media, and theatrical performance; remaining a step ahead of trends instead of struggling to keep up with them.

The Communication Arts major provides the fundamental analytical and practical skills necessary to facilitate life-long learning, allowing students to adapt to changes in their fields as their careers evolve. To help support this versatility, students majoring in Communication Arts may select a standard emphasis, or one of the three comprehensive emphases. A 12-credit Communication and Theatre nucleus provides students a liberal arts foundation supplemented by the more specific courses within each emphasis.

The Strategic Communication Emphasis provides the study of complex organizations and their use of applied communication in connecting with their audiences. Students in Strategic Communication explore interpersonal and media-based communication, and our courses often require creative work tied to real-world situations. Graduates in the Strategic Communication Emphasis have moved on to careers in public relations and advertising, government relations, issues management and events management.

The Film Studies Emphasis focuses on the study of theory, aesthetics, and history through practical, hands-on creative work in the areas of scriptwriting, visual and aural storytelling, and production management. This provides our students with a keen understanding of the role of current and emerging media in society. Our objective is for students to exit our program well prepared for careers, which may not even exist yet, in various settings related to communication. Our graduates in the Film Studies Emphasis have achieved careers in broadcasting, the motion picture industry, and major corporate media outlets as well as success in graduate programs in film at the highest international level.

The Theatre and Performance Studies Emphasis provides students with an in-depth, multi-disciplinary, and hands-on approach to the role of theatre and live performance. Theatre mirrors the nature of life in all its rich variety. To work effectively within the theatre arts requires a broad knowledge upon which to draw. To that end, the Theatre and Performance Studies emphasis believes in giving students a full range of instruction and experience in the theatre arts—practice, history, and theory—along with the full benefits of a liberal arts education. In addition, the Performance Studies curriculum intersects a broad study of performance with literature, narrative, culture, and a dialogue for social

change. By thinking critically about cultural performance, students are given the opportunity to explore, challenge and sometimes re-define traditional concepts of what performance is. Graduates in the Theatre and Performance Studies Emphasis have gone on to successful careers in the professional performance industry, graduate school, education, legal and social work, and other related fields.

The standard Communication Emphasis allows for the greatest flexibility and efficiency for transfer students, double majors, and those students seeking the broadest possible experience across all of the Communication Arts emphases, while still providing a balance between theory and practice.

Admission to the Program: All degree-seeking students who wish to major in Communication Arts must be formally admitted to the program. For admission, a student must:

1. have demonstrated a minimum competency by completing COM 202 Academic Writing and Inquiry, COM 205 Communication Arts I, each with a grade of "C" or above;
  2. have completed a letter of application, admission form and portfolio (guidelines provided in COM 284, Sophomore Seminar);
  3. have an overall grade-point average of 2.500 or above (at the time of the application). All majors must have an overall grade-point average of 2.500 or above in order to graduate.
- Communication Arts Comprehensive Major: Film Studies Emphasis (p. 113)
  - Communication Arts Comprehensive Major: Strategic Communication Emphasis (p. 114)
  - Communication Arts Comprehensive Major: Theatre and Performance Studies Emphasis (p. 114)
  - Communication Arts Major: Standard Program Communication Emphasis (p. 115)
  - Communication Arts Minor (p. 115)
  - Film Minor (p. 115)
  - Public Relations Minor (p. 115)
  - Theatre Minor (p. 115)

## Capstone Course Requirement

The following course fulfills the capstone course requirement for the Communication Arts Major: COM 484 Communication Arts Seminar.

## Communication Arts Courses

### COM 119. Introduction to Film. (3 Credits)

Students are introduced to the aesthetics of narrative and documentary motion pictures through the study of the basic elements of cinema. Topics may include story structure, cinematography, editing, sound, and lighting.

### COM 121. Introduction to Theatre (GT-AH1). (3 Credits)

This course will include a general survey of Western theatre from Classical Greece to contemporary America. Students will learn the diverse practice of the art of theatre by studying theatre history, dramatic literature, and the practical components of acting, directing, design and production. GT-AH1

**COM 151. Introduction to Mass Media (GT-AH2). (3 Credits)**

An examination of media-related industries (broadcasting, journalism, advertising, public relations and online communications), and the issues related to those industries that affect contemporary public discourse. GT-AH2

**COM 197. Special Topics. (1-6 Credits)****COM 202. Academic Writing and Inquiry (GT-CO2). (3 Credits)**

Students expand on the process and techniques begun in Academic Writing. Primary focus is on analytical written communication and on advocacy oral communication. Also included throughout the course is the reading of relevant academic professional writing, which promotes student awareness of the role of written and oral communication in academic and professional life. Prerequisite: ENG 102 with a minimum grade of "C-." GT-CO2

**COM 205. Communication Arts I. (3 Credits)**

This course is a study of the theory and associated terminology of visual communication including the application of concepts to film, theatre, and convergent media. Topics include aesthetics, design elements, mimesis, performance, semiotics and introduction to the primary techniques of the various communication arts. Prerequisite: ENG 102 with a minimum grade of C-.

**COM 216. Dramatic Literature and Script Analysis. (3 Credits)**

This course introduces students to the diverse genre of dramatic literature in Western and Eastern theatre. Students study the origins of tragedy, comedy, melodrama, the rise of Realism and Anti-Realism, as well as the sub-genres within those general categories. Eastern traditions of text such as Kabuki, Noh, and Bunraku are also studied. Students learn how to read a play on a deeper level for content, themes, historical and sociopolitical influences, as well as the emerging and changing aesthetics of each genre. Prerequisite: ENG 102.

**COM 231. Technical Production I. (4 Credits)**

A study of how things are done behind the scenes in theatre and film and why they are done that way, including the basic customs and traditions of production work and the philosophy, aesthetics, and process of production. Intensive hands-on development of skills in the construction of sets, costumes, lights, sound, and props; the operation of rolling units, lights, flies, and sound; and production assistant duties.

**COM 235. Fundamentals of Acting. (3 Credits)**

An introduction to the principles, processes, and techniques of acting. The study is designed to balance theory and performance; to explore in detail the psychological, perceptual, and conceptual linkages to the strategies, techniques, and skills of the actor; and to develop a significant sense of self-discipline on the part of the actor. Topics include warm-up and awareness skills, basic body and voice integration techniques, the theories of Stanislavski, character analysis, and performance process

**COM 241. Media Writing. (3 Credits)**

An analysis and practice of the major forms of media writing, including print, broadcast and web-based publication, with an introduction to the ways that production varies the writing of each. Prerequisite: ENG 102 with a minimum grade of "C-."

**COM 261. Introduction To Audio Communication. (3 Credits)**

This course introduces the basic concepts, functions and technology of audio production as they relate to the elements of narrative and storytelling. Prerequisite COM 119, COM 121, or COM 151; or instructor permission.

**COM 264. Introduction to Production and Theory. (3 Credits)**

An introduction to the theory and practice of media production including critical and aesthetic theories. Topics may include scriptwriting, producing, directing, cinematography, sound recording, editing, and standards of operation for production facilities and equipment. Prerequisites: COM 205, COM 261, and sophomore standing; or instructor permission.

**COM 274. Public Relations Communication. (3 Credits)**

A study of the use of communication to establish credibility, trust, and confidence between and among communities, employees, public agencies, civic organizations and business institutions.

**COM 284. Sophomore Portfolio. (1 Credit)**

A course in which students familiarize themselves with the requirements for the Communication Arts program and related capstone project, formulate specific goals, and prepare strategies through which those goals can be achieved. Students will develop an awareness of field-specific expectations required of them in professional or graduate-level work, and develop a plan for creating a portfolio that reflects that awareness. A part of the course consists of formally applying for admission to the Communication Arts program. Prerequisite or corequisite: COM 205 or instructor permission.

**COM 292. Independent Study. (1-6 Credits)****COM 297. Special Topics. (1-6 Credits)**

Special Topics

**COM 298. Practicum. (1-4 Credits)**

Entry-level supervised experiences in theatre, organizational communication and journalism/mass media. Prerequisite: instructor permission.

**COM 305. Communication Arts II. (3 Credits)**

An exploration of the philosophical and theoretical foundations of human communication, concentrating specifically on textual analysis and interpretation. Using a wide range of media, students will investigate how the particular method of communication informs, alters, and shapes the messages being consumed, and how those messages both constitute and affect self-expressive acts. PREREQUISITES: COM 205 and admission to the Communication Arts Program; or instructor permission.

**COM 306. Scriptwriting. (3 Credits)**

An introduction to the fundamental tools and skills required to craft a script for performance on stage or in film/video. Students are expected to produce play scripts and screenplays of varying lengths; they are also expected to read and respond to one another's writing. Some history of playwriting and study of prevailing models of scriptwriting are also included. Prerequisites: COM 205 or ENG 205, with a minimum grade of C, or instructor permission.

**COM 310. Introduction to Performance Studies. (3 Credits)**

An interdisciplinary course exploring the human desire to perform in both aesthetic and everyday settings. It explores the links between the arts and literature, anthropology, communication, sociology, and philosophy. Critical reading, written analysis, and performance of literary texts are essential elements of the course.

**COM 317. Studies in Theatre and Performance. (3 Credits)**

An introduction to performance studies research and artistic practice through readings, discussion and creative work. Prerequisites: junior standing and instructor permission. Repeatable for a maximum of six credits among different topic areas.

**COM 323. Media/ Arts Management. (3 Credits)**

An introduction to the basic principles and structure of management as it applies to Communication Arts. Particular focus is given to management of small and mid-size nonprofit media and arts organizations, and to the interrelationship between those two areas. Prerequisite: junior standing or permission of the instructor.

**COM 324. Advanced Acting. (3 Credits)**

An advanced-level course that focuses on specific areas of actor training, including methods of voice and movement training; the requirements and techniques of different styles of acting including classical, Elizabethan, Restoration/18th Century, Commedia, and Advanced Contemporary acting styles; and advanced textual analysis required of actors by specific theatrical works. Repeatable for a maximum of six credits among different topic areas. Prerequisite: COM 235 or instructor permission.

**COM 330. Technical Production II. (3 Credits)**

An intermediate-level study of lighting and sound production for theatre and film. Instruction is provided in the proper rigging of light and sound equipment, use of control consoles and software, optics, basic electrical theory, the nature of light, and acoustics. The design and aesthetic use of light and sound are also explored. Prerequisite: COM 231 or instructor permission.

**COM 331. Scenography in Film and Theatre. (3 Credits)**

A study of designing visually for the stage and screen, with an emphasis on a unified look and a single intense effect. A strong emphasis on script analysis as a basis for design. Additional information on visual research for theatre and film including location scouting and contextual research into the background of the story. Hands-on development of skills in generating graphic communication of design ideas is included. Prerequisite: COM 231 or instructor permission.

**COM 346. Multimedia Communication. (3 Credits)**

An exploration of the theory and application of multimedia communication principles through projects that use common interactive multimedia, animation, non-linear editing, web authoring, and desktop-publishing programs. Prerequisites: COM 205, or instructor permission.

**COM 351. Media Theory and Research. (3 Credits)**

An examination of media from a theoretical, organizational perspective. Topics covered include departmental functions and duties, programming, formats, regulations and finances. Also, in the context of media theory, empirical data is explored. Prerequisite: COM 241 and COM 274, or instructor permission.

**COM 352. Advanced Cinema Studies. (3 Credits)**

An in-depth study of the aesthetics and theory of cinema through the examination and critical analysis of the technical and creative elements of selected iconic Hollywood and international motion pictures. Prerequisite: Junior standing.

**COM 361. Multi-Camera Studio Production. (3 Credits)**

Through the instruction in the theories and practices of studio-based media production, students receive training in the operation of studio equipment and technology. Students will practice the various job duties required in a studio production environment. Topics may include media writing, directing, floor directing, technical directing, camera operating, lighting, and audio. Prerequisite: COM 264 or instructor permission.

**COM 362. Advanced Audio Production. (3 Credits)**

An in-depth study of audio design and production for film, radio, television and live theatre. Prerequisite COM 261.

**COM 371. Small Group and Conflict Management. (3 Credits)**

An exploration of various concepts and types of conflict and the role of argumentation in managing and/or resolving conflict. The study examines the theory and practice of communication within small groups, as well as problem solving and decision making as common contexts in which argument occurs and conflict arises, and a continuum from formal to informal modes of conflict management/resolution is discussed and practiced by the students. Examples of specific areas covered include formal debate, negotiation, and arbitration. Prerequisite: COM 202.

**COM 372. Issues Management. (3 Credits)**

An exploration of the communication practices and strategies used by organizations to react to current events, publicity, and society. Emphasis is placed upon persuasion, media relations, and information campaigns. Prerequisite: junior standing.

**COM 377. Intercultural Communication in the Digital Age. (3 Credits)**

A theoretical and practical survey of intercultural communication. Topics may include: the interpersonal dimensions of intercultural communication online and offline, the distinctive cultural orientations, behaviors, expectations, and values that affect intercultural communication situations, including strategic and computer-mediated communication. Prerequisite: Junior standing or instructor permission.

**COM 385. Experimental Media Production. (3 Credits)**

The essential theory and practice of experimental filmmaking, scanning all modes of making that defy traditional cinema techniques and focus on our individual creative voices. Topics may include: lyrical and structural films, in-camera editing, and the long take. Prerequisite: COM 264 with a minimum grade of "C."

**COM 389. Media Production: Narrative. (3 Credits)**

An introduction to the theory and practice of the field-based production of narrative films. Topics emphasized may include fictional story, cinematography, lighting, sound, editing, and production management. Prerequisite: COM 264 with a minimum grade of "C."

**COM 390. Media Production: Documentary. (3 Credits)**

An introduction to the theory and practice of producing nonfiction works, including conventional documentary forms and autobiographical or experimental works. Topics may include actual story, cinematography, lighting, sound, editing, and production management. Prerequisite: COM 264 with a minimum grade of "C."

**COM 392. Independent Study in Communication Arts. (1-6 Credits)**

A detailed study in a specific area of communication and theatre, emphasizing individualized approaches toward development of creativity and scholarship. Prerequisites: junior or senior status and 10 credits in Communication and Theatre.

**COM 397. Special Topics. (1-6 Credits)**

Special Topics

**COM 398. Practicum. (1-4 Credits)**

Supervised applications and experiences in communication and theatre. Students assist, analyze, manage, and participate in various aspects of practical situations or job training. Prerequisites: instructor permission and completion of one of the following: COM 241, COM 261, or COM 298.

**COM 405. Communications Arts III. (3 Credits)**

A multi-disciplinary and multi-media course offering significant historical, theoretical, and practical content by which to explore and discuss how meaning is conveyed in communication. Special emphasis is given to the nature of oral communication in oral societies and to the nature and function of myth, symbol, sign, and inferential reasoning. Prerequisites: COM 305 or instructor permission.

**COM 406. Advanced Screenwriting and Producing. (3 Credits)**

Students are immersed in advanced screenwriting projects and pitching for independent feature film, television drama and situation comedy.

Producing content may include such topics as contract law, releases, copyright, fair use, ethics, location and talent management, production management, and other administrative subject matter pertaining to film and television production. Prerequisite: COM 306 with a minimum grade of "C".

**COM 423. Directing. (3 Credits)**

A comprehensive introduction to the theory and practice of directing for the stage. Includes an exploration of play selection, character and script analysis, conceptualization of production, actor coaching approaches, staging techniques; as well as the actual direction and presentation of scenes and plays. Prerequisites COM 231, COM 235, COM 310 and junior standing; or instructor permission.

**COM 474. Campaign Planning in Advertising and Public Information. (3 Credits)**

An analysis of the many facets of information campaign planning. It explores concepts like persuasion and audience behavior, researching attitudes and effectiveness, campaign objectives and strategies, media choices, and relevant social and ethical issues. In addition, students are expected to build their own information campaigns. Prerequisite: COM 274.

**COM 484. Communication Arts Seminar. (2 Credits)**

A capstone course in which students complete their individual Communication Arts portfolios, based upon their cumulative work through the COM program and guided by their specific career or graduate school goals. The seminar provides an opportunity for students to work individually, in small groups, and with the instructor to evaluate the overall effectiveness of their finished portfolios, and revise accordingly, utilizing the critical techniques, cultural awareness, and technical skills students have developed throughout the COM program. Prerequisite: COM 305

**COM 490. Advanced Media Production. (3 Credits)**

Students are immersed in advanced project work. Topics may include cinematography, lighting, grip, electrical, special effects, visual effects, sound effects recording, sound design, and animation. Prerequisite: COM 361, COM 385, COM 389 or COM 390 with a minimum grade of "C."

**COM 492. Independent Study. (1-6 Credits)**

A detailed study in a specific area of communication and theatre, emphasizing individualized approaches toward development of creativity and scholarship. Prerequisites: junior or senior status and 10 credits in Communication and Theatre.

**COM 497. Special Topics. (1-6 Credits)**

Special topics in Communication Arts.

**COM 499. Internship in Communication Arts. (1-12 Credits)**

## Communication Arts Comprehensive Major: Film Studies Emphasis Program Requirements

A minimum of 51 credits is required including the 12-credit Communication Arts Nucleus

Code	Title	Credits
<b>Communication Arts Nucleus</b>		
COM 205	Communication Arts I	3

COM 284	Sophomore Portfolio	1
COM 305	Communication Arts II	3
COM 405	Communications Arts III	3
COM 484	Communication Arts Seminar	2
Total Credits		12

And the following:

Code	Title	Credits
COM 119	Introduction to Film	3
COM 241	Media Writing	3
COM 261	Introduction To Audio Communication	3
COM 264	Introduction to Production and Theory	3
COM 274	Public Relations Communication	3
COM 306	Scriptwriting	3
COM 346	Multimedia Communication	3
COM 352	Advanced Cinema Studies	3
One of the following:		3
COM 231	Technical Production I	
COM 235	Fundamentals of Acting	
Select four of the following:		12-13
COM 310	Introduction to Performance Studies	
COM 323	Media/ Arts Management	
COM 324	Advanced Acting	
COM 330	Technical Production II	
COM 361	Multi-Camera Studio Production	
COM 362	Advanced Audio Production	
COM 385	Experimental Media Production	
COM 389	Media Production: Narrative	
COM 390	Media Production: Documentary	
COM 406	Advanced Screenwriting and Producing	
COM 423	Directing	
COM 490	Advanced Media Production	
Total Credits		39-40

## Capstone Course Requirement

The following course fulfills the capstone course requirement for the Communication Arts Major: COM 484 COMMUNICATION ARTS SEMINAR.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).



# Communication Arts Comprehensive Major: Strategic Communication Emphasis

## Program Requirements

A minimum of 51 credits is required including the 12-credit Communication Arts Nucleus:

Code	Title	Credits
<b>Communication Arts Nucleus</b>		
COM 205	Communication Arts I	3
COM 284	Sophomore Portfolio	1
COM 305	Communication Arts II	3
COM 405	Communications Arts III	3
COM 484	Communication Arts Seminar	2
Total Credits		12

And the following:

Code	Title	Credits
COM 151	Introduction to Mass Media (GT-AH2)	3
COM 241	Media Writing	3
COM 264	Introduction to Production and Theory	3
COM 274	Public Relations Communication	3
COM 323	Media/ Arts Management	3
COM 346	Multimedia Communication	3
COM 351	Media Theory and Research	3
COM 371	Small Group and Conflict Management	3
COM 372	Issues Management	3
COM 474	Campaign Planning in Advertising and Public Information	3
COM 499	Internship in Communication Arts	3
BUAD 270	Principles of Marketing	3
Select one of the following:		3
BUAD 333	Organizational Behavior	
BUAD 335	Marketing Communications	
BUAD 345	Consumer Behavior	
PSY 258	Introduction to Personality	
SOC 380	Social Inequalities	
Total Credits		39

## Capstone Course Requirement

The following course fulfills the capstone course requirement for the Communication Arts Major: COM 484 COMMUNICATION ARTS SEMINAR.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

# Communication Arts Comprehensive Major: Theatre and Performance Studies Emphasis

## Program Requirements

A minimum of 55 credits is required including the 12-credit Communication Arts Nucleus, six credits of upper-division Communication Arts electives:

Code	Title	Credits
<b>Communication Arts Nucleus</b>		
COM 205	Communication Arts I	3
COM 284	Sophomore Portfolio	1
COM 305	Communication Arts II	3
COM 405	Communications Arts III	3
COM 484	Communication Arts Seminar	2
Total Credits		12

And the following:

Code	Title	Credits
COM 121	Introduction to Theatre (GT-AH1)	3
COM 216	Dramatic Literature and Script Analysis	3
COM 231	Technical Production I	4
COM 235	Fundamentals of Acting	3
COM 306	Scriptwriting	3
COM 310	Introduction to Performance Studies	3
COM 317	Studies in Theatre and Performance (Taken twice with different subject focus)	3
COM 323	Media/ Arts Management	3
COM 423	Directing	3
Select two of the following:		6-10
COM 324	Advanced Acting	
COM 330	Technical Production II	
COM 431		
Total Credits		34-38

## Capstone Course Requirement

The following course fulfills the capstone course requirement for the Communication Arts Major: COM 484 COMMUNICATION ARTS SEMINAR.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

# Communication Arts Major: Standard Program Communication Emphasis

## Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 36 credits is required including the 12-credit Communication Arts Nucleus, 12 credits of upper-division Communication Arts electives:

Code	Title	Credits
<b>Communication Arts Nucleus</b>		
COM 205	Communication Arts I	3
COM 284	Sophomore Portfolio	1
COM 305	Communication Arts II	3
COM 405	Communications Arts III	3
COM 484	Communication Arts Seminar	2
Total Credits		12

And the following:

Code	Title	Credits
COM 241	Media Writing	3
COM 264	Introduction to Production and Theory	3
COM 274	Public Relations Communication	3
Select one of the following:		3
COM 119	Introduction to Film	
COM 121	Introduction to Theatre (GT-AH1)	
COM 151	Introduction to Mass Media (GT-AH2)	
Total Credits		12

## Capstone Course Requirement

The following course fulfills the capstone course requirement for the Communication Arts Major: COM 484 COMMUNICATION ARTS SEMINAR.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Communication Arts Minor Program Requirements

The Communication Arts Minor consists of a minimum of 18 credits:

Code	Title	Credits
COM 205	Communication Arts I	3
COM 305	Communication Arts II	3

Communication Arts electives (three credits must be upper division)<sup>1</sup> 9

Select one of the following:		Credits
COM 119	Introduction to Film	3
COM 121	Introduction to Theatre (GT-AH1)	
COM 151	Introduction to Mass Media (GT-AH2)	

Total Credits 18

<sup>1</sup> COM 202 Academic Writing and Inquiry (GT-CO2) may not be used as an elective in the completion of the Communication Arts Minor.

## Film Minor

The Film Minor consists of a minimum of 18 credits:

Code	Title	Credits
COM 119	Introduction to Film	3
COM 205	Communication Arts I	3
COM 261	Introduction To Audio Communication	3
COM 264	Introduction to Production and Theory	3

Select two of the following: 6

COM 306	Scriptwriting	
COM 352	Advanced Cinema Studies	
COM 361	Multi-Camera Studio Production	
COM 362	Advanced Audio Production	
COM 385	Experimental Media Production	
COM 389	Media Production: Narrative	
COM 390	Media Production: Documentary	
COM 490	Advanced Media Production	

Total Credits 18

## Public Relations Minor

The Public Relations minor consists of a minimum of 21 credits:

Code	Title	Credits
COM 151	Introduction to Mass Media (GT-AH2)	3
COM 205	Communication Arts I	3
COM 241	Media Writing	3
COM 274	Public Relations Communication	3
COM 351	Media Theory and Research	3

Select two of the following: 6

COM 323	Media/ Arts Management	
COM 346	Multimedia Communication	
COM 372	Issues Management	
COM 474	Campaign Planning in Advertising and Public Information	

Total Credits 21

## Theatre Minor

The Theatre minor consists of a minimum of 21 credits:

Code	Title	Credits
COM 121	Introduction to Theatre (GT-AH1)	3
COM 205	Communication Arts I	3



COM 216	Dramatic Literature and Script Analysis	3
COM 231	Technical Production I	4
COM 235	Fundamentals of Acting	3
Select two of the following:		6
COM 306	Scriptwriting	
COM 317	Studies in Theatre and Performance	
COM 323	Media/ Arts Management	
COM 324	Advanced Acting	
COM 330	Technical Production II	
Total Credits		22

## Computer Science (CS)

The Computer Science major is designed to provide students with the knowledge and skills for a career in software development, cyber security or further study in graduate school. Our graduates have jobs in software engineering, network administration, web development, database management and information security.

Computer Science students can pursue the 42 credit Standard major, the 57 credit Information Security Comprehensive Emphasis or the 60 credit Software Engineering Comprehensive Emphasis. The majors share a core of course work in programming fundamentals, database management, web development and software engineering. The Standard major requires a minor. The Information Security major requires additional CS course work in computer security topics. The Software Engineering major requires additional CS course work in advanced topics and has a wide range of available electives.

The main teaching and development languages are Python, C, C++ and Java. Course work covers programming, web development technologies, data science, database management, data structures, algorithms and software engineering. Study is focused on real-world problem solving with emphasis on modern software engineering techniques. Internships with major corporations like Lockheed Martin, Northrup Grumman, Raytheon and others are popular.

All Computer Science Majors require the 30-credit Computer Science Core.

All CS 200+ classes require a suitable student owned computer. Specifications are available from the MCS department.

- Computer Science Comprehensive Major: Information Security Emphasis (p. 119)
- Computer Science Comprehensive Major: Data Science Emphasis (p. 120)
- Computer Science Comprehensive Major: Software Engineering Emphasis (p. 121)
- Computer Science Major: Standard Program (p. 123)
- Computer Science Minor (p. 124)
- Data Science Minor (p. 124)
- Web Design and Development Minor (p. 125)
- Computer Science, Western - University of Colorado Partnership (p. 125)

## Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 Senior Project.

## Computer Science Courses

### CS 120. Professional Computer Skills. (3 Credits)

A comprehensive study of the essentials of software used by professionals, emphasizing applications of spreadsheets to fundamental data organization, presentation, analysis and decision making applications.

### CS 140. Game Programming for Beginners. (3 Credits)

For the complete beginner, an introduction to computer programming by writing basic animations and arcade games. Standard programming issues such as language constructs, problem solving and debugging are combined with game specific considerations such as animation, scoring, collision detection, game levels and working with multiple moving objects. The course uses industry-standard software such as Python.

### CS 150. Computers in Society. (3 Credits)

An introduction to the use of computing devices and their impact on society. Topics include: how computers work, the history of computing, philosophical issues in computing, the economics of software development, intellectual property issues, privacy and security, applications of computing, legal issues, the digital divide, the role of computing in government, and computer-assisted collaboration.

### CS 160. Introduction to Web Design. (3 Credits)

An introduction to creating web pages and sites with XHTML and CSS as well as using site building software and commercial plugin capabilities. This course is designed for students without a background in computer science.

### CS 170. Information Security and Hacking. (3 Credits)

An introduction to the principles and concepts of information security and hacking. The course uses real world examples to illustrate attacks on computer systems and networks. Topics include vulnerabilities, threats and attackers, data protection and encryption and the nature of malware. Basic hacking concepts are introduced along with defensive measures and counterattacks.

### CS 190. Computer Science I. (3 Credits)

An introduction to software development taught in Python. Topics include control structures, I/O, functions, strings, lists, files, other data structures and basic algorithms that use them. Emphasis is placed on good problem-solving practices, testing and debugging.

### CS 191. Computer Science II. (3 Credits)

A continuation of CS 190 taught in C++. Students develop applications of increasing sophistication. Topics include control structures, I/O, functions, strings, arrays, files, objects and classes, elementary searching and sorting algorithms. Emphasis is placed on software engineering and an introduction to object-oriented programming. Prerequisite: CS 190 with a minimum grade of "C-" or score of at least 75% on the Western CS 191 entrance exam or CU Partnership status.

### CS 192. Independent Study. (1-3 Credits)

### CS 195. Database Management Systems. (3 Credits)

An introduction to the principles and practice of relational database design, implementation and manipulation. Topics include Structured Query Language (SQL), relational models, elementary database design as well as database management with a programming language such as Java. Prerequisite: CS 190 with a minimum grade of "C-".

### CS 197. Special Topics. (1-6 Credits)

Special topics.

**CS 220. Data Analytics. (3 Credits)**

Introductory knowledge discovery using computational, statistical, and informatics methods. Topics include analysis of any data that is in digital form, including text, symbolic data or image data, and finding patterns in science, the arts, and society. Prerequisite: CS 190 with a minimum grade of "C-" and MATH 140, MATH 141, MATH 151 or an Accuplacer AAF Test score of 245 or above.

**CS 235. Computers Networks. (3 Credits)**

An investigation of the transmission of data and information between computer systems. Topics include simple data communications, protocols, error control, local-area networks, wide-area networks such as the Internet packet-switching networks, and several networking models. Various data communication hardware and software are also examined. Prerequisites: CS 191 with a minimum grade of "C-".

**CS 250. Web Applications Development I. (3 Credits)**

A course studying web site design, focusing on HTML5 and CSS for page structure and style, the embedded JavaScript language for interactivity, and a web application server language for database access. The student learns to implement the essentials of a interactive, database driven website. Prerequisite: CS 191

**CS 280. Data Structures. (3 Credits)**

A continuation of CS 191 taught in C++. Students use the Standard Template Library to solve moderately difficult problems. Topics include multi-dimensional arrays, vectors, stacks, queues, hash maps, associative arrays, linked lists, trees and heaps. Emphasis is placed on object-oriented design. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 292. INDEPENDENT STUDY. (1-3 Credits)****CS 297. Special Topics. (1-6 Credits)**

Special topics

**CS 303. Machine Learning. (3 Credits)**

A study of computer systems that learn. Topics include decision trees, concept learning, neural networks, reinforcement learning, linear and non-linear models, clustering, validation, feature selection, support vector machines and hidden Markov models with applications to the arts and sciences. Prerequisite: CS 190 with minimum grade of "C-".

**CS 310. Programming Projects with X. (3 Credits)**

A project-based course focusing on medium-sized projects in a given programming language using tools and environments appropriate to the selected language. Students gain proficiency in the language by doing projects from a variety of subjects such as artificial intelligence, graphics, machine learning, compilers, and Human-Computer Interaction. This course contains individual and group work. May be repeated with a different implementation language. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. Only one of the following courses, CS 317, MATH 317, or BIOL 317, may be taken for credit. Prerequisites: MATH 151, MATH 213 and CS 190.

**CS 320. Programming Languages. (3 Credits)**

An investigation of the theory, usage, and implementation of programming languages. Emphasis is on the theoretical basis for programming languages and practical examples of their use. Basic language paradigms are developed: imperative, functional, object-oriented, and logic. Other topics include type systems and language translation. Languages studied include C, C++, Java, Lisp, Haskell, Prolog, and Python. Prerequisite: CS 280 with a minimum grade of C-.

**CS 330. Operating Systems and Architecture. (3 Credits)**

A study of how hardware and operating systems work in a multiprocessing computer system. The Intel architecture including the instruction set, memory hierarchy, and exception handling are covered. The Windows and Linux operating systems functions and programming interfaces are studied to understand modern computing environments. Prerequisite: CS 191

**CS 340. Computer Graphics. (3 Credits)**

A presentation of the design and use of computer-graphics systems (hardware and software) and construction of two- and three-dimensional graphics. Applications of computer graphics in business, industry, education, and communications are emphasized. Prerequisite: CS 190 with a minimum grade of "C-".

**CS 350. Web Applications Development II. (3 Credits)**

A study of client-server applications designed around the World Wide Web. Students design and implement interactive applications which provide access to centralized resources such as databases and mail servers from web browsers. Students utilize JavaScript and server-based technologies to construct web-based programs that communicate with servers. Technologies such as Ajax, XML, JSON, and commonly used JavaScript libraries are included. Prerequisite: CS 250 with a minimum grade of "C-".

**CS 360. System Security. (3 Credits)**

A study of system level hacking. Topics include workstation and server vulnerabilities, security and protection mechanisms. The nature of system attacks combined with standard intrusion detection systems will demonstrate the challenge of correctly preventing, diagnosing and responding to attacks. Prerequisite: CS 330

**CS 365. Big Data Analytics. (3 Credits)**

An intensive study of big data and informatics applications for digital data. Topics include text analysis using classic works and social media, numeric analysis using economic and scientific data and symbolic analysis using genomic data. Emphasis is on programming solutions to complex problems. Prerequisite: CS 220 and MATH 151 with minimum grade of "C-".

**CS 370. Systems Programming in C. (3 Credits)**

A study of C programming in a UNIX environment. Topics include the C language, the system call interface for file I/O, process management, interprocess communication and threads, command line utilities for file system navigation, file editing, compiling, execution and scripting. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 380. The Internet of Things. (3 Credits)**

A hands-on introduction to the theory and programming of wireless embedded systems - the Internet of Things. Topics include sensors, actuators, state machines, scheduling, wireless communications, time synchronization, localization, fault tolerance, and security related to cyber-physical systems. Prerequisite: CS 330 or CS 370 with minimum grade of "C-".

**CS 390. Software Entrepreneurship. (3 Credits)**

A hands-on and project-based course on startup entrepreneurship for software technologies. Students develop and test product ideas, identify market segments, develop customer personas, create minimum viable products and pitch their ideas. Prerequisites: CS 250 and CS 280 with minimum grades of "C-".

**CS 391. Computer Science Seminar. (3 Credits)**

An advanced topic in computing, selected by the instructor from areas of computer science not usually included in the regular curriculum, conducted in a lecture, seminar or individualized format. Student involvement through presentations is emphasized. May be taken under different topics for a total of three credits. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 392. Independent Study. (1-3 Credits)**

A singular investigation into a unique problem agreed upon by the student and the advisor. Independent Studies (CS 192, CS 292, CS 392, and CS 492) may be repeated for a total of up to 12 credits.

**CS 397. Special Topics. (1-6 Credits)**

Special topics

**CS 410. Systems Analysis and Design. (3 Credits)**

The fundamental concepts of systems analysis and design are studied in the context of computerized information systems. Topics include high-level system construction tools, system design methodology, data representation languages such as XML, server-based system design, web services, system security, and system description languages such as UML. Also addressed is the human element in system design: working with users and domain experts to develop system requirements, and understanding the challenges of large scale system projects. Each student completes a number of systems design projects during the term. Prerequisite: CS 310 with a minimum grade of C-.

**CS 412. Software Engineering. (3 Credits)**

An introduction to the fundamental principles of software engineering. Formal software development techniques and high-level software tools are emphasized. Topics include object-oriented design and programming, software testing, quality and formal methods for software design. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 415. Software Engineering II. (3 Credits)**

A continuation of study of the software lifecycle. Topics include methods and tools for the implementation, integration, testing and maintenance of large software systems, software development, test environments and quality assurance, team organization and management. Technical presentation methods and practice are emphasized. There is a significant group project. Prerequisite: CS 412 with a minimum grade of "C-".

**CS 435. Mobile Development. (3 Credits)**

An introduction to mobile application development using the Android platform. Topics include development tools, the application life-cycle, interfaces, asynchronous tasks, events, data storage and services. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 440. Distributed Computing for Machine Learning and Data Analysis. (3 Credits)**

A programming intensive introduction to distributed computing with attention to applications in machine learning and data analysis. Topic includes distributed sequential analysis methods, distributed Markov model-based methods, and distributed support vector machine-based methods. Prerequisite: CS 303 or CS 365 with a minimum grade of "C-".

**CS 450. Ethical Hacking and Malware. (3 Credits)**

Application of computer hacking principles to determine vulnerabilities in computer systems and to design preventative processes. Each stage of the attack process from reconnaissance to final objective will be used to analyze attack methods and determine the best method to detect and remediate an attack using an incident response process. Prerequisite: CS 330

**CS 460. Network Security. (3 Credits)**

A study of network and web hacking. Topics include web vulnerabilities, cryptographic tools, web security and protection mechanisms. The nature of network attacks using sample data sets combined with standard intrusion detection systems will demonstrate the challenge of correctly diagnosing and responding to attacks. Prerequisite: CS 235 and CS 330

**CS 470. Algorithms. (3 Credits)**

A continuation of CS 280 taught in a language such as Python or C++. Students design and develop more complex algorithms. Topics include complexity analysis, advanced sorting and searching, graph algorithms, greedy algorithms, intractability and heuristics. Emphasis is placed on math foundations and algorithm design, testing, and efficiency. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 480. Computer Science Application Project. (3 Credits)**

Students develop a comprehensive application project with a supervising faculty member. A summary paper is written or public presentation of the project is made to the CS faculty and students. Prerequisite: 18 credits of Computer Science course work, including nine upper-division credits, and instructor permission.

**CS 490. Workshop in Computer Science. (1-6 Credits)**

A series of organized meetings dealing with a topic of current interest. Offered periodically in a variety of computer-related subjects. Only three credits of this title can be applied toward a Computer Science Minor.

**CS 492. Independent Study in Computer Science. (1-3 Credits)**

A singular investigation into a unique problem agreed upon by the student and the advisor. Independent Studies (CS 192, CS 292, CS 392, and CS 492) may be repeated for a total of up to 12 credits.

**CS 495. Senior Project. (3 Credits)**

A hands-on and project-based course on the design and construction of sizeable software products. Topics include requirements, software architecture, professional tools for design, testing and project management. Students participate in and manage development teams. Prerequisite: CS 412 with a minimum grade of "C-".

**CS 497. Special Topics. (1-6 Credits)**

Special topics

**CS 499. Internship or Field Experience in Computer Science. (1-12 Credits)**

Students participate in a supervised internship or field experience with a cooperating university or corporation, in the computer science field. A summary paper is written or public presentation of the field experience is made before the CS faculty and students, and a review from the supervisor is prepared. Prerequisite: 18 credits of Computer Science course work, including nine upper-division credits, and instructor permission.

# Computer Science Comprehensive Major: Information Security Emphasis

## Program Requirements

A minimum of 57 credits is required, including the 30-credit Computer Science Core:

Code	Title	Credits
<b>Computer Science Core</b>		
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
CS 250	Web Applications Development I	3
CS 280	Data Structures	3
CS 330	Operating Systems and Architecture	3
CS 370	Systems Programming in C	3
CS 412	Software Engineering	3
CS 470	Algorithms	3
CS 495	Senior Project	3
Total Credits		30

And the following:

Code	Title	Credits
CS 170	Information Security and Hacking	3
CS 235	Computers Networks	3
CS 360	System Security	3
CS 450	Ethical Hacking and Malware	3
CS 460	Network Security	3
MATH 140	College Algebra (GT-MA1)	3
Three of the following:		9

CS 220	Data Analytics	
CS 303	Machine Learning	
CS 310	Programming Projects with X	
CS 317	Genome Analysis (with laboratory)	
CS 320	Programming Languages	
CS 340	Computer Graphics	
CS 350	Web Applications Development II	
CS 365	Big Data Analytics	
CS 380	The Internet of Things	
CS 390	Software Entrepreneurship	
CS 415	Software Engineering II	
CS 435	Mobile Development	
CS 440	Distributed Computing for Machine Learning and Data Analysis	
CS 499	Internship or Field Experience in Computer Science	
MATH 380	Introduction to Cryptography	
Total Credits		27

## Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 SENIOR PROJECT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CS 170	Information Security and Hacking	3
CS 190	Computer Science I	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 140 or MATH 141 or MATH 151	College Algebra (GT-MA1) or Precalculus (GT-MA1) or Calculus I (GT-MA1)	3
Gen Ed	Arts & Humanities	3
		Credits 16
<b>Spring</b>		
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
Elective	Elective or minor course	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
CS 280	Data Structures	3

CS 330 or CS 250	Operating Systems and Architecture or Web Applications Development I	3
Elective	Elective or minor course	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
Credits		16

**Spring**

COM 202	Academic Writing and Inquiry (GT-CO2)	3
CS 412	Software Engineering	3
Elective	Elective or minor course	6
Gen Ed	Natural Sciences w/lab	4
Credits		16

**Year Three**

**Fall**

Choose 1 Pair based on the year of program start: 6

Pair 1	CS 250 AND upper division CS Elective	3
Pair 2	CS 330 AND CS 235	3
Gen Ed	Social Sciences	3
Elective	Elective or minor course	6
Credits		15

**Spring**

Choose 1 Pair based on the year of program start: 6

Pair 1	CS 360 AND upper division CS Elective	3
Pair 2	CS 450 AND CS 460	3
CS 370	Systems Programmin in C	3
Elective	Elective or minor course	3
Gen Ed	Arts & Humanities	3
Credits		15

**Year Four**

**Fall**

CS 235	Computers Networks	3
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CS 470	Algorithms	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Elective	Upper division elective or minor course	3
Credits		15

**Spring**

Choose 1 Pair based on the year of program start: 6

Pair 1	CS 450 AND CS 460	3
Pair 2	CS 360 AND upper division CS Elective	3
CS 495	Senior Project	3
Elective	Elective or minor course	3
Credits		12
Total Credits		120

## Computer Science Comprehensive Major: Data Science Emphasis

A minimum of 58 credits is required, including the 30-credit Computer Science Core:

Code	Title	Credits
<b>Computer Science Core</b>		
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
CS 250	Web Applications Development I	3
CS 280	Data Structures	3
CS 330	Operating Systems and Architecture	3
CS 370	Systems Programming in C	3
CS 412	Software Engineering	3
CS 470	Algorithms	3
CS 495	Senior Project	3
Total Credits		30

And the following additional courses:

Code	Title	Credits
CS 220	Data Analytics	3
CS 303	Machine Learning	3
CS 365	Big Data Analytics	3
CS 440	Distributed Computing for Machine Learning and Data Analysis	3
MATH 151	Calculus I (GT-MA1)	4
MATH 213	Probability and Statistics	3



And three of the following:	9
CS 310 Programming Projects with X	
CS 317 Genome Analysis (with laboratory)	
CS 320 Programming Languages	
CS 340 Computer Graphics	
CS 350 Web Applications Development II	
CS 380 The Internet of Things	
CS 390 Software Entrepreneurship	
CS 415 Software Engineering II	
CS 435 Mobile Development	
CS 499 Internship or Field Experience in Computer Science	
MATH 260 Applied Linear Algebra	
MATH 380 Introduction to Cryptography	
<b>Total Credits</b>	<b>28</b>

## Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 SENIOR PROJECT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Computer Science Major: Software Engineering Comprehensive Emphasis

### Program Requirements

A minimum of 60 credits is required, including the 30-credit Computer Science Core:

Code	Title	Credits
<b>Computer Science Core</b>		
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
CS 250	Web Applications Development I	3
CS 280	Data Structures	3
CS 330	Operating Systems and Architecture	3
CS 370	Systems Programming in C	3
CS 412	Software Engineering	3
CS 470	Algorithms	3
CS 495	Senior Project	3
<b>Total Credits</b>		<b>30</b>

And the following:

Code	Title	Credits
CS 303	Machine Learning	3
CS 350	Web Applications Development II	3
CS 380	The Internet of Things	3
CS 435	Mobile Development	3
MATH 213	Probability and Statistics	3
or MATH 260	Applied Linear Algebra	
And five of the following:		25
CS 235	Computers Networks	
CS 310	Programming Projects with X	
CS 317	Genome Analysis (with laboratory)	
CS 320	Programming Languages	
CS 340	Computer Graphics	
CS 360	System Security	
CS 365	Big Data Analytics	
CS 390	Software Entrepreneurship	
CS 415	Software Engineering II	
CS 450	Ethical Hacking and Malware	
CS 460	Network Security	
CS 499	Internship or Field Experience in Computer Science	
ENG 302	Technical Writing	
including no more than one of the following:		3-4
MATH 151	Calculus I (GT-MA1)	
MATH 200	Discrete Mathematics	
MATH 213	Probability and Statistics	
MATH 260	Applied Linear Algebra	
MATH 380	Introduction to Cryptography	
<b>Total Credits</b>		<b>43-44</b>

## Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 SENIOR PROJECT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CS 190	Computer Science I	3
Elective	Elective or minor course	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Arts & Humanities	3



HWTR 100	First Year Seminar	1
MATH 141 or MATH 151	Precalculus (GT-MA1) or Calculus I (GT-MA1)	4
		Credits 17
<b>Spring</b>		
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
Elective	Elective or minor course	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
CS 280	Data Structures	3
CS 330 or CS 250	Operating Systems and Architecture or Web Applications Development I	3
MATH 213 or MATH 260	Probability and Statistics or Applied Linear Algebra	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
CS 380 or CS 350	The Internet of Things or Web Applications Development II	3
CS 412	Software Engineering	3
Elective	Elective or minor course	3
Gen Ed	Natural Sciences w/lab	4
		Credits 16

<b>Year Three</b>		
<b>Fall</b>		
CS 250 or CS 330	Web Applications Development I or Operating Systems and Architecture	3
CS 435 or CS 303	Mobile Development or Machine Learning	3
CS	CS elective	3
Elective	Elective or minor course	3
Gen Ed	Social Sciences	3
		Credits 15
<b>Spring</b>		
CS 350 or CS 380	Web Applications Development II or The Internet of Things	3
CS 370	Systems Programming in C	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Gen Ed	Arts & Humanities	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
CS 303 or CS 435	Machine Learning or Mobile Development	3
CS 470	Algorithms	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Elective	Upper division elective or minor course	3
		Credits 15
<b>Spring</b>		
CS 495	Senior Project	3
CS	Upper division CS elective	6

Elective	Elective or minor course	3
	Credits	12
	Total Credits	121

CS 499	Internship or Field Experience in Computer Science
MATH 380	Introduction to Cryptography
<b>Total Credits</b>	<b>12</b>

## Computer Science Major: Standard Program

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 42 credits is required, including the 30-credit Computer Science Core:

Code	Title	Credits
<b>Computer Science Core</b>		
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
CS 250	Web Applications Development I	3
CS 280	Data Structures	3
CS 330	Operating Systems and Architecture	3
CS 370	Systems Programming in C	3
CS 412	Software Engineering	3
CS 470	Algorithms	3
CS 495	Senior Project	3
<b>Total Credits</b>		<b>30</b>

And the following:

Code	Title	Credits
MATH 140	College Algebra (GT-MA1)	3
or MATH 141	Precalculus (GT-MA1)	
or MATH 151	Calculus I (GT-MA1)	
<b>Three of the following:</b>		<b>9</b>
CS 220	Data Analytics	
CS 303	Machine Learning	
CS 310	Programming Projects with X	
CS 317	Genome Analysis (with laboratory)	
CS 320	Programming Languages	
CS 340	Computer Graphics	
CS 350	Web Applications Development II	
CS 360	System Security	
CS 365	Big Data Analytics	
CS 380	The Internet of Things	
CS 390	Software Entrepreneurship	
CS 415	Software Engineering II	
CS 435	Mobile Development	
CS 440	Distributed Computing for Machine Learning and Data Analysis	
CS 450	Ethical Hacking and Malware	
CS 460	Network Security	

### Capstone Course Requirement

The following course fulfills the capstone course requirement in the Computer Science Major: CS 495 SENIOR PROJECT.

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CS 190	Computer Science I	3
Elective	Elective or minor course	
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Arts & Humanities	3
HWTR 100	First Year Seminar	1
MATH 140 or MATH 141 or MATH 151	College Algebra (GT-MA1) or Precalculus (GT-MA1) or Calculus I (GT-MA1)	3
	<b>Credits</b>	<b>13</b>
<b>Spring</b>		
CS 191	Computer Science II	3
CS 195	Database Management Systems	3
Elective	Elective or minor course	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
	<b>Credits</b>	<b>15</b>
<b>Year Two</b>		
<b>Fall</b>		
CS 280	Data Structures	3

CS 330 or CS 250	Operating Systems and Architecture or Web Applications Development I	3
Elective	Elective or minor course	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
CS 412	Software Engineering	3
Elective	Elective or minor course	6
Gen Ed	Natural Sciences w/lab	4
<b>Credits</b>		<b>16</b>
<b>Year Three</b>		
<b>Fall</b>		
CS 250 or CS 330	Web Applications Development I or Operating Systems and Architecture	3
Elective	Elective or minor course	6
Elective	Upper division elective or minor course	3
Gen Ed	Social Sciences	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
CS 370	Systems Programming in C	3
CS	Upper division CS elective	3
Elective	Elective or minor course	3
Elective	Upper division elective or minor course	3

Gen Ed	Arts & Humanities	3
<b>Credits</b>		<b>15</b>
<b>Year Four</b>		
<b>Fall</b>		
CS 470	Algorithms	3
CS	Upper division CS elective	3
Elective	Elective or minor course	6
Elective	Upper division elective or minor course	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
CS 495	Senior Project	3
CS	Upper division CS elective	6
Elective	Elective or minor course	3
Elective	Upper division elective or minor course	3
<b>Credits</b>		<b>15</b>
<b>Total</b>		<b>120</b>
<b>Credits</b>		

## Computer Science Minor

A minimum of 18 credits is required, including :

Code	Title	Credits
CS 190	Computer Science I	3
CS 191	Computer Science II	3
Twelve credits of Computer Science Electives (at least six upper division) <sup>1</sup>		12
<b>Total Credits</b>		<b>18</b>

<sup>1</sup> CS 120 Professional Computer Skills, CS 140 Game Programming for Beginners, CS 150 Computers in Society, and CS 160 Introduction to Web Design may not be used to satisfy the elective requirement.

## Data Science Minor

The Data Science Minor requires a minimum of 19 credits.

Code	Title	Credits
<b>Required courses:</b>		
CS 190	Computer Science I	3
CS 220	Data Analytics	3
CS 303	Machine Learning	3
MATH 151	Calculus I (GT-MA1)	4
<b>And two of the following:</b>		<b>6</b>
CS 365	Big Data Analytics	

an upper-division course approved by the MCS department chair

CS 317	Genome Analysis (with laboratory)
or CS 440	Distributed Computing for Machine Learning and Data Analysis

## Web Design and Development Minor

A minimum of 24 credits is required:

Code	Title	Credits
ART 171	Foundation Design: Two-Dimensional	3
ART 270	Introduction to Graphic Design and Illustration	3
ART 271	Calligraphy/Typography	3
ART 370	Intermediate Graphic Design	3
CS 160	Introduction to Web Design	3
CS 190	Computer Science I	3
CS 191	Computer Science II	3
CS 250	Web Applications Development I	3
Total Credits		24

## Computer Science, Western - University of Colorado Partnership

Through a Western-University of Colorado Boulder partnership program, you can graduate with a B.S. degree from the University of Colorado Boulder's renowned College of Engineering & Applied Science. During the first two years of the partnership program, you take Western courses with Western faculty. For the final two years, you take University of Colorado Boulder classes with University of Colorado Boulder faculty—remaining at Western the entire four years to complete a B.S. in either Mechanical Engineering or Computer Science from the University of Colorado Boulder.

### Program Requirements

The Computer Science program is designed for students who wish to take Computer Science at Western Colorado University and the University of Colorado.

This process should provide a seamless transfer of coursework on the Gunnison residential campus for a B.S. in Computer Science for students at Western Colorado University and the University of Colorado. Students must achieve a cumulative GPA of 3.0 or better, including all remedial and repeated courses.

This program is still under development and subject to change.

**NOTE:** Bolded courses are either in development and need final approval or are awaiting review from University of Colorado Boulder.

#### Degree Requirements, Courses

##### Composition (3 credit hours)

- **ENG 302: Technical Writing**

##### Mathematics (17 credit hours)

- MATH 151: Calculus I
- MATH 251: Calculus II
- **MATH 200: Discrete Mathematics**

- **MATH 314: Applied Probability**
- **CSCI 2820: Linear Algebra with CS Applications**

##### Computer Science (minimum 58 credit hours)

- Computer Science Foundation
  - HWTR 100: Let's Get Physical (Computing)
  - CS 191: Computer Science II
  - CS 280: Data Structures
  - CS 330: Operating Systems and Architecture
  - CS 370: Systems Programming in C
  - CS 412: Software Engineering I
  - CSCI 3155: Principles of Programming Languages
  - CSCI 3104: Algorithms
- Computer Science Core
  - Select six classes from approved list
- Computer Science Electives
  - Select additional courses from approved list to bring total Computer Science credit hours to at least 58
- Senior Capstone
  - CSCI XXXX: Capstone (8 credits)

##### Natural Science (17 credit hours)

- PHYS 200: General Physics 1
- One additional Natural Science sequence from the following
  - PHYS 201: General Physics 2
  - BIOL 150: General Biology 1
  - CHEM 111+112: General Chemistry 1 (with lab)
  - **CHEM 121: General Chemistry for Engineers**
- Minimum 8 additional Natural Science credit hours from the following
  - BIOL 130: Environmental Biology
  - CHEM 113+114: General Chem 2 (with lab)
  - GEOL 101: Physical Geology
  - GEOL 201: Historical Geology (with lab)
  - PHYS 320: Modern Physics
  - Numerous other courses available from CU

##### Logic and Ethics (6 credit hours)

- **PHIL 135: Intro to Ethics**
- **PHIL 200: Symbolic Logic**

##### Humanities/Social Sciences (15 credit hours, 6 of which must be upper-division)

Additional courses may be transferable for this requirement, but these courses are guaranteed to apply:

- ANTH 107, ART 105, COM 119, COM 121, COM 151, COM 216, COM 352, COM 371, ECON 201, ENG 150, ENG 205, ENG 230, ENG 232, ENG 237, ENG 238, ENG 248, ENG 250, ENG 254, ENG 255, ENG 270, ENG 305, ENG 358, ENVS 100, GEOG 110, GEOG 120, GEOG 250, HIST 101, HIST 102, HIST 126, HIST 127, HIST 250, HIST 254, HIST 260, HIST 370, HNRS 100, HNRS 304, HNRS 400, MUS 100, MUS 135, MUS 140, MUS 240, MUS 245, PHIL 101, PHIL 315, PHIL 325, POLS 117, POLS 370, PSY 457, SOC 380, SPAN 102, SPAN 201, SPAN 202

##### Foreign Language

What this requirement means is that students must demonstrate written and oral language proficiency through the *third-level* of a single foreign language, where *third-level* means third full year of high school or third semester college course (e.g., SPAN 2110 Second-Year Spanish 1). Alternatively, a student must demonstrate *second-level* proficiency in two different foreign languages (e.g., complete 2 years of high school French + SPAN 1020 Beginning Spanish 2).

#### Free Elective Courses (credit hours variable)

## Economics (ECON)

The general goals of the Economics Program are to prepare graduates to:

- use their knowledge of economics to better understand the world around them, enabling them to make more informed decisions in their personal as well as their professional lives;
- develop skills such as critical analysis, statistical analysis, and reasoning and competency in written and oral communication; and
- apply their knowledge of economics in private enterprise or business firms, the the public sector (i.e., policy making), or graduate study in economics or a related field.

Students majoring in Economics may choose the Standard Program or the Comprehensive Program Secondary Licensure Emphasis.

To graduate, all economics majors must have a grade point average of 2.500 or above in all courses for the major.

- Economics Comprehensive Major: Secondary Licensure Emphasis (p. 128)
- Economics Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/economics/economics-comprehensive-secondary-licensure-3-2/>)
- Economics Major: Standard Program (p. 129)
- Economics Minor (p. 130)

## Capstone Course Requirement

The following courses in the Economics Major fulfill the Capstone Course Requirement: ECON 498 Income Distribution, Poverty and Wealth. Students completing the Secondary Licensure Emphasis may use student teaching to fulfill this requirement.

## Economics Courses

### ECON 197. Special Topics. (1-6 Credits)

#### ECON 201. Macroeconomics (GT-SS1). (3 Credits)

An introduction to the methods, models, and approaches used by economists to analyze and interpret events and policies related to the overall operation of the economy. The course endeavors to make sense of unemployment, inflation, recessions, debt and deficits, economic growth, the expanding role of the Federal Reserve, and policies to provide stability to the economy. Additional attention is given to the making of economic policy in an era of globalization. Finally, students are exposed to multiple schools of thought regarding macroeconomic reasoning. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; pass MATH 099; or Accuplacer Advanced Algebra and Functions test score of 235 or higher, or university-level math requirement with a minimum grade of "C-." Prerequisite or corequisite: ENG 102. GT-SS1

### ECON 202. Microeconomics. (3 Credits)

The theory of microeconomics makes use of the tools of marginal cost-benefit analysis to provide a framework for the economic analysis of decision-making. The focus is on the choices of individual firms and consumers, and the resultant outcomes in individual markets. The social implications of the functioning of competitive markets are examined, as well as the causes of market failure and the potential roles of government in correcting them. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; pass MATH 099; or Accuplacer Advanced Algebra and Functions test score of 235 or higher, or university-level math requirement with a minimum grade of "C-."

### ECON 215. Environmental Economics. (3 Credits)

A presentation of the analytical tools and approaches used by economists to examine and assess environmental issues, conflicts, and policies. Students are asked to use market analysis, externality analysis, cost-benefit analysis, instrument choice models, and market and non-market valuation techniques to investigate issues such as air and water quality, global warming, toxic substances, wilderness designation, and sustainable development plans. Prerequisites: MATH 105, MATH 113, MATH 140, MATH 141, or MATH 151 with a minimum grade of C-.

### ECON 216. Statistics for Business and Economics. (3 Credits)

An introduction to descriptive statistics and statistical inference, with application in business, including hypothesis testing, confidence intervals, and simple regression analysis. Prerequisite: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-."

### ECON 297. Special Topics. (1-6 Credits)

#### ECON 301. Intermediate Macroeconomics. (3 Credits)

An analysis of competing theories about the overall functioning of economies including both growth and stabilization policies. Alternative models are examined at the levels of assumptions, mechanics, dynamics, and policy implications. Theories are examined within their historical context and the sets of problems faced by the theorists. Students are asked to engage, analyze, interpret and provide a course of action for real-world cases. Prerequisites: ECON 201; ECON 202; and MATH 140, MATH 141, or MATH 151 with a minimum grade of C-.

#### ECON 302. Intermediate Microeconomics. (3 Credits)

Intermediate Microeconomics extends the analysis of individual economic behavior and the functioning of markets learned in ECON 202 by incorporating the more sophisticated microeconomic models used in more advanced economic analysis. Topics include the theories of the consumer and the firm, the functioning of market, and the impact of market structure on price formation. Prerequisites: ECON 202; MATH 140, MATH 141, or MATH 151 with a minimum grade of C-; ECON 201 recommended.

#### ECON 303. International Economics and Globalization. (3 Credits)

An exploration of economic, political, and social effects of globalization. This is examined from the perspectives of trade, development, finance, and the environment. The first half of the course focuses on the impacts of international trade. This includes preferential trading relations, protectionism, global trade agreements, competitiveness, and possible conflicts between trade and social objectives. The second half of the course focuses on international monetary relations and regimes. This includes understanding the balance of payments, exchange rate determination, currency crises, and international debt. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201; ECON 202 recommended.

**ECON 315. Labor Economics. (3 Credits)**

The central questions in the field of labor economics are how wages are determined, and why a market economy provides such a vast range of possible rewards to human labor. To answer them, this course examines the role of market forces (the supply of and demand for labor) as well as that of social, political, and economic institutions. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202; ECON 201 recommended.

**ECON 316. Econometrics. (3 Credits)**

The application of advanced statistical methods and modeling to an empirical understanding of economic issues. Combines elements of statistical reasoning with economic theory and provides an excellent opportunity to combine concepts learned in previous economics courses. Topics covered include multiple regression analysis, model specification, dummy variables, multicollinearity, heteroscedasticity, autocorrelation, limited dependent variables, simultaneity, time series, forecasting, and methodological issues. Prerequisites: ECON 201 or ECON 202; and ECON 216 or MATH 213.

**ECON 317. Economics and Public Policy. (3 Credits)**

An examination of the field of public economics, the branch of economics concerned with the reasons for market failure (monopoly, public goods, externalities, information asymmetry) and the potential for government policies to correct them. The application of the tools of economic analysis to understanding the causes of and potential solutions to social problems of current interest are emphasized. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202; ECON 201 recommended.

**ECON 319. Industrial Organization. (3 Credits)**

A study of the branch of economics that analyzes the performance of industries in their role as producers of goods and services. Provides tools for analyzing and evaluating interactions between market structure (the number and size of firms in an industry), firm conduct, and industry performance. The role of government, through antitrust and other regulation, in improving the efficiency of industries and thus the economic system as a whole, is also considered. In addition, the theoretical tools of industrial analysis are used to perform case studies of actual industries. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202.

**ECON 333. Game Theory. (3 Credits)**

Game theory is the systematic study of strategic interactions that are present not just in economics and business but in politics, law, computer science, dating, sports and more. The main goal of the course is to introduce students to the basic concepts and tools of game theory and to apply these tools to real-life situations. Topics can include: strategic form games, extensive form games, rational choice, Nash equilibrium, incomplete information, signaling, repeated games, and reputations. Prerequisite: Econ 201, Econ 202 or Econ 215.

**ECON 350. History of Economic Thought. (3 Credits)**

An examination of the development of economic thought and economic methodology from the pre-capitalist era to the present, with emphasis on placing the development of economic theory into its historical and political context. Major topics include the early classical school (Smith, Ricardo, Marx), the rise of modern neoclassical economics, and critical responses to mainstream theory. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201; and ECON 202.

**ECON 361. Money, Banking, and Financial Markets. (3 Credits)**

A survey of the core topics relating to the monetary sector of the economy. This includes an examination of the role and nature of money, financial institutions and markets, banking structure and regulation, determinants of interest rates, central bank policy, exchange rates, and the international monetary system. Attention is also given to particular monetary episodes such as the Great Depression, the Latin American debt crisis, the collapse of the Mexican Peso, and the Asian monetary collapse. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201.

**ECON 370. Natural Resource Economics. (3 Credits)**

A study of the efficient and equitable use of society's scarce natural resources. This course discusses the application of economic theory to natural resource problems, such as externalities and resource extraction. Particular attention will be placed on Western United States issues, including water, energy, mineral extraction, forestry and public land use. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202 or ECON 215.

**ECON 392. Independent Study. (1-4 Credits)****ECON 397. Special Topics. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 476. American Economic Development. (3 Credits)**

An inquiry into sources and character of American economic development. A survey is provided of several key moments in American political economy such as the market revolution, reconstruction, populism, progressivism, the Great Depression, the New Deal, and globalization. Students are asked to engage the ideas, social movements, and institutions that have shaped the modern American economy. Prerequisite: Instructor permission.

**ECON 492. Independent Study. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 497. Special Topics. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 498. Income Distribution, Poverty and Wealth. (3 Credits)**

A seminar-style examination of the causes and consequences of historical trends in income and wealth distribution in the United States, concentrating especially on the trend toward increasing inequality that began in the 1970s. Topics include: empirical analysis of distributional data; causal analysis based on both microeconomic and macroeconomic analysis; the roles of institutional change, social attitudes, and government policy; and both positive and normative evaluations of the economic and social consequences. This course fulfills the Economics Capstone Requirement.

**ECON 499. Internship in Economics. (1-6 Credits)**

The Economics Internship gives Economics majors who have completed 18 credits of economics the opportunity to apply their analytical skills in the service of businesses, government, and the community. Prerequisite: 18 credits of Economics courses including ECON 201; ECON 202; ECON 216 or MATH 213; and instructor permission.



# Economics Comprehensive Major: Secondary Licensure Emphasis

## Program Requirements

This Emphasis qualifies students for the State of Colorado License in Social Science Education. A minimum of 72 credits is required including the 24-credit Economics Nucleus:

All Economics Majors require completion of the 24-credit Economics Nucleus and completion of MATH 140 College Algebra (GT-MA1), MATH 141 Precalculus (GT-MA1), or MATH 151 Calculus I (GT-MA1) with a minimum grade of "C-"

Code	Title	Credits
<b>Economics Nucleus</b>		
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 301	Intermediate Macroeconomics	3
ECON 302	Intermediate Microeconomics	3
ECON 303	International Economics and Globalization	3
ECON 316	Econometrics	3
ECON 498	Income Distribution, Poverty and Wealth	3
ECON 216	Statistics for Business and Economics	3
or MATH 213	Probability and Statistics	
<b>Total Credits</b>		<b>24</b>

And the following 48 credits. In addition, students must fulfill the requirements of the Secondary Licensure Option described under Education:

Code	Title	Credits
ECON 476	American Economic Development	3
GEOG 110	World Regional Geography (GT-SS2)	3
GEOG 120	Introduction to Human Geography (GT-SS2)	3
GEOG 250	Geography of North America (GT-SS2)	3
GEOL 101	Physical Geology (GT-SC2)	3
HIST 101	World History to 1500 (GT-HI1)	3
HIST 102	World History Since 1500 (GT-HI1)	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3
HIST 327	Colorado History	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 282	Issues in State and Local Government	3
POLS 476		3
Select one of the following:		3
ECON 317	Economics and Public Policy (recommended)	
Economics upper-division elective		
POLS 260	Introduction to World Politics (GT-SS1)	3
or POLS 360	American Foreign Policy	
<b>Total Credits</b>		<b>48</b>

## Capstone Course Requirement

The following courses in the Economics Major fulfill the Capstone Course Requirement: ECON 498 INCOME DISTRBTN POVERTY/WEALTH. Students completing the Secondary Licensure Emphasis may use student teaching to fulfill this requirement.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ECON 201	Macroeconomics (GT-SS1)	3
ENG 102	Academic Writing (GT-CO1)	3
General Education course (Area II)		3
General Education course (Area III)		3
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
ECON 202	Microeconomics	3
GEOG 110	World Regional Geography (GT-SS2)	3
GEOL 101	Physical Geology (GT-SC2)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
EDUC 000	Education Gateway Course	0
General Education course (Area III)		3
<b>Credits</b>		<b>15</b>
<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
General Education course (Area III)		3

GEOG 120	Introduction to Human Geography (GT-SS2)	3
HIST 101	World History to 1500 (GT-HI1)	3
POLS 282	Issues in State and Local Government	3
Credits		18
<b>Spring</b>		
ECON 301	Intermediate Macroecono	3
Economics Elective course (ECON 317 recommended)		3
General Education course (Area II)		3
GEOG 250	Geography of North America (GT-SS2)	3
HIST 102	World History Since 1500 (GT-HI1)	3
Credits		15
<b>Year Three</b>		
<b>Fall</b>		
ECON 302	Intermediate Microeconon	3
ECON 316	Econometrics	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
HIST 327	Colorado History	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 376	American Political Thought	3
Credits		18
<b>Spring</b>		
ECON 303	International Economics and Globalization	3
ECON 476	American Economic Developmen	3
ECON 498	Income Distribution, Poverty and Wealth	3
EDUC 340	Application of Pedagogy and Practice	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3

POLS 260	Introduction to World Politics (GT-SS1)	3
Credits		18
<b>Year Four</b>		
<b>Fall</b>		
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environments	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 409	Secondary Student Teaching	3
Credits		15
<b>Spring</b>		
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 420	Application of Classroom Strategies to Engage All Learners	3
EDUC 424	Differentiatik Applying Learner-Centered Instruction	3
EDUC 409	Secondary Student Teaching	3
Credits		12
Total		127
Credits		

## Economics Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 36 credits is required, including the 24-credit Nucleus and nine credits of upper-division Economics electives.

All Economics Majors require completion of the 24-credit Economics Nucleus and completion of MATH 140 College Algebra (GT-MA1), MATH 141 Precalculus (GT-MA1), or MATH 151 Calculus I (GT-MA1) with a minimum grade of "C-."

Code	Title	Credits
<b>Economics Nucleus</b>		
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 301	Intermediate Macroeconomics	3
ECON 302	Intermediate Microeconomics	3
ECON 303	International Economics and Globalization	3
ECON 316	Econometrics	3
ECON 498	Income Distribution, Poverty and Wealth	3
ECON 216	Statistics for Business and Economics	3
or MATH 213	Probability and Statistics	
<b>Total Credits</b>		<b>24</b>

Code	Title	Credits
Upper-division Economics electives (courses numbered 300 or above)		
<b>Total Credits</b>		<b>9</b>

## Capstone Course Requirement

The following courses in the Economics Major fulfill the Capstone Course Requirement: ECON 498 INCOME DISTRBTN POVERTY/WEALTH. Students completing the Secondary Licensure Emphasis may use student teaching to fulfill this requirement.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ECON 201	Macroeconomics (GT-SS1)	3
ENG 102	Academic Writing (GT-CO1)	3
General Education course (Science)		4
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
<b>Credits</b>		<b>14</b>
<b>Spring</b>		
ECON 202	Microeconomics	3
Elective course		3
General Education course (Science)		4
General Education course (Area I)		3
General Education course (Area III)		3
<b>Credits</b>		<b>16</b>

<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ECON 216	Statistics for Business and Economics	3
General Education course (Area I)		3
General Education course (Area III)		3
Elective course		
<b>Credits</b>		<b>12</b>

<b>Spring</b>		
ECON 301	Intermediate Macroeconomics	3
Economics Elective course		3
Elective course		3
General Education course (Area I)		3
General Education course (Area III)		3
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
ECON 302	Intermediate Microeconomics	3
ECON 316	Econometric	3
<b>Credits</b>		<b>6</b>

<b>Spring</b>		
ECON 303	International Economics and Globalization	3
Economics Elective course		3
Elective course		3
Minor courses		6
<b>Credits</b>		<b>15</b>

<b>Year Four</b>		
<b>Fall</b>		
Economics Elective course		3
Elective course		3
Minor courses		6
Minor/Elective course		3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
ECON 498	Income Distribution, Poverty and Wealth	3
Elective courses		12
<b>Credits</b>		<b>15</b>
<b>Total</b>		<b>108</b>
<b>Credits</b>		

## Economics Minor

A minimum of 18 credits is required including the following:

Code	Title	Credits
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3

One of the following:	3
ECON 301 Intermediate Macroeconomics	
ECON 302 Intermediate Microeconomics	
ECON 316 Econometrics	
Select nine credits of the following:	9
ECON 216 Statistics for Business and Economics	
Economics upper-division electives (6-9 cr.)	
<b>Total Credits</b>	<b>18</b>

1. Successfully complete all Education coursework and the responsibilities of a clinical resident according to the Education Department's Professionalism Standards and Guidelines;
2. Perform at a minimum "3, Proficiency" on each relevant standard element as evaluated by mentor teachers, clinical residency supervisors, and/or course instructors.

Upon satisfactory completion of program requirements, the graduate must apply for licensure from the Colorado Department of Education within five years immediately following program completion.

## Education (EDUC)

The Education Department at Western Colorado University is accredited by the Higher Learning Commission. The Education Department's licensure programs are authorized programs through the Colorado Department of Education and Colorado Department of Higher Education. The Education Department currently maintains a 100 percent pass rate for licensing assessments for Colorado educators, as reported to Title II for those who complete the program. The faculty of the Education Department is committed to creating a community of teachers who are competent in their subject matter, pedagogical content knowledge, pedagogical knowledge, and teaching skills. Students develop a professional knowledge base and research and reflect upon the implications of educational best practices that extend well beyond traditional educational goals of individual achievement. It is necessary for pre-service teachers to understand and accept the responsibility for creating a community that recognizes and appreciates diversity, and for which individual members possess the content knowledge, skills, and abilities needed to think critically, solve problems, and make responsible decisions.

## Criteria for admission to the Teacher Licensure program

Education students must be accepted into the Teacher Licensure program prior to taking EDUC 340 Application of Pedagogy and Practice and before becoming eligible for placement in their teaching residency. All applicants receive a holistic application review by the admissions committee in the content area for which the application is received. Applicants are evaluated according to criteria established for the specific licensure track. Details, including application deadlines, are listed on the undergraduate Education program's website: Link to Education Programs page (<https://www.western.edu/academics/undergraduate/education/preparing-your-residency/>).

## Student Disposition and Performance Assessment

During the semester in which students are enrolled in EDUC 000 Education Gateway Course, EDUC 340 Application of Pedagogy and Practice, and the clinical residency (Student Teaching), students are evaluated by the Education faculty and K-12 teacher mentor(s) in terms of their potential for becoming effective educators. This process of evaluating professional teaching dispositions is used for screening Education students for support needs and/or continuation in the Teacher Licensure Program.

## Recommendation for Initial Licensure

Students must meet the following requirements during the last semester of their clinical residency year.

## Education Department Performance Review Committee and Process

Throughout the time a student spends in the Teacher Licensure Program, he or she is evaluated and assessed by Education Department faculty, Clinical Coaches, Regional Coordinators and Mentor Teachers, in respect to performance, disposition, motivation, and demonstrated potential as a teacher. If issues surface concerning behaviors or dispositions, the Performance Review Committee begins a review process. This process has three purposes:

1. to act as a screening and counseling review,
2. to resolve a problematic situation, and
3. to provide an opportunity for faculty and students to develop a professional growth plan.

Evidence of unsatisfactory performance, disposition, motivation, or demonstrated potential may result in withdrawal from the Program. A student who does not pass each Education course with at least a "C-" has one semester (or until the next time the semester course is offered) to remove the "D" or "F" with a grade of "C-" or above; or be withdrawn from the Program. Before admission to the Teacher Licensure Program, students must complete all prerequisite Education courses required for Licensure with a "C-" or above, and have an overall GPA of 2.75 or above. Anyone who fails two or more courses in the Education Department is withdrawn from the Program.

## Performance Review Committee and Process

Students who appeal Program policies and procedures must abide by the Performance Review Committee process. This process involves submitting materials to the Performance Review Committee for review. These materials include:

1. Statement of the problem, and a plan for correcting the problem;
2. Copy of the student's transcript(s) and current course schedule;
3. Additional materials supporting the student's appeal; and
4. Additional materials requested by the Performance Review Committee.

- Elementary Education Comprehensive Major: Culturally and Linguistically Diverse Education Emphasis (p. 137)
- Elementary Education (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/education/>)

elementary-education-comprehensive-culturally-linguistically-diverse-education-3+2-MAED/)

- Elementary Licensure (p. 138)
- Secondary and K-12 Licensure (p. 139)
- Secondary and K-12 Licensure (with a 3+2 Master of Arts in Education) ([https://catalog.western.edu/undergraduate/programs/education/elementary-education-comprehensive-secondary-k-12-licensure-3\\_2/](https://catalog.western.edu/undergraduate/programs/education/elementary-education-comprehensive-secondary-k-12-licensure-3_2/))

## Education Courses

### **EDUC 000. Education Gateway Course. (0 Credits)**

Students explore the professional opportunities and practices of the teaching discipline. Designed to provide participants a variety of designated experiences with K-12 students so they are able to make informed decisions about becoming teachers. Students facilitate field experiences with school-age students both at the elementary and secondary levels. Students attend two one-hour long seminars and participate in 10 hours of subsequent field experiences. This course is required for admission to the Teacher Licensure Program. Graded Satisfactory/Unsatisfactory only.

### **EDUC 102. Learning & Teaching. (3 Credits)**

An introduction to the theories, visions, and ideals of learning and teaching. Students draw upon various concepts, images, and frameworks to reflect upon their classroom experiences and consider their understanding of what it means to be a good student, good teacher, and informed citizen in a society that values education.

### **EDUC 197. Special Topics in Education. (1-6 Credits)**

#### **EDUC 202. Education and Schooling in the U.S.. (3 Credits)**

Addresses the relationship between education and schooling as an institution. Students consider the historical foundations and ongoing debates surrounding education in the United States. Also addresses major landmarks, policies, and structural factors that have shaped and continue shaping today's schools.

#### **EDUC 210. Science Methods for Elementary Teachers. (1 Credit)**

Examines beliefs and current thinking about teaching and learning science. Students consider children's ideas about the natural world and ways of engaging young learners in the cultural, knowledge-generating practices of science.

#### **EDUC 295. Independent Study. (1-3 Credits)**

#### **EDUC 297. Special Topics in Education. (1-6 Credits)**

#### **EDUC 316. Introduction to Language Acquisition for Linguistically Diverse Students. (3 Credits)**

An introduction to theory and understanding of first and second language acquisition for teaching K-12 students from linguistically diverse cultures and backgrounds. Students develop an awareness of the historical, legal, social and educational background surrounding linguistically diverse education. The primary focus is on research based oral language assessment and development to provide meaningful instruction. Methods include those appropriate for the beginning English language learner, as well as those at other levels on the language acquisition continuum. Prerequisites: EDUC 000 and EDUC 102.

### **EDUC 326. Diversity & Education. (3 Credits)**

Provides an introduction to the diversity that characterizes student populations in most U.S. public school classrooms today in light of radically changing population demographics during the past several decades. Students develop understandings of historical, cultural, social, political, linguistic, and pedagogical issues requisite for embracing diversity, equity, and inclusivity in public school classrooms and other educational settings. Ideas and methods for working with culturally and linguistically diverse students are addressed.

### **EDUC 340. Application of Pedagogy and Practice. (3 Credits)**

A foundation course in educational pedagogy based on current research and widely accepted teaching strategies. Includes an integrated variety of research-based approaches to teaching and learning, such as cooperative learning and differentiated instruction, which are framed within professionalism standards for teachers. A major component of the course is a rigorous and structured field experience in local schools as preparation for residency. Prerequisite: Admission to the Teacher Licensure Program.

### **EDUC 392. Independent Study. (1-3 Credits)**

A course for qualified, upper-level students with specialized interests in a particular area of advanced study in Teacher Education.

### **EDUC 397. Special Topics in Education. (0.5-6 Credits)**

#### **EDUC 400. Foundations for Literacy: Phonology and Linguistics. (3 Credits)**

A study and application of scientifically-based methods of teaching and reinforcing fundamental reading skills. Cognitive processes of literacy, including phonology, morphology, orthography and etymology. Focus placed on English language structure as it affects decoding and encoding. Additionally, methods for diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students are covered. Prerequisite: admission to the Teacher Education Program.

#### **EDUC 401. Assessment for Prevention and Intervention. (3 Credits)**

This is an in-depth application of assessment techniques and instruments in coordination with state standards, No Child Left Behind and Individuals with Disabilities Education Act, 2004. Includes standardized testing and knowledge of literacy including five essential components of reading: phonemic awareness, phonics, vocabulary, fluency, and comprehension. Analysis of data to design and monitor instruction and intervention for universal, targeted, and intensive needs of diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students. Prerequisite: admission to the Teacher Education Program.

#### **EDUC 402. Reading Comprehension, Vocabulary, and Fluency. (3 Credits)**

A study and application of scientifically-based methods of teaching and reinforcing reading comprehension, vocabulary fluency, oral and written language skills. Cognitive processes of literacy, including phonology, morphology, orthography, etymology, semantics, syntax, discourse, pragmatics and English language structure as it affects meaning. Additionally, methods for diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students are covered. Prerequisite: admission to the Teacher Education Program.



**EDUC 403. Instruction and Assessment in Content Area. (3 Credits)**

An introduction to the concepts, methods, techniques, and assessment practices used to effectively teach secondary and K-12 students.

Emphasis is placed on structures for lesson and unit planning, implementation of the Colorado State Standards, literacy and math integration, research based instructional strategies, content specific technologies, and management techniques. Prerequisite: admission to the Teacher Education Program.

**EDUC 404. Creating Positive Learning Environments. (3 Credits)**

An investigation into the rationales and practices for developing a classroom community that is inclusive, respectful, and conducive to learning for all students. Invites nuanced consideration of diversity within school contexts and the teacher's role in nurturing positive and productive relationships with students, families, and the broader community.

**EDUC 405. Data-driven Instructional Practices. (3 Credits)**

An in-depth application of standards-based instruction and assessment practices. Students design curriculum maps and plan standards-based lessons and units for diverse student populations. Students are taught to integrate literacy, math, and technology into their standards-based instructional plans, to use assessment data to drive standards-based curriculum that measure student knowledge, understanding, and skills, and to reflect on and evaluate their own performance. Prerequisite: admission to the Education Department.

**EDUC 406. Content Area Literacy. (3 Credits)**

An application of current research on brain based learning, reading and writing and its integration in the content area. Students implement the essential components of reading: phonemic awareness, phonics, vocabulary, fluency, comprehension, motivation, and engagement within the content area. In addition, there is a focus on content area study and test taking skills. Prerequisite: admission to the Teacher Education Program.

**EDUC 407. Maximizing Learning through 21st Century Skills. (3 Credits)**

Foster a deeper understanding of the 21st Century environment schools need to cultivate in order to maximize learning. This course prepares teachers to create technology-rich learning environments that enhance student growth and achievement. Prerequisite: Admission to the Teacher Education Program.

**EDUC 408. Teaching Writing with the Brain in Mind. (3 Credits)**

An in-depth application of cognitive processes associated with various kinds of learning. Within the context of writing assessment and instruction, students learn to pay attention to these learning processes so that their own classroom students can master content standards. Students learn to employ a wide range of teaching techniques to match the intellectual, emotional and social level of each classroom student and choose alternative teaching strategies, materials and technologies to achieve different curricular purposes. Students apply expert content knowledge to enrich and extend student learning and to recognize educational diversity and the effects on student learning in order to develop and apply individual educational plans. Prerequisite: admission to the Teacher Education Program.

**EDUC 409. Secondary Student Teaching. (3 Credits)**

Student teaching in a 7-12 school setting on the average of 24 hours per week, over the course of the academic year, in collaboration with mentor teachers. This course must be repeated twice for credit. Additional course fee applies. Prerequisite: admission to the Teacher Education Program.

**EDUC 410. K-12 Student Teaching. (3 Credits)**

Student teaching in a K-12 school setting on the average of 24 hours per week, over the course of the academic year, in collaboration with mentor teachers. This course must be repeated twice for credit. Additional course fee applies. Prerequisite: admission to the Teacher Education Program.

**EDUC 413. Mathematical Investigations. (3 Credits)**

An application of the research-based practices for instruction in math. Focus is placed on the foundations for assessing and teaching math by addressing basic skills, critical thinking skills, conceptual understanding, real life applications, and diverse learner needs. Students implement and review specific assessment practices, teaching structures, intervention strategies, and technology applications within a standards based framework of instruction. Prerequisite: admission to the Teacher Education Program.

**EDUC 417. Teaching and Assessing Writing with the Linguistically Diverse Student in Mind. (3 Credits)**

An application of cognitive processes associated with various kinds of learning. Within the context of writing assessment and instruction, students learn to employ a wide range of teaching techniques to match the cultural, academic, social and language proficiency level of each classroom student. Students apply expert content knowledge and knowledge of cognitive academic language proficiency to enrich and extend student learning.

**EDUC 420. Application of Classroom Strategies to Engage All Learners. (3 Credits)**

Study and apply effective research-based strategies for high levels of attention and engagement for all learners. Prerequisite: Admission in Teacher Education.

**EDUC 424. Differentiation: Applying Learner-Centered Instruction. (3 Credits)**

This course provides participants with an understanding of the components of differentiated instruction (content, process, and product). Participants explore skills and resources needed to effectively manage a differentiated classroom and extend their learning into the application of strategies, assessments, and management systems within the context of teaching academic content. Prerequisite: Admission to the Education Department.

**EDUC 428. Teaching English Learners. (3 Credits)**

An introduction to theory, research and teaching methods on second-language learning and research-based strategies for working with culturally and/or linguistically diverse learners. Considerable attention is paid to how to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers.

**EDUC 429. Instruction for English Learners. (3 Credits)**

Provides an overview of the theory and research on second-language learning and research-based strategies for working with culturally and linguistically diverse learners in general education settings for K-12 teachers. The content and standards covered in this course are essential for teachers who work with culturally and linguistically diverse students. Considerable attention is paid to how to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers.

**EDUC 458. Elementary Student Teaching. (3 Credits)**

Student teaching in an elementary school setting (grades K-6) on the average of 24 hours per week, over the course of the academic year, supervised by a mentor teacher. This course may be taken twice for credit.



**EDUC 459. Elementary Culturally and Linguistically Diverse Student Teaching. (3 Credits)**

Student teaching in an elementary school setting, with special attention given to work with linguistically diverse students. The student teaching experience averages 24 hours per week over the course of the academic year and is supervised by a mentor teacher. Additional course fee applies.

**EDUC 492. INDEPENDENT STUDY. (1-3 Credits)**

A course for qualified, upper-level students with specialized interests in a particular area of advanced study in Teacher Education.

**EDUC 493. Research Problems. (1-4 Credits)****EDUC 497. Special Topics in Education. (1-6 Credits)****EDUC 499. Internship. (1-6 Credits)****EDUC 535. Engaging the K-12 Online Learner. (3 Credits)**

A study of methods and strategies to engage the online K-12 learner. Educators study how to transition from traditional face-to-face classrooms to online settings. Focus is primarily on the key principles of effective online instruction and the power of the learner-centered approach to ensure success for the online teacher and learner. Prerequisite: Teaching license.

**EDUC 536. Assessing the K-12 Online Learner. (3 Credits)**

A study of methods and strategies to engage the online K-12 learner. Educators study the principles of effective online assessment and specific online tools and strategies. Focus is on using assessment results to differentiate instruction and support the K-12 online learner. Prerequisite: Teaching license and EDUC 535.

**EDUC 537. Field-Based Application of Online Instruction. (3 Credits)**

Application of effective online teaching to an appropriate K-12 student population. Prerequisite: Teaching license and EDUC 535 and EDUC 536.

**EDUC 597. Special Topics in Education. (1-6 Credits)****EDUC 600. Foundations of Literacy Development. (3 Credits)**

Provide in-depth understanding of the reading acquisition process and current issues in reading research related to preliterate and emergent readers through observation and analysis of reading and written language development.

**EDUC 601. Methods and Strategies of Effective Reading Instruction. (3 Credits)**

Provide in-depth understanding and application of scientifically-based methods of teaching reading comprehension vocabulary, and fluency.

**EDUC 602. Literacy Assessment Informed Instruction. (3 Credits)**

Screen, diagnose, and monitor student progress in reading and writing to inform instruction and build home-school partnerships that promote reading and writing.

**EDUC 603. Content Area Learning. (3 Credits)**

Apply concepts, methods, and practices related to curriculum, assessment of learning, and teaching in content areas.

**EDUC 604. Learning Environments. (3 Credits)**

Recognize needs for a successful classroom environment and apply strategies to support learning.

**EDUC 605. Curriculum Development and Assessment. (3 Credits)**

Study and apply standards-based curriculum and assessment practices.

**EDUC 606. Reading and Writing in the Content Area. (3 Credits)**

Analyze, evaluate, and apply methods for developing effective reading and writing strategies that improve student academic achievement in the content area.

**EDUC 607. Rethinking Learning through 21st Century. (3 Credits)**

Investigate the research and theory of 21st Century Skills as they affect the education program. Develop effective teaching strategies through theory and simulation.

**EDUC 608. Methods and Strategies of Effective Writing Instruction. (3 Credits)**

Provide in-depth understanding and application of research based methods of teaching writing as they apply to cognitive processes and socio-cultural context for diverse students.

**EDUC 609. Secondary Student Teaching. (3 Credits)**

Work in a secondary school setting over the course of the year, in collaboration with mentor teachers. This course can be repeated twice for credit.

**EDUC 610. K-12 Student Teaching. (3 Credits)**

Work in a K-12 school setting over the course of the year, in collaboration with mentor teachers. This course can be repeated twice for credit.

**EDUC 611. Strategies for Exceptionalities. (3 Credits)**

Outlines lesson planning that accounts for accommodations, modifications, and adaptive technologies. Discusses the importance of self-advocacy in assisting students with individualized education plans. Addresses classroom management and organizational strategies needed for compliance with federal regulations.

**EDUC 612. Assessment and Programming. (3 Credits)**

Encapsulates the process of assessing the eligibility of a student for an individualized education plan (IEP) from referral to the creation of a plan. Details the various parts of the IEP that are federally mandated and the programs that students with specialized plan are eligible for under the Individuals with Disabilities Education Improvement Act.

**EDUC 613. Methods and Strategies of Effective Mathematics Instruction. (3 Credits)**

Examine and apply research-based teaching strategies that promote mathematics learning.

**EDUC 614. Inclusivity with Collaboration. (3 Credits)**

Provides an overview of the various collaborations required of teachers who work with students on individualized education plans. Students will consider insights and strategies for productive, respectful engagement with various stakeholders, including paraprofessionals, families, community members, healthcare workers, teacher/colleagues, administration and special service providers.

**EDUC 615. Student Teaching Exceptionalities. (3 Credits)**

Provides a link between the student's classroom experience which includes student's collaboration with mentor teachers, and clinical coach. Addresses lesson implementation, teacher evaluation, professional development, education ethics, and caseload management. Students develop and monitor progress on instructional goals with input from support team.

**EDUC 616. Language Acquisition for Linguistically Diverse Students. (3 Credits)**

Develop and apply understanding of language acquisition and awareness of the historical, legal, social and educational background surrounding linguistically diverse education.

**EDUC 617. Cognitive Academic Language Proficiency in the Content Area. (3 Credits)**

Differentiate social and cognitive academic language and use research to develop cognitive academic language for English Language Learners.

**EDUC 618. Linguistically Diverse Student Teaching. (3 Credits)**

Work in a K-12 school setting with linguistically diverse students over the course of the year, in collaboration with mentor teachers. This course can be repeated twice for credit.

**EDUC 619. Elementary Student Teaching. (3 Credits)**

Work in an elementary school setting over the course of the year, in collaboration with mentor teachers. This course can be repeated twice for credit.

**EDUC 621. Creating Effective Online Learning Environments. (3 Credits)**

An inquiry into how K-12 educators can best develop relevant and engaging blended and online instructional contexts to meet the needs of all K-12 learners. Focus is on exploration of tools, resources and emerging technologies to determine how to build and manage learning environments which maximize student achievement.

**EDUC 622. Using Data to Plan for Online & Blended Learning and Targeted Interventions. (3 Credits)**

A study of best practices in creating, implementing, and using assessments in the online environment. Focus is on analyzing real-time data and findings from assessments to make instructional decisions and to plan targeted interventions to ensure student success. Prerequisite: EDUC 621.

**EDUC 623. Designing and Delivering Effective Online & Blended Instruction. (3 Credits)**

Online and blended field-based experience in design, delivery, and evaluation of standards-based instruction in an appropriate K-12 setting. A collaborative approach will be fostered among students, teachers, and school-level administrators to support existing or emerging online or blended instructional needs. Prerequisite: EDUC 622.

**EDUC 624. Managing to Differentiate. (3 Credits)**

This course provides a study of cognitive development as it impacts different learners' ability to access academic content. Participants will build a foundation of understanding from which they will develop skills, strategies and resources that they can then apply in their teaching to address the complex challenges of meeting the diverse learning needs of all students.

**EDUC 625. Relevant Data Analysis to Inform Instruction. (3 Credits)**

Identify and utilize all levels of data to inform instructional decisions. Daily measures of student performance are analyzed along with summative assessments to develop relevant plans for instruction that may include interventions and differentiation. Explore resources to assist in tracking of student progress and develop evidence of effectiveness relative to Teacher Quality Standards.

**EDUC 626. Defining and Defending Evidence of Professional Mastery. (3 Credits)**

Using the educator effectiveness growth goals developed in EDUC 625, students will design strategies and plans to ensure the mastery of each goal. One action plan to address a problem of practice will be fully developed and implemented. Approaches to examine and reflect on data gathered during the implementation process will be developed. Finally, an ongoing, living web-based document will be created. This document will serve as a means to demonstrate learner mastery of effectiveness in teaching. Prerequisite: EDUC 625.

**EDUC 627. Innovations in Student Centered Teaching and Learning. (3 Credits)**

Introduces the learner to student-centered teaching and learning and how technology can influence this approach.

**EDUC 628. Pedagogies for English Learners. (3 Credits)**

This course provides an overview of theoretical principles, instructional strategies, and assessment strategies for working with students who are English learners and come from culturally diverse backgrounds. The content and standards covered in this course are required of teachers who work with students served in EL programs. Students will learn to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers. Prerequisite: Admission to M.A. in Education Program.

**EDUC 629. Inclusion and English Learners. (3 Credits)**

This course provides an overview of the theory and research on second-language learning and research-based strategies for working with culturally and linguistically diverse learners in general education settings for K-12 teachers. The content and standards covered in this course are essential for teachers who work with culturally and linguistically diverse students. Considerable attention is paid to how to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers.

**EDUC 630. Inclusivity in the Content Areas. (3 Credits)**

Provides learners the opportunity to understand the importance of diversity in academic content areas. Addresses how curriculum is developed through understanding of state academic standards, cross curriculum teaching methods, ways of providing curriculum that is culturally responsive, and differentiating for the varied backgrounds of the classroom.

**EDUC 631. Inclusive Methods and Strategies for Literacy. (3 Credits)**

Provides in-depth understanding of the reading acquisition process and current issues in reading research related to preliterate and emergent readers through observation and analysis of reading and written language development. Students will increase understanding and application of scientifically-based methods of teaching reading comprehension, vocabulary and fluency. Prerequisite: Admission to M.A. degree in Education Program.

**EDUC 632. Overview of Special Services. (3 Credits)**

Students consider the historical perspectives on the Individuals with Disabilities Education Act (IDEA) and related legislation. Emphasis placed on the importance of current trends and research in the various special services in public education. Also covers various exceptionalities and associated needs, along with current understanding of basic human growth and development.

**EDUC 633. Differential Literacy Assessment. (3 Credits)**

Addresses ways of screening, diagnosing, and monitoring student progress in reading and writing to inform instruction and build home-school partnerships. Students consider ways of promoting literacy through utilizing collaboration skills, creating and implementing instructional plans and monitoring student progress.

**EDUC 670. Introduction to School Leadership. (4 Credits)**

Provide an overview of educational leadership principles, including theories of leadership, foundational concepts of leading a school, qualities of effective leaders, and the process of building a positive, collaborative school culture.

**EDUC 672. Personnel Selection and Development. (3 Credits)**

Understand and evaluate the process of working with school-related personnel, including recruiting and hiring practices, developing meaningful induction and mentoring programs, managing teacher and staff evaluations, and providing needs-based professional development for all staff.

**EDUC 673. School Safety and Management. (3 Credits)**

Identify and explore the components of school plant and safety management, including school-wide student discipline policies and practices, crisis and emergency planning and responses, and managing various funding sources associated with operating a school.

**EDUC 674. Family and Community Involvement. (3 Credits)**

Investigate various strategies for building relationships with all members of the school community, including identifying and understanding diversity in the surrounding community, establishing partnerships with area businesses and organizations, and working effectively with local media outlets.

**EDUC 675. Student Learning and Accountability. (3 Credits)**

Examine the responsibilities of managing curriculum, instruction, and assessment in schools, including evaluation of curriculum and instruction practices to maximize learning for all students, analysis of data from local and statewide assessments to drive instructional decisions for school improvement, and development of strategies to support a range of diverse student learning needs.

**EDUC 678. Principal Internship I. (3 Credits)**

Complete a supervised internship or work full/part time as a school-based administrator. Demonstrate competency on Colorado principal licensure standards through structured, reflective tasks and leadership-based internship experiences.

**EDUC 679. Principal Internship II. (3 Credits)**

Complete a supervised internship or work full/part time as a school-based administrator. Demonstrate competency on Colorado principal licensure standards through structured, reflective tasks and leadership-based internship experiences. Prerequisite: Successful completion of EDUC 678 Administrator Internship I.

**EDUC 680. Research and Critical Inquiry for Leaders. (4 Credits)**

Examine, analyze, and synthesize research literature in relation to emerging trends in education. Explore concepts pertaining to quantitative and qualitative research methods and the synergistic relationship between research, theory, and practice. Develop problem posing/solving, information literacy, and critical thinking. Must be taken in the final year of the program.

**EDUC 681. Instructional Program Development and Evaluation. (3 Credits)**

Investigate theories and trends in curriculum and instruction while understanding their relationship to student data and performance at the school and district levels. Evaluate teaching and assessment as they affect student growth. Assess best practices for developing teachers and schools to increase student learning outcomes.

**EDUC 682. Shaping School Systems. (3 Credits)**

Understand the characteristics of effective organizational culture from various perspectives. Explore systemic structures and issues within a school and district. Examine and apply critical analysis and creativity related to educational group dynamics that advocate for all students, staff, and stakeholders within an educational community.

**EDUC 683. Legal and Ethical Issues in Education. (3 Credits)**

Explore legal and ethical issues related to equity, diversity, and accessibility in schools, including examining cases and case law affecting school-based practices, identifying the legal and ethical responsibilities of school employees, and understanding the rights and responsibilities of the members in the school community.

**EDUC 684. Materials and Motivation for Reading. (2 Credits)**

Select and evaluate materials, develop independent readers, involve the community, and establish and manage the literacy environment.

**EDUC 685. Assessing, Evaluating, and Instructing At-risk and Struggling Readers. (3 Credits)**

Develop in-depth understanding of scientifically based reading research and instruction for at risk and struggling readers. Provide the tools necessary to diagnose, evaluate and teach struggling readers. Assignments will include the development of intervention programs and the implementation of progress-monitoring reading assessments.

**EDUC 686. Literacy Coaching and Mentoring. (2 Credits)**

Examine roles and functions of literacy coaching and mentoring to provide professional development for literacy in the school setting.

**EDUC 687. School-Wide Comprehensive Literacy Program Development. (2 Credits)**

Prepare educators for school-wide comprehensive literacy program development and delivery.

**EDUC 688. Reading Teacher Internship. (3 Credits)**

Complete supervised practicum(s) or internship(s) as a reading teacher at the appropriate grade level(s) for Colorado Department of Education Reading Teacher graduate endorsement. This course can be repeated twice for credit.

**EDUC 689. Reading Specialist Internship. (3 Credits)**

Complete supervised practicum(s) or internship(s) as a reading specialist at the appropriate grade level(s) for Colorado Department of Education Reading Specialist graduate endorsement. This course can be repeated twice for credit.

**EDUC 692. Issues and Trends in Leadership Seminar. (1 Credit)**

The role of professional literature and experience in the development of leadership capacity that advocates for improvements of education.

**EDUC 693. Capstone. (3 Credits)**

Interpreting, planning, conducting, and reporting research results in the field of education. Students must be enrolled in EDUC 693 when utilizing Western Colorado University Graduate Faculty support in conducting research. This course can be repeated for credit and is required the final semester of the M.A. degree in Education Program. Prerequisite: EDUC 680 Research and Critical Inquiry for leaders.

**EDUC 694. School Law for Teachers. (3 Credits)**

Examine laws and state/national policies affecting schools. Demonstrate an understanding of the rights and responsibilities of teachers and students. Explore the differences between legal and ethical issues in education.

**EDUC 695. Resource Management in Education. (3 Credits)**

Explore and apply the characteristics of effective school and district leadership and resource management for education-specific programs and initiatives. Identify potential funding agencies and local/state/national partnerships that could help to build resources based to meet school and district needs. Utilize the characteristics of effective grant writing for education-specific programs and initiatives.

**EDUC 696. Engaging External Stakeholders. (3 Credits)**

Identify stakeholders that support the education system and develop processes for meaningful involvement in activities and decision making. Explore and apply methods for communicating to a variety of audiences. Understand the political and financial nature of community partnerships with schools and districts.

**EDUC 697. Special Topics. (1-6 Credits)**

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**EDUC 698. Independent Study. (1-6 Credits)**

Work individually with a professor to design and complete a self-paced course of study.

EDUC 699. Research Problems. (1-6 Credits)

# Elementary Education Comprehensive Major: Culturally and Linguistically Diverse Education Emphasis

## Program Requirements

The Elementary Education Major prepares students to be inspiring, self-aware, and effective K-6 educators. It is aligned to the Colorado P-12 Academic Standards of 2020, the Culturally and Linguistically Diverse Education Standards, and the English Language Learner Professional Development Standards, the revised Teacher Quality Standards, and current educational policy and best practices. The depth and breadth of the Elementary Education Major curriculum is designed to prepare students to teach in Colorado standards-based classrooms in rural and urban communities through the development of content knowledge, pedagogical knowledge, and knowledge of current challenges in the teaching profession, as well as opportunities to explore and develop content knowledge in relevant disciplines.

Finally, students will have the opportunity to engage in courses in a discipline or area of emphasis of their choice. Students will be able either to minor in one of the minors currently offered in other programs at Western, or to choose one of the following Areas of Emphasis: Diversity, Equity, and Inclusivity; Global Citizenship; or Science, Technology, Engineering, Arts and Mathematics (STEAM). Most minors make obtaining an endorsement in a Secondary/K12 area of endorsement more feasible by providing students with the ability to take the required 24 credits to meet the content requirements of the Secondary and K-12 licensure areas. This is particularly advantageous for teachers who work in K-8 settings.

The Elementary Education Major requires students to complete all requirements of the Licensure Program, including 40 credits of Education (EDUC) coursework. The major also requires students to complete 40 credits of interdisciplinary content coursework.

Code	Title	Credits
<b>Elementary Education Core Content:</b>		
MATH 140	College Algebra (GT-MA1)	3
MATH 221	Foundations of Mathematics for Teaching I	3
MATH 222	Foundations of Mathematics for Teaching II	3
MATH 323	Foundations of Mathematics for Teaching III	3
SCI 110	Habitable Planet (with laboratory)	4
SCI 111	Nature of Science	1
SCI 120	Living Planet (with laboratory)	4
SCI 210	Dynamic Planet (with laboratory)	4
Two of the following:		
ENG 150	Introduction to Literature (GT-AH2)	
ENG 205	Introduction to Creative Writing	
ENG 220	Grammar and the English Language	
ENG 250	Critical Approaches to Literature	
ENG 331	Literature and Ethnicity: Studies in:	
ENG 334	Poetry: Studies in:	

ENG 337	Women Writers	
ENG 352	Children's Literature	
Four of the following (courses must include at least 3 disciplines):		12
ECON 201	Macroeconomics (GT-SS1)	
ECON 202	Microeconomics	
ECON 215	Environmental Economics	
GEOG 120	Introduction to Human Geography (GT-SS2)	
GEOG 250	Geography of North America (GT-SS2)	
GEOG 351	Geography of Latin America and the Caribbean	
HIST 101	World History to 1500 (GT-HI1)	
HIST 102	World History Since 1500 (GT-HI1)	
HIST 126	U.S. History to 1865 (GT-HI1)	
HIST 127	U.S. History Since 1865 (GT-HI1)	
HIST 200	Historical Inquiry	
HIST 260	Latin American History (GT-HI1)	
HIST 327	Colorado History	
HIST 349	History of the Hispanic Southwest	
POLS 117	Introduction to Political Ideas (GT-SS1)	
POLS 180	Introduction to American Politics (GT-SS1)	
POLS 250	Politics of the Environment	
Total Credits		43

### Specialization:

The Elementary Education Major requires students to take at least 18 credits in a specialized area of interest. The student may choose one of the following options:

**Option 1** is to minor in any minor offered at Western Colorado University

**Option 2** is to complete at least 18 credits in one of the Areas of Emphasis below:

Code	Title	Credits
<b>Emphasis in Diversity, Equity, and Inclusivity</b>		
Select six of the following:		18
ART 325	Women Artists	
ART 422	Native American Art of North America	
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	
ENG 237	Women and Literature	
ENG 331	Literature and Ethnicity: Studies in:	
ENG 337	Women Writers	
GEOG 351	Geography of Latin America and the Caribbean	
HIST 254	A History of Africa (GT-HI1)	
HIST 258	History of Southeast Asia	
HIST 260	Latin American History (GT-HI1)	
HIST 349	History of the Hispanic Southwest	
HIST 350	Environmental History of the Borderlands	
POLS 340	Politics of Social Movements	
POLS 350	Human Rights	
POLS 376	American Political Thought	
SOC 101	Introduction to Sociology	
SOC 168	Social Problems	
SOC 340	Social Movements	



SOC 380	Social Inequalities	
Total Credits		18

Code	Title	Credits
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**Emphasis in Global Citizenship**

Select six of the following: 18

ANTH 107	Introduction to General Anthropology (GT-SS3)	
ANTH 230	Cultural Anthropology (with laboratory)	
COM 216	Dramatic Literature and Script Analysis	
COM 274	Public Relations Communication	
COM 352	Advanced Cinema Studies	
ECON 303	International Economics and Globalization	
ENG 358	Global Literatures: Studies in: The Underworld	
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	
ENVS 350	U.S. and Western Environmental Politics	
ENVS 430	Watersheds of the World	
GEOG 110	World Regional Geography (GT-SS2)	
GEOG 120	Introduction to Human Geography (GT-SS2)	
GEOG 351	Geography of Latin America and the Caribbean	
HIST 254	A History of Africa (GT-HI1)	
HIST 258	History of Southeast Asia	
HIST 355	African History: Topics	
HIST 360	Mexico	
HIST 366	Modern Latin America	
POLS 260	Introduction to World Politics (GT-SS1)	
POLS 340	Politics of Social Movements	
POLS 355	The Global South	
POLS 360	American Foreign Policy	
SOC 101	Introduction to Sociology	
SOC 168	Social Problems	
SOC 340	Social Movements	
SOC 380	Social Inequalities	
SPAN 101	Elementary Spanish I	
SPAN 102	Elementary Spanish II	

Total Credits 18

Code	Title	Credits
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**Emphasis in Science, Technology, Engineering, Arts and Mathematics (STEAM)**

Select six of the following: 18

ART 119	Foundation Drawing I	
ART 171	Foundation Design: Two-Dimensional	
ART 172	Foundation Design: Three-Dimensional	
BIOL 130	Environmental Biology (GT-SC2)	
COM 119	Introduction to Film	
COM 121	Introduction to Theatre (GT-AH1)	
COM 235	Fundamentals of Acting	
COM 264	Introduction to Production and Theory	
COM 346	Multimedia Communication	
COM 390	Media Production: Documentary	
CS 190	Computer Science I	
EDUC 492	INDEPENDENT STUDY	

ENGR 131	Introduction to Engineering Design	
MATH 260	Applied Linear Algebra	
A 300-level MATH course		
PHYS 110	Introductory Astronomy (GT-SC2)	
PHYS 120	Meteorology (GT-SC2)	
PHYS 125	Energy and the Environment (GT-SC2)	

Total Credits 18

For final year of Licensure coursework, please see the Elementary Licensure (p. 138) page.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Elementary Licensure

### Program Requirements

Students seeking Elementary Licensure (grades K-6) must complete the interdisciplinary requirements of the Elementary Education Major, all other University requirements, and the Elementary Licensure requirements set forth by the Colorado Department of Education. Students pursuing Elementary Licensure must meet all requirements for admission to the Teacher Licensure Program before taking EDUC 340 Application of Pedagogy and Practice and being eligible to enter the residency year. Students must complete all coursework required within the academic major prior to beginning the clinical residency and complementary Education coursework, or have documented content and education advisor permission. The clinical residency experience begins each fall and lasts for one full year. Students may be placed in more than one K-6 classroom; students have both in-state and out-of-state placement options; after attending the summer session orientation to the residency program on campus, students are highly encouraged to follow the K-6 school year calendar for the school in which they are placed, not the Western academic calendar (i.e., beginning on the day the mentor teacher reports for duty, take K-6 school holidays, participate in K-6 school professional development and in-service opportunities, and end the final day teachers are required to report, etc.). Master mentor teachers are selected carefully to ensure that Western students completing their clinical residencies have strong professional role models. The potential mentor teacher will self-assess his or her knowledge of the education standards and standard elements. Students accepting these placements are expected to successfully complete the year-long clinical residency, in order to be recommended for Initial Licensure. Students who do not successfully complete the year-long residency will be withdrawn from the Teacher Licensure Program and must appeal to the Performance Review Committee for readmission.

The other education courses in the program are offered online throughout the residency year. Students who are placed in a classroom where there is no CLD population or who choose not to complete at least one semester of EDUC 459 Elementary Culturally and Linguistically Diverse Student Teaching, which requires students to demonstrate a minimum

of 135 hours of instruction with English Language Learning students, will be required to take EDUC 458 Elementary Student Teaching for a total of 6 student teaching credits. The residency for Elementary Licensure must be completed in a K-6 classroom, and students are expected to work cooperatively 24 hours per week with qualified mentor teachers. During this year-long clinical residency, students are applying and extending the pedagogical knowledge that they are learning in their Education courses.

The Elementary Licensure Program requires 40 credits of Education coursework and the Gateway course (including 6 credits of EDUC 458 Elementary Student Teaching or 3 credits each of EDUC 458 Elementary Student Teaching and EDUC 459 Elementary Culturally and Linguistically Diverse Student Teaching):

Code	Title	Credits
EDUC 000	Education Gateway Course	0
EDUC 102	Learning & Teaching	3
EDUC 202	Education and Schooling in the U.S.	3
EDUC 210	Science Methods for Elementary Teachers	1
EDUC 326	Diversity & Education	3
EDUC 340	Application of Pedagogy and Practice	3
EDUC 400	Foundations for Literacy: Phonology and Linguistics	3
EDUC 402	Reading Comprehension, Vocabulary, and Fluency	3
EDUC 404	Creating Positive Learning Environments	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 413	Mathematical Investigations	3
EDUC 417	Teaching and Assessing Writing with the Linguistically Diverse Student in Mind	3
EDUC 428	Teaching English Learners	3
Six credits of the following		
EDUC 458	Elementary Student Teaching (may be taken twice)	3
EDUC 459	Elementary Culturally and Linguistically Diverse Student Teaching	3
Total Credits		40

## Secondary and K-12 Licensure Program Requirements

A student seeking licensure as a secondary teacher (grades 7-12) or K-12 teacher must complete an appropriate academic major, all other University requirements, and the appropriate Secondary or K-12 Licensure requirements. The Secondary academic major may be: Biology, Chemistry, Economics, English, Geology, History, Mathematics, or Politics and Government. The K-12 Academic Major may be: Art, Exercise and Sport Science, Music, or Spanish. Students must complete all coursework required within the academic major prior to beginning the year of Education coursework and complementary residency, or have content advisor and Education advisor permission. Students have their Degree Works or Unofficial transcripts signed by the content advisor, indicating all coursework will be completed before residency begins. Students pursuing the Secondary or K-12 Licensure option must meet all of the requirements for admission to the Teacher Licensure Program before taking EDUC 340 and being eligible to enter the residency year. The clinical residency experience begins each fall for one full year, and students may be placed in more than one Secondary or K-12 classroom. Students have both in-state and out-of-state placement options. After attending the summer licensure orientation to the residency program

on campus, students are highly encouraged to follow the Secondary or K-12 school-year calendar for the school in which they are placed, not the Western academic calendar (i.e. beginning on the day the mentor teacher reports for duty, take Secondary or K-12 school holidays, participate in Secondary or K-12 school professional development and in-service opportunities, and the final day teachers are required to report, etc.). Master mentor teachers are selected carefully to ensure that Western students completing their clinical residencies have strong professional role models. The potential mentor teacher's principal will assess the mentor teacher's knowledge of the education standards and standard elements. To be recommended for Initial Licensure, students accepting these placements are expected to successfully complete the yearlong clinical residency. Students who do not successfully complete the yearlong residency will be withdrawn from the Education Program and must appeal to the Performance Review Committee for readmission. The other education courses in the program are offered online throughout the residency year. The residency for Secondary or K-12 Licensure must be completed in a Secondary or K-12 classroom where students are expected to work cooperatively 24 hours per week with qualified mentor teachers. During this yearlong clinical residency, students apply and extend the pedagogical knowledge that they are learning in the Education courses. To be recommended for an Initial Secondary or K-12 License, the student resident must perform at "3" proficiency level in all relevant standard elements in the Secondary or K-12 classroom, which is the proficiency level expected of well prepared, first-year teachers:

The Secondary and K-12 Licensure Program requires 30 credits of Education coursework:

Code	Title	Credits
EDUC 000	Education Gateway Course	0
EDUC 340	Application of Pedagogy and Practice	3
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environments	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 424	Differentiation: Applying Learner-Centered Instruction	3
EDUC 429	Instruction for English Learners	3
Appropriate Student Teaching Course (six credits of the following):		
EDUC 409	Secondary Student Teaching (taken twice)	3
EDUC 410	K-12 Student Teaching (taken twice)	3
Total Credits		30

## Engineering

Through a Western-University of Colorado Boulder partnership program, you can graduate with a B.S. degree from the University of Colorado Boulder's renowned College of Engineering & Applied Science. During the first two years of the partnership program, you take Western courses with Western faculty. For the final two years, you take University of Colorado Boulder classes with University of Colorado Boulder faculty—remaining at Western the entire four years to complete a B.S. in either Mechanical Engineering or Computer Science from the University of Colorado Boulder.

- Applied Physics/Pre-Engineering Major: Comprehensive Program (<https://catalog.western.edu/undergraduate/programs/physics/applied-physics-pre-engineering/>)



- Mechanical Engineering (p. 140) (learn more about the program and admission options on the Paul M. Rady School of Computer Science & Engineering (<https://www.western.edu/paul-m-rady-school-computer-science-engineering/>) page)

### **ENGR 131. Introduction to Engineering Design. (3 Credits)**

An interactive course to introduce students to the elements of engineering design. Learning objectives include a hands-on design experience, building teamwork and communication skills, understanding engineering methodology and engineering ethics. The goal for the semester is an open-ended design problem that students must solve as part of a team effort. This provides the practice that students need to become more skilled in the process of technical design as it is practiced in the workplace. Intro to design aims to build students' confidence in applying fundamental problem-solving concepts in order to solve complex, open-ended problems. Prerequisite or corequisite: MATH 141

### **ENGR 161. Computer-Aided Design. (3 Credits)**

Introduces CAD software and relevant concepts, including orthographic projection, sections, engineering drawing, geometric dimensioning and tolerancing, and an introduction to manufacturing methods. Prerequisite: MATH 151

### **ENGR 197. Special Topics. (1-6 Credits)**

COMPUTER AIDED DESIGN: Introduces CAD software and relevant concepts, including orthographic projection, sections, engineering drawing, geometric dimensioning and tolerancing, and an introduction to manufacturing methods. Prerequisites: Restricted to Mechanical Engineering majors. FABRICATION: This course is designed to provide students with the application of machine speeds, machine feeds, materials, tooling, tapping, and boring, in the manufacturing processes. Prerequisites: Restricted to Mechanical Engineering majors.

### **ENGR 224. Materials Science. (3 Credits)**

Provides an overview of the structure, properties and processing of metallic, polymeric and ceramic materials. Specific topics include perfect and imperfect solids, phase equilibria, transformation kinetics, mechanical behavior and material degradation. Approach incorporates both materials science and materials engineering components. Prerequisites: CHEM 121 or CHEM 111, 112, 113 and 114; and PHYS 200 (all require minimum grade of C or higher).

### **ENGR 265. Engineering as a Profession. (1 Credit)**

An introduction to the profession of mechanical engineering. Specific topics addressed through the semester include career opportunities in mechanical engineering, internship search skills, resume writing skills, expectations for professional behavior in the classroom and in industry, and current events/ethics topics relevant to the field. The class format may include additional evening/weekend activities. Prerequisite: ENGR 131 or instructor permission

### **ENGR 297. Special Topics. (1-6 Credits)**

Provides an overview of the structure, properties and processing of metallic, polymeric and ceramic materials. Specific topics include perfect and imperfect solids, phase equilibria, transformation kinetics, mechanical behavior and material degradation. Approach incorporates both materials science and materials engineering components. Prerequisites: Requires prereq course of CHEM 121 or CHEM 111, 112, 113 and 114, and PHYS 200 (min grade C).

### **ENGR 363. Mechanics of Solids. (3 Credits)**

Covers shear force and bending moment, torsion, stresses in beams, deflection of beams, matrix analysis of frame structures, analysis of stress and strain in 2-D and 3-D (field equations, transformations), energy methods, stress concentrations and columns. Prerequisites: MATH 252 and PHYS 250 (all require minimum grade of C or higher)

### **ENGR 397. Independent Study. (1-6 Credits)**

MECHANICS OF SOLIDS: Covers shear force and bending moment, torsion, stresses in beams, deflection of beams, matrix analysis of frame structures, analysis of stress and strain in 2-D and 3-D (field equations, transformations), energy methods, stress concentrations and columns. Prerequisites: Requires prereq courses of PHYS 250 or ENGR 250; and MATH 252 (all require min grade C). FLUID MECHANICS: Examines fundamentals of fluid flow with application to engineering problems. Topics covered include fluid statics and kinematics, Bernoulli equations, laminar and turbulent viscous boundary layers, laminar and turbulent pipe flow, and conservation equations for mass, momentum and energy. Prerequisites: Requires prereq of PHYS 250 or ENGR 250; MATH 358; PHYS 201. All require C or higher.

## **Mechanical Engineering, Western - University of Colorado Partnership**

### **Program Requirements**

The Mechanical Engineering program is designed for students who wish to take Mechanical Engineering at Western Colorado University and the University of Colorado.

This process should provide a seamless transfer of course work on the Gunnison residential campus for a B.S. in Mechanical Engineering for students at Western Colorado University and the University of Colorado. Students must achieve a cumulative GPA of 3.0, or better, including all remedial and repeated courses.

This program is still under development and subject to change.

Interested students can learn more about the program and admission options on the Paul M. Rady School of Computer Science & Engineering (<https://www.western.edu/paul-m-rady-school-computer-science-engineering/>) page.

**NOTE:** Bolded courses are still in development and need final approval.

### **Degree Requirements, Courses**

#### **Composition (3 credit hours)**

- **ENG 302: Technical Writing**

#### **Mathematics (16 credit hours)**

- MATH 151: Calculus I
- MATH 251: Calculus II
- MATH 252: Calculus III
- **MATH 358: Differential Equations with Linear Algebra**

#### **Computer Science and Engineering Courses**

- CS 191: Computer Science II
- ENGR 131: Introduction to Design
- **ENGR 161: Computer-Aided Design**
- **ENGR 197: Fabrication**

- ENGR 265: Engineering as a Profession
- **ENGR 224: Materials Science**
- **PHYS/ENGR 335: Fluid Mechanics**
- **ENGR 363: Mechanics of Solids**
- **MCEN 3107: Circuits and Electronics for Mechanical Engineers**
- **MCEN 3025: Component Design**
- **MCEN 3030: Computational Methods**
- **MCEN 3012: Thermodynamics**
- **MCEN 3047: Data Analysis and Experimental Methods**
- **MCEN 4026: Manufacturing Processes and Systems**
- **MCEN 3032: Thermodynamics 2**
- **MCEN 3022: Heat Transfer**
- **MCEN 4043: System Dynamics**
- **MCEN 4045: Mechanical Engineering Design Project 1**
- **MCEN 4085: Mechanical Engineering Design Project 2**
- **MCEN 4086: Writing for Design**
- **Technical Electives (12 credit hours)**

#### Sciences (20 credit hours)

- CHEM 121: General Chemistry for Engineers
- PHYS 200: General Physics I (with lab)
- PHYS 201: General Physics II (with lab)
- PHYS/ENGR 250: Statics
- PHYS 251: Dynamics
- PHYS 320: Modern Physics

#### Humanities/Social Sciences (15 credit hours, 6 of which must be upper-division)

Additional courses may be transferable for this requirement, but these courses are guaranteed to apply:

- ANTH 107, ART 105, COM 119, COM 121, COM 151, COM 216, COM 352, COM 371, ECON 201, ENG 150, ENG 205, ENG 230, ENG 232, ENG 237, ENG 238, ENG 248, ENG 250, ENG 254, ENG 255, ENG 270, ENG 305, ENG 358, ENVS 100, GEOG 110, GEOG 120, GEOG 250, HIST 101, HIST 102, HIST 126, HIST 127, HIST 250, HIST 254, HIST 260, HIST 370, HNRS 100, HNRS 304, HNRS 400, MUS 100, MUS 135, MUS 140, MUS 240, MUS 245, PHIL 101, PHIL 315, PHIL 325, POLS 117, POLS 370, PSY 457, SOC 380, SPAN 102, SPAN 201, SPAN 202

#### Foreign Language

Students must demonstrate written and oral language proficiency through the *third-level* of a single foreign language, where *third-level* means third full year of high school or third semester college course (e.g., SPAN 2110 Second-Year Spanish 1). Alternatively, a student must demonstrate *second-level* proficiency in two different foreign languages (e.g., complete 2 years of high school French + SPAN 1020 Beginning Spanish 2).

#### Free Elective Courses (credit hours variable)

## English (ENG)

The English program at Western Colorado University provides its majors an opportunity to study language, literature, writing, and secondary teaching. Upon graduation, English majors can:

- employ multiple perspectives in producing and analyzing texts;
- employ a critical, historical, and cultural sense of the traditions of English, American, and world literatures;
- generate and develop an effective writing project in at least one genre. Those in the Comprehensive Program with the writing emphasis can also:
- generate and develop effective writing projects in a variety of genres for a variety of writing occasions;
- locate appropriate venues for their writing and submit compatible work for publication.

Those in the Comprehensive Program with secondary education licensure can also be licensed to teach literature and writing in secondary schools in Colorado.

## English Assessment Program

All English majors and minors are required to participate in and successfully pass skills/knowledge assessment testing in English. Assessment tests are conducted thus:

1. as a component of the required course ENG 250 Critical Approaches to Literature;
  2. as a designated semester project in the Junior Seminar, or a designated project in ENG 405 Advanced Writing (writing emphasis); and
  3. a final graduation requirement incorporated into ENG 494 Senior Seminar: Studies in: Planning Ahead.
- English Comprehensive Major: Creative Writing Emphasis (p. 144)
  - Creative Writing English (3+2 with an M.F.A. in Creative Writing) ([https://catalog.western.edu/undergraduate/programs/english/english-comprehensive-creative-writing-3\\_2-mfa/](https://catalog.western.edu/undergraduate/programs/english/english-comprehensive-creative-writing-3_2-mfa/))
  - English Comprehensive Major: Secondary Licensure Emphasis (p. 146)
  - English Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/english/english-comprehensive-secondary-licensure-3-2/>)
  - English Major: Standard Program (p. 148)
  - English Minor (p. 149)
  - Humanities and Diversity Minor (p. 150)

## Capstone Course Requirement

The following course in the English Major fulfills the capstone course requirement: ENG 494 Senior Seminar: Studies in: Planning Ahead. Students completing the Secondary Licensure Emphasis may use student teaching to fulfill this requirement. English majors must pass three credits of course work in ENG 494 Senior Seminar: Studies in: Planning Ahead with a minimum grade of "C."

## English Courses

### ENG 099. Basic Writing. (3 Credits)

Provides students with practice in generating and developing writing about academic topics and preparation for ENG 102 Academic Writing. For students who do not meet the College Level Entry Standards set by the Colorado Commission on Higher Education. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only.

**ENG 100. Supplemental Academic Writing. (1 Credit)**

Provides co-requisite, supplemental instruction for students enrolled in ENG 102. Students will practice employing rhetorical knowledge; using writing processes; developing critical reading and writing strategies; and using effective written communication to demonstrate comprehension of content knowledge. Prerequisites: an assessment equivalent to ACT English score between 15-17; a SAT Evidence-Based Reading and Writing score between 430-469; or an Accuplacer Next Generation Reading score between 224-253 and Accuplacer Next Generation Writing score between 236-245; and a high school GPA of 2.75 or higher. Co-requisite ENG 102. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in English.

**ENG 102. Academic Writing (GT-CO1). (3 Credits)**

Provides students the opportunity to practice strategies for developing writing projects on unfamiliar topics in unfamiliar formats to become more effective and efficient writers. Writers learn to practice strategies for making writing more comprehensible for readers and to use a wide range of writing processes for getting started, developing, organizing, and polishing writing projects. Prerequisites (one of the following): ENG 099; ACT English score of 18 or higher to demonstrate writing proficiency and ACT Reading score of 17 or higher to demonstrate reading proficiency; SAT Evidence-Based Reading and Writing score of 470 or higher to demonstrate writing proficiency and SAT Critical Reading score of 430 or above to demonstrate reading proficiency; Accuplacer Next Generation Writing test score of 246-300 and Accuplacer Next Generation Reading test score of 254-300 or higher; or combination of ACT, SAT, and Accuplacer scores to fulfill both reading and writing proficiencies; or co-requ

**ENG 148. Film and Culture. (3 Credits)**

A focus on the development of film and its cultural impact, with special emphasis on the relationship between film as a visual medium and literature as a verbal medium. After examining a selection of short stories and novels and the film adaptations based upon them, students are given the opportunity to write some film analysis of their own.

**ENG 150. Introduction to Literature (GT-AH2). (3 Credits)**

An introduction to literature with focus on a specific theme, form, or topic. Prerequisites (one of the following): ENG 099; ACT English score of 18 or higher to demonstrate writing proficiency and ACT reading score of 17 or higher to demonstrate reading proficiency; SAT Evidence-Based Reading and Writing score of 470 or higher to demonstrate writing proficiency and SAT Critical Reading score of 430 or above to demonstrate reading proficiency; Accuplacer Next Generation Writing test score of 246-300 and Accuplacer Next Generation Reading test score of 254-300; or combination of ACT, SAT and Accuplacer scores to fulfill both reading and writing proficiencies; open only to first and second-year students who have completed fewer than 60 credits. GT-AH2

**ENG 197. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered.

**ENG 205. Introduction to Creative Writing. (3 Credits)**

An introduction to the basic techniques of writing fiction and poetry. Models of each are studied, and students write and share pieces in both of these literary forms. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 220. Grammar and the English Language. (3 Credits)**

A study of English grammar focusing on standard English. Students are also introduced to the history of the English language. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 230. Environmental Literature (GT-AH2). (3 Credits)**

A study of environmental literature. Students analyze the formal and thematic characteristics of the literature. To inform critical interpretations, students read relevant cultural and environmental theory. The theme or topic is announced each semester. Prerequisite: ENG 102 with a minimum grade of C-. GT-AH2

**ENG 232. Borderlands: Representing Race, Class, Gender, and Sexuality. (3 Credits)**

A focus on literature representing literal and metaphoric borders and crossings. Students examine how culture and ideology inform representations of the interconnections among race, class, and gender. Examples include literatures of migration, mixed identities, and racial, gender, and sexual crossings. Prerequisite: ENG 102 with a minimum grade of "C-."

**ENG 237. Women and Literature. (3 Credits)**

Critical study of selected topics, themes, or issues about women as they are interpreted in popular and classic literary works. Specific titles to be announced each time the course is offered. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 238. Literary Culture of the American West. (3 Credits)**

A study of traditional and nontraditional forms of Western literature. Specific titles to be announced each time the course is offered. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 240. Writing Center Workshop. (2 Credits)**

Students investigate methods of the writing process and study personal communications of tutoring. Strategies include studying the learning styles of all students. Prerequisite: instructor permission.

**ENG 250. Critical Approaches to Literature. (3 Credits)**

Students study a variety of genres as a basis of learning to write literary analysis. Focus is on an understanding of the varied perspectives from which a text can be approached, and how readers construct meaning based not only upon the text itself, but also the context in which it is studied. The critical approach as well as theme or topic may vary. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 254. Popular Genre Fiction: Sci Fi Fantasy. (3 Credits)**

A focus on works that adhere to a specific popular genre announced on a rotating basis and selected from such sub-genres as science fiction, fantasy, mysteries, romance, westerns, or horror. Readings explore the relationship of genre tropes to the craft of storytelling. Course may be repeated for credit when taken with a different emphasis. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 255. Ancient World Literature (GT-AH2). (3 Credits)**

A study of ancient texts and their relation to their own time, and to ours. Since an understanding of these writings is important for reading English literature, the focus of the course is on Western texts central to that tradition. However, students may also read selected works from non-Western cultures in order to give them a taste of the diversity of the ancient world. Works studied may include selections from the Bible (Hebrew Scriptures and New Testament), Homer's writings, poetry and theatre of Classical Greece, Chinese poetry from the Book of Songs, a selection from the Mahabharata, and Roman poetry, particularly Virgil and Ovid. Prerequisite: ENG 102 with a minimum grade of C-. GT-AH2

**ENG 270. Folklore. (3 Credits)**

A study of one or more areas of folklore with a focus on American folklore. Possible areas include folksong, folk tales and legends, customs and festivals, dance and drama, proverbs, traditions, beliefs, recipes, and games. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 292. Independent Study. (1-3 Credits)**

**ENG 297. Special topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered.

**ENG 300. Creative Writing: Fiction. (3 Credits)**

Models are studied, and students read and respond to one another's writing. This course may incorporate narrative theory. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 301. Creative Writing: Poetry. (3 Credits)**

Instruction is given on the techniques and terminology of poetry writing. Models are studied, and students read and respond to one another's writing. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 302. Technical Writing. (3 Credits)**

A study of technical writing demands and techniques, with an emphasis on the professional setting. This course covers technical communication by examining and practicing written documents and presentations for multiple rhetorical situations. Professional etiquette and communication for the workplace, client-customer communication, and user-oriented instructions are core to this curriculum. This course will emphasize collaboration, different technological mediums, presentation skills, technical accuracy, and critical thinking. A research project is required. Prerequisite: ENG 102 with a minimum grade of "C-."

**ENG 303. Creative Writing. (3 Credits)**

A workshop approach to help writers develop a portfolio of essays suitable for publication in outdoor, environmental, and other appropriate magazines. To enhance their essays, writers read and analyze theoretical and published environmental texts. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 305. Creative Writing: Non-Fiction. (3 Credits)**

Models are studied, and students read and respond to one another's writing. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 331. Literature and Ethnicity: Studies in:. (3 Credits)**

A focus on United States literatures reflective of specific identities and cultures. Students examine format and thematic characteristics of a particular literature. To enhance critical understanding, students read and analyze relevant theoretical approaches to race, ethnicity, and culture. A specific focus is announced each time the course is taught. Examples include Native American, African American, and Borderlands literature. Course may be repeated once for credit with a different title, but may be counted only once toward the major. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 334. Poetry: Studies in:. (3 Credits)**

An in-depth study of poetry as a genre through selections of British, American, and world literature. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 335. Drama: Studies in:. (3 Credits)**

An in-depth study of drama as a genre through selections of British, American, and world literature. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 336. Prose: Studies in:. (3 Credits)**

A focus on prose fiction, including such genres as short stories, novellas, and novels. Depending upon the instructor's specific emphasis, examples of any one or more of these genres may be selected for the term. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 337. Women Writers. (3 Credits)**

Analysis of the poetry, drama, or fiction of women writers. Emphasis is on 19th century, 20th century, or contemporary writers. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 352. Children's Literature. (2 Credits)**

A survey of traditional and modern literature providing an opportunity to discuss topics such as reader-response theories, critical literacy, objective and subjective criticism, censorship, and the use or misuse of literature in primary and middle-level education.

**ENG 358. Global Literatures: Studies in: The Underworld. (3 Credits)**

A study of literatures from around the globe that considers the artistry, culture, and diverse social conditions of various countries. A specific focus is announced each time the course is offered. Possible topics may include Colonialism and Globalization, The Sacred Texts, and War and Revolution. Course may be repeated once for credit with a different title, but may be counted only once toward the major. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 370. Myth and Culture. (3 Credits)**

An introduction to the role of myth in literature and in our contemporary world. Examining myth from various perspectives, including the archetypal, the course focuses upon myth as a means for understanding aspects of our society's cultures. Offered in alternate years. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 371. Literary Theory and Criticism. (3 Credits)**

An introduction to some of the primary conversations structuring debates in literary theory and criticism. Students learn to identify central questions, assumptions, and conflicts in theoretical and critical texts. Students also gain an understanding of the ways that theory and criticism influence their immediate experiences in English courses. Prerequisites: ENG 250 with a minimum grade of C and at least one 300-level literature course, or instructor permission.

**ENG 372. British Literature: Medieval and Renaissance Texts. (3 Credits)**

A study of British Literature focusing on the major genres for the Anglo-Saxon, Middle English, and Renaissance periods, ending with the Metaphysical poets (800 A.D. to early 1600s). Prerequisite: ENG 250 with a minimum grade of C.

**ENG 373. British Literature: Milton through the Romantics. (3 Credits)**

A study of British works of poetry, fiction, drama, and essay produced from 1660 to 1830. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 374. British Literature: The Victorians to the Present Day. (3 Credits)**

A study of British works of poetry, fiction, drama, and essay produced from 1830 to the present day. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 384. American Literature Early to Civil War. (3 Credits)**

An exploration of authors and texts in American literature up to 1865. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 385. American Literature-Civil War to Present. (3 Credits)**

An exploration of authors and texts in American literature from 1865 to the present. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 392. Independent Study. (1-6 Credits)****ENG 396. Writing Center Assistantship. (1-3 Credits)**

Students apply knowledge obtained in ENG 240 in directed field experiences in Writing Center tutoring. Prerequisite: ENG 240.

**ENG 397. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered. Prerequisite: ENG 250 with a minimum grade of C.



**ENG 405. Advanced Writing. (3 Credits)**

An opportunity to deepen writing practiced at the junior level, with increased attention to voice and style. This course seeks to develop an awareness of the broader community of writers that includes those with not only similar but also differing writing goals. Prerequisites: ENG 250 with a minimum grade of C and at least two 300-level writing courses.

**ENG 445. Literary Magazine Submission and Production. (3 Credits)**

Focus alternates between literary magazine submissions and literary magazine production. Submission discussion includes aesthetics and techniques for revising and polishing work for submission. During the production focus students participate in the editorial production of a fiction anthology including acquisition and proofreading of manuscripts. Prerequisite: ENG 250 with a minimum grade of C; ENG 300, ENG 301, ENG 303, or ENG 305 with a minimum grade of C; or instructor permission.

**ENG 463. Major British Authors: Cont. Lit. & Film. (3 Credits)**

An in-depth study of selected, significant authors that approaches works from similar or cross-historical periods of British literature. Course may be repeated once for credit when taken with a different emphasis. Prerequisite: ENG 250 with a minimum grade of C and junior standing.

**ENG 464. Major American Authors: (3 Credits)**

An in-depth study of selected, significant authors that approaches works from similar or cross-historical periods of American literature. Course may be repeated once for credit when taken with a different emphasis. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 475. Theories of Reading and Writing Discourse. (3 Credits)**

A focus on composition and writing center theory and its practical applications. In addition to taking the course, students work with a faculty member in a lower-division English course or in the Writing Center in order to implement theoretical material in teaching situations. The course may be taken twice for credit. Only three credits may count toward a major or minor in English or toward the Writing or Professional Writing Certificate. Graded Satisfactory/Unsatisfactory only. Prerequisite: instructor permission.

**ENG 492. Independent Study. (1-6 Credits)**

An opportunity for individual study about topics in English, to be selected by the students, in cooperation with their advisors and with the permission of the regular faculty member supervising the study. May be taken for a maximum of three credits in one semester. Maximum credit toward the English major is six credits. Prerequisites: 12 credits of English; ENG 250 with a minimum grade of C.

**ENG 493. Senior Seminar I: Studies in: Social Justice. (3 Credits)**

Students comprehensively engage in a given topic and the critical conversations pertaining to it. The research component of the course allows students to participate in and extend scholarly dialog. A specific focus is announced each time the course is offered. Prerequisites: ENG 250 with a minimum grade of C and ENG 371.

**ENG 494. Senior Seminar: Studies in: Planning Ahead. (3 Credits)**

The Senior Seminar serves as the Standard Major's capstone experience and focuses on announced thematic topics that allow students to demonstrate competencies developed in the major. The theme or topic is announced for each spring. Prerequisite: ENG 394 and senior standing; or instructor permission.

**ENG 497. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 499. Internship in English. (1-6 Credits)**

Supervised practical experience in English for advanced students. Prerequisite: junior or senior standing and instructor permission.

# English Comprehensive Major: Creative Writing Emphasis

## Program Requirements

English majors and minors must complete the required course ENG 250 Critical Approaches to Literature with a minimum grade of "C" before registering for upper-division courses in English.

A minimum of 54 credits is required, including three credits of an upper-division literature elective, and the following:

Code	Title	Credits
COM 241	Media Writing	3
ENG 205	Introduction to Creative Writing	3
ENG 220	Grammar and the English Language	3
ENG 250	Critical Approaches to Literature	3
ENG 358	Global Literatures: Studies in: The Underworld	3
ENG 371	Literary Theory and Criticism	3
ENG 405	Advanced Writing	3
ENG 445	Literary Magazine Submission and Production	3
ENG 493	Senior Seminar I: Studies in: Social Justice	3
ENG 494	Senior Seminar: Studies in: Planning Ahead	3

Select three of the following, at least two of which must have an ENG prefix: 9

COM 306	Scriptwriting	
COM 310	Introduction to Performance Studies	
ENG 300	Creative Writing: Fiction	
ENG 301	Creative Writing: Poetry	
ENG 303	Creative Writing	
ENG 305	Creative Writing: Non-Fiction	

Select two of the following: 6

ENG 372	British Literature: Medieval and Renaissance Texts	
ENG 373	British Literature: Milton through the Romantics	
ENG 374	British Literature: The Victorians to the Present Day	
ENG 463	Major British Authors: Cont. Lit. & Film	

Select two of the following: 6

ENG 384	American Literature Early to Civil War	
ENG 385	American Literature-Civil War to Present	
ENG 464	Major American Authors:	

Total Credits 51

Course	Title	Credits
Year One		
Fall		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
Essential Skill	MATH	3
Gen Ed	Arts & Humanities	3

Gen Ed	Social Sciences	3
		Credits 13
<b>Spring</b>		
Elective	Elective	3
ENG 205	Introduction to Creative Writing	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
ENG 220	Grammar and the English Language	3
ENG 250	Critical Approaches to Literature	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
COM 241	Media Writing (Gen Ed.: Natural Sciences)	3
Gen Ed	Natural Sciences	3
		Credits 15
<b>Spring</b>		
Elective	Elective	5
ENG 358	Global Literatures: Studies in: The Underworld	3
ENG	English Elective (300-level Writing elective)	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
		Credits 17
<b>Year Three</b>		
<b>Fall</b>		
COM 310	Introduction to Performance Studies	3

ENG 372 or ENG 373 or ENG 374	British Literature: Medieval and Renaissance Texts or British Literature: Milton through the Romantics or British Literature: The Victorians to the Present Day	3
ENG	ENG elective	3
Elective	Elective	6
		Credits 15
<b>Spring</b>		
ENG 371	Literary Theory and Criticism	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature- Civil War to Present	3
ENG	ENG elective (Writing)	3
ENG	ENG elective (Literature)	3
Elective	Elective	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
Elective	Elective	6
ENG 372 or ENG 373 or ENG 374	British Literature: Medieval and Renaissance Texts or British Literature: Milton through the Romantics or British Literature: The Victorians to the Present Day	3



ENG 405	Advanced Writing	3
ENG 493	Senior Seminar I: Studies in: Social Justice	3
<b>Spring</b>		<b>15</b>
ENG 445	Literary Magazine Submission and Production	3
ENG 494	Senior Seminar: Studies in: Planning Ahead	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature-Civil War to Present	3
Elective	Elective	6
		<b>Credits 15</b>
		<b>Total Credits 120</b>

# English Comprehensive Major: Secondary Licensure Emphasis

## Program Requirements

English majors and minors must complete the required course ENG 250 Critical Approaches to Literature with a minimum grade of "C" before registering for upper-division courses in English.

The Secondary Licensure Emphasis requires 51 credits, including three credits of upper-division English electives. ENG 352 Children's Literature and ENG 499 Internship in English may not be used as electives in English. In addition, students must fulfill the requirements of the Secondary Licensure Option (see description under Education). The following courses are required:

Code	Title	Credits
COM 216	Dramatic Literature and Script Analysis	3
COM 241	Media Writing	3
ENG 205	Introduction to Creative Writing	3
ENG 220	Grammar and the English Language	3
ENG 250	Critical Approaches to Literature	3
ENG 358	Global Literatures: Studies in: The Underworld	3
ENG 370	Myth and Culture	3
ENG 371	Literary Theory and Criticism	3
ENG 493	Senior Seminar I: Studies in: Social Justice	3
Select one of the following:		3
COM 306	Scriptwriting	
ENG 300	Creative Writing: Fiction	

ENG 301	Creative Writing: Poetry	
ENG 303	Creative Writing	
ENG 305	Creative Writing: Non-Fiction	
Select two of the following:		6
ENG 230	Environmental Literature (GT-AH2)	
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	
ENG 237	Women and Literature	
ENG 238	Literary Culture of the American West	
ENG 255	Ancient World Literature (GT-AH2)	
ENG 331	Literature and Ethnicity: Studies in:	
ENG 337	Women Writers	
Select two of the following:		6
ENG 372	British Literature: Medieval and Renaissance Texts	
ENG 373	British Literature: Milton through the Romantics	
ENG 374	British Literature: The Victorians to the Present Day	
ENG 463	Major British Authors: Cont. Lit. & Film	
Select two of the following:		6
ENG 384	American Literature Early to Civil War	
ENG 385	American Literature-Civil War to Present	
ENG 464	Major American Authors:	
<b>Total Credits</b>		<b>48</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENG 102	Academic Writing (GT-CO1)	3
Essential Skills	MATH	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
HWTR 100	First Year Seminar	1
		<b>Credits 13</b>
<b>Spring</b>		
EDUC 000	Education Gateway Course	0
ENG 205	Introduction to Creative Writing	3
ENG 250	Critical Approaches to Literature	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
		<b>Credits 15</b>

**Year Two****Fall**

COM 202	Academic Writing and Inquiry (GT-CO2)	3
COM 241	Media Writing	3
ENG 220	Grammar and the English Language	3
ENG 372 or ENG 373 or ENG 374	British Literature: Medieval and Renaissance Texts or British Literature: Milton through the Romantics or British Literature: The Victorians to the Present Day	3
Gen Ed	Social Sciences	3
Elective	Elective	3
		Credits 18

**Spring**

COM 216	Dramatic Literature and Script Analysis	3
Elective	Elective	3
ENG 358	Global Literatures: Studies in: The Underworld	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature: Civil War to Present	3
ENG	ENG elective (Literature)	3
		Credits 15

**Year Three****Fall**

ENG 370	Myth and Culture	3
ENG 493	Senior Seminar I: Studies in: Social Justice	3

ENG 372  
or ENG 373  
or ENG 374

British Literature: Medieval and Renaissance Texts  
or  
British Literature: Milton through the Romantics  
or  
British Literature: The Victorians to the Present Day

ENG	ENG elective (Literature)	3
Elective	Elective	3
		Credits 15

**Spring**

EDUC 340	Application of Pedagogy and Practice	3
Elective	Elective	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature- Civil War to Present	3
ENG	ENG elective (Writing)	3
Gen Ed	Natural Sciences	3
		Credits 15

**Year Four****Fall**

EDUC 401	Assessment for Prevention and Intervention	3
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environments	3
EDUC 405	Data-driven Instructional Practices	3

EDUC 409	Secondary Student Teaching	3
		Credits 15
<b>Spring</b>		
EDUC 402	Reading Comprehension, Vocabulary, and Fluency	3
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 408	Teaching Writing with the Brain in Mind	3
EDUC 409	Secondary Student Teaching	3
		Credits 12
		Total Credits 118

## English Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

English majors and minors must complete the required course ENG 250 Critical Approaches to Literature with a minimum grade of "C" before registering for upper-division courses in English.

A minimum of 39 credits is required, including a three-credit, upper-division literature elective, and the following:

Code	Title	Credits
ENG 205	Introduction to Creative Writing	3
ENG 250	Critical Approaches to Literature	3
ENG 358	Global Literatures: Studies in: The Underworld	3
ENG 371	Literary Theory and Criticism	3
ENG 493	Senior Seminar I: Studies in: Social Justice	3
ENG 494	Senior Seminar: Studies in: Planning Ahead	3
Select one of the following:		3
ENG 230	Environmental Literature (GT-AH2)	
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	
ENG 237	Women and Literature	
ENG 238	Literary Culture of the American West	
ENG 255	Ancient World Literature (GT-AH2)	
ENG 331	Literature and Ethnicity: Studies in:	
ENG 337	Women Writers	
ENG 370	Myth and Culture	
Select one of the following:		3
ENG 300	Creative Writing: Fiction	
ENG 301	Creative Writing: Poetry	
ENG 303	Creative Writing	

ENG 305	Creative Writing: Non-Fiction	
Select two of the following:		6
ENG 372	British Literature: Medieval and Renaissance Texts	
ENG 373	British Literature: Milton through the Romantics	
ENG 374	British Literature: The Victorians to the Present Day	
ENG 463	Major British Authors: Cont. Lit. & Film	
Select two of the following:		6
ENG 384	American Literature Early to Civil War	
ENG 385	American Literature-Civil War to Present	
ENG 464	Major American Authors:	
Total Credits		36

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
Essential Skills	MATH	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 13

<b>Spring</b>		
Elective	Elective or minor course	3
ENG 205	Introduction to Creative Writing	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
		Credits 15

<b>Year Two</b>		
<b>Fall</b>		
ENG 220	Grammar and the English Language	3
ENG 250	Critical Approaches to Literature	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences	3
		Credits 15

<b>Spring</b>		
ENG	ENG elective (200 level)	3

Elective	Elective or minor course	8
ENG 358	Global Literatures: Studies in: The Underworld	3
Gen Ed	Natural Sciences	3
		Credits 17

**Year Three**

<b>Fall</b>		
ENG	Literature Elective	3
ENG	Writing Elective	3
ENG 372 or ENG 373 or ENG 374	British Literature: Medieval and Renaissance Texts or British Literature: Milton through the Romantic or British Literature: The Victorian to the Present Day	3
Elective	Elective or minor course	6
		Credits 15

**Spring**

ENG 371	Literary Theory and Criticism	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature: Civil War to Present	3
Elective	Elective or minor course	9
		Credits 15

**Year Four**

<b>Fall</b>		
ENG 405	Advanced Writing	3

ENG 373 or ENG 372 or ENG 374	British Literature: Milton through the Romantics or British Literature: Medieval and Renaissance Texts or British Literature: The Victorian to the Present Day	3
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ENG 493	Senior Seminar I: Studies in: Social Justice	3
Elective	Elective or minor course	6
		Credits 15

**Spring**

ENG 494	Senior Seminar: Studies in: Planning Ahead	3
ENG 384 or ENG 385	American Literature Early to Civil War or American Literature: Civil War to Present	3
Elective	Elective or minor course	9
		Credits 15

		Total Credits 120
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## English Minor

English majors and minors must complete the required course ENG 250 Critical Approaches to Literature with a minimum grade of "C" before registering for upper-division courses in English.

A minimum of 18 credits is required for a Minor in English including:

Code	Title	Credits
ENG 205	Introduction to Creative Writing	3
ENG 250	Critical Approaches to Literature	3
English electives at the 150 level or above <sup>1</sup>		12
<b>Total Credits</b>		<b>18</b>

<sup>1</sup> excluding ENG 499 Internship in English

## Humanities and Diversity Minor

A minimum of 21 credits is required, including the following courses:

Code	Title	Credits
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	3
ENG 250	Critical Approaches to Literature	3
Two of the following:		6
ENG 230	Environmental Literature (GT-AH2)	
ENG 237	Women and Literature	
ENG 255	Ancient World Literature (GT-AH2)	
ENG 270	Folklore	
ENG 331	Literature and Ethnicity: Studies in:	
ENG 337	Women Writers	
ENG 358	Global Literatures: Studies in: The Underworld	
ENG 370	Myth and Culture	
ENG 371	Literary Theory and Criticism	
ENG 384	American Literature Early to Civil War	
ENG 385	American Literature-Civil War to Present	
ENG 397	Special Topics	
ENG 463	Major British Authors: Cont. Lit. & Film	
ENG 464	Major American Authors:	
Three of the following:		9
COM 121	Introduction to Theatre (GT-AH1)	
COM 216	Dramatic Literature and Script Analysis	
COM 352	Advanced Cinema Studies	
COM 371	Small Group and Conflict Management	
COM 377	Intercultural Communication in the Digital Age	
PHIL 101	Introduction to Philosophy (GT-AH3)	
PHIL 315	Eastern Philosophy	
PHIL 325	Women and Gender in Philosophy	
SPAN 321	Spanish for Business	
SPAN 324	Spanish for Medical and Social Services	
SPAN 341	Latin American Civilization and Culture	
SPAN 460		
SPAN 482	Spanish in the U.S.	
Total Credits		21

## Environment and Sustainability (ENVS)

The Environment and Sustainability Program focuses on the interactions of humans and the natural environment. Specifically, the Program studies the structure and function of natural systems, examines how social, political, and economic activity impacts those systems, and experiments with resilient solutions to unsustainable human impacts.

Goals of the Environment and Sustainability Program include:

- Applying the knowledge and methods of natural sciences to understand and analyze environmental problems and solutions.
- Implementing social science findings and frameworks to develop local, national, and global sustainable solutions.

- Using the insights of environmental history, literature, and ethics to inform current decision making.
- Developing interdisciplinary critical thinking, communication, and problem-solving skills to foster community and ecological resilience.
- Fostering leadership in sustainability, effective environmental citizenship, and career and advanced study opportunities in environmental fields.

Students have two options for a comprehensive major: a 62-credit Water Emphasis or the 57-credit Individualized Contract.

- Environment and Sustainability Comprehensive Major: Individualized Contract Emphasis (p. 153)
- Environment and Sustainability Comprehensive Major: Water Emphasis (p. 154)
- Environment and Sustainability Ecology Emphasis (with a 3+2 Master of Science in Ecology) (<https://catalog.western.edu/undergraduate/programs/environment-sustainability/ecology-master-science-3-2/>)
- Environment and Sustainability Major: Standard Program (p. 156)
- Environment and Sustainability Minor (p. 158)
- Environment and Sustainability Nature Writing Emphasis (with a 3+2 MFA in Creative Writing) (<https://catalog.western.edu/undergraduate/programs/environment-sustainability/nature-writing-mfa-cwr-3-2/>)
- Environmental Management Emphasis (with a 3+2 Master in Environmental Management) (p. 158)

## Capstone Course Requirement

The following course in the Environment and Sustainability Major fulfills the capstone course requirement: Applied Sustainability.

## Environment and Sustainability Courses

**ENVS 100. Introduction to Environment and Sustainability (GT-SS2). (3 Credits)**

An interdisciplinary, historical analysis of the development of environmental problems, movements, and philosophies. Students apply historical lessons to critically examine sustainable solutions locally and globally. GT-SS2

**ENVS 197. Special Topics. (1-6 Credits)**

**ENVS 200. Writing the Environment. (3 Credits)**

Students develop communication skills through presentations and writing on a variety of environmental issues appropriate to a wide variety of audiences. Through environmental essays, writing for nonprofit websites, grant proposals, and other forms of environmental writing, students are introduced to a broad range of skills needed for effective communication. Focus throughout the course on the analysis of arguments and texts further develops students' analytical and communication skills. Prerequisite: ENVS 100; COM 202 is recommended.

**ENVS 292. Independent Study. (1-3 Credits)**

**ENVS 297. Special Topics. (1-6 Credits)**

**ENVS 301. Science of Sustainability and Resilience. (3 Credits)**

A holistic inquiry into how humans might live the next chapter of our history, guided by the ecological principles of sustainability and resilience. Environmental problems and their possible solutions are analyzed critically and quantitatively; field experiences on campus and in the community involve students directly in the application of these principles. Themes include sustainable agriculture, green building, renewable energy, and conservation and restoration. Prerequisites: BIOL 130, BIOL 135, PHYS 125

**ENVS 350. U.S. and Western Environmental Politics. (3 Credits)**

An historical and contemporary investigation of U.S. environmental policies with an applied focus on the impact of national policy on the ecosystems and cultures of the American West. Reciprocally, this course traces how public lands agencies, social movements, historical land uses, and diverse cultures in the West shape U.S. environmental policy. Students combine analysis and discussion of major U.S. policies, prominent theories and issues, and student-led environmental service projects to better understand environmental challenges. Prerequisites: ENVS 100, ENVS 200 or COM 202, ECON 370.

**ENVS 360. Global Environmental Policy. (3 Credits)**

A critical examination of key perspectives, economic and political processes, policy actors, and institutions involved in global environmental issues. Students analyze ecological, cultural, and social dimensions of international environmental concerns and governance as they have emerged in response to increased recognition of global environmental threats, globalization, and international contributions to understanding of these issues. The focus of the course encourages students to engage and evaluate texts within the broad policy discourse on globalization, justice, and the environment. Prerequisites: ENVS 100; ECON 201, ENVS 200 or SCI 202; junior standing or instructor approval.

**ENVS 370. Water Policy and Politics. (3 Credits)**

Study of the history, politics and institutions related to water policy and administration with comparative reference to different regions of the United States and internationally. Attention is given to the industrial development of the East and the created water resources of the arid West as a way to understand changing social sentiments toward water and water policy. The course also examines water pollution laws and water management. Prerequisites: ENVS 100; ECON 201 or ENVS 200 or SCI 202; junior standing or instructor approval.

**ENVS 373. The Water Planet. (3 Credits)**

An advanced water science course specifically designed for students interested in water related environmental science and policy. Topics include the physical and chemical properties of natural fresh waters and the movement and reservoirs of fresh water within the water cycle. The course includes several hands-on exercises and field experiences where students investigate and analyze natural waters in the Gunnison Basin. Prerequisites: GEOL 101; GEOL 105 and one of the following: CHEM 101 or CHEM 111

**ENVS 375. Seminar in Water Topics. (3 Credits)**

An occasional offering that may include water topics in politics and policy, ethics and philosophy, or science. Prerequisite: ENVS 200 and ENVS 301, or instructor permission.

**ENVS 376. The Colorado Water Workshop. (1 Credit)**

A three-day annual conference bringing students together with a variety of water users, managers, ranchers, environmentalists, regulators and others involved in water issues for presentations and discussion on matters ranging from specific municipal or water district projects to major basin-wide planning for the great rivers of the West to global issues of water use and protection. Topics vary from year to year. Prerequisite: ENVS 350 and ENVS 370, or instructor permission.

**ENVS 390. Environmental Monitoring. (4 Credits)**

A field-work based study of local (Gunnison Basin) environmental problems. Numerous monitoring techniques are implemented based on principles of biology, chemistry, and geology. The emphasis is on collaborative and integrative group projects dealing directly with real-world environmental problems. Prerequisites: ENVS 301 and one of the following: ECON 216, MATH 213, or SOC 211.

**ENVS 392. Independent Study. (1-6 Credits)****ENVS 397. Special Topics. (1-6 Credits)****ENVS 399. Environment and Sustainability Internship. (1-6 Credits)****ENVS 400. Applied Sustainability. (3 Credits)**

A field-based, collaborative, problem-solving experience that addresses a current issue in environmental sustainability. Implementing frameworks such as resilient and systems thinking, students collect information, analyze results, write a report, publicly present their findings, and begin to implement solutions informed by their analysis. Students learn basic skills for transforming their ENVS education into compelling environmental professional career possibilities. Prerequisites: ENVS 350 and ENVS 390.

**ENVS 410. Environmental Ethics. (3 Credits)**

A seminar on the complexities of environmental issues from a philosophical perspective. The course also offers a survey of the evolution of environmental moral philosophy as well as in-depth analysis of major thinkers in the field. Students confront ethical concerns from both historical and personal perspectives, with an emphasis on the ability to critically evaluate and apply these perspectives to their work in environmental fields. Prerequisite: ENVS 301 and 350; or PHIL 335.

**ENVS 420. Natural History of the Gunnison Basin. (3 Credits)**

An overview of place-based natural history, current ecological research, and current environmental issues facing the region. Prerequisites: ENVS 100 and instructor permission.

**ENVS 430. Watersheds of the World. (3 Credits)**

This field course is designed to provide students with an introduction to important science and policy issues in selected watersheds throughout the world. Students receive an overview of place-based natural history, current ecological research, and current environmental issues and policy facing the region. Examples include the local and global effects of resource extraction, tourism, air and water pollution, land use changes, and global climate change. This is an expedition course (approximately 3 weeks) and is experiential in nature. Prerequisites: ENVS 100 and instructor permission.

**ENVS 492. Independent Study. (1-6 Credits)****ENVS 497. Special Topics. (1-6 Credits)****ENVS 499. Internship in Environmental Studies. (1-6 Credits)**

An opportunity to apply skills and knowledge from course work to an employment setting. Prerequisite: approval from an Environmental Studies advisor and the Program Director.



**ENVS 601. Introduction to Environmental Management. (5 Credits)**

An introduction to the MEM program, to bioregional and resilient approaches to environmental management, and to the environmental stakeholders, problems, solutions, and learning laboratories of the Gunnison Valley. Requires two-week residency in Gunnison during culmination of course.

**ENVS 605. Science of Environmental Management. (3 Credits)**

Provides a rigorous and hands-on overview of the principles and methods of environmental science. Students gain practical experience with a range of laboratory, field, and analytical approaches, with a focus on current environmental research in the Gunnison Basin. Topics include water quality, riparian condition, rangeland monitoring, forest health, threatened and endangered species, air quality, conservation, and ecological restoration. Students develop skills in scientific literature searches, writing monitoring protocols, ensuring quality data collection, databasing, statistical analysis, interpretation of results, written and oral communication, and peer review. Prerequisites: ENVS 601.

**ENVS 608. Environmental Politics and Policy. (3 Credits)**

Analysis of the key interactions between environmental policy and management, focusing on environmental decision-making within an array of policy contexts. Emphasis is on important federal policies such as the Clean Water Act and NEPA, with additional attention to relevant state and local policies. Prerequisites: ENVS 601

**ENVS 611. Integrative Skill in Environmental Management. (3 Credits)**

Course focuses on developing and managing environmental projects and organizations. Students develop a thorough understanding of integrative assessment, adaptive management, and triple bottom line strategies. Students apply these approaches to the development of professional skills such as organizational development, conflict management, and environmental communication. Prerequisites: ENVS 601

**ENVS 612. Quantitative in Environmental Management. (3 Credits)**

An overview of a range of quantitative analytical methods and statistical approaches essential to environmental management careers in both Integrative Land Management and Sustainable and Resilient Communities. Topics covered include descriptive and inferential statistics, databasing, geographic information systems, and graphic presentation of results. Course empowers students to organize, analyze, and graphically present environmental data. Prerequisite: ENVS 601.

**ENVS 615. Science of Climate Mitigation and Adaptation. (3 Credits)**

An investigation of the science of climate change, with an emphasis on mitigation and adaptation strategies for careers in environmental management. Students will develop an understanding of the principles of atmospheric and earth sciences that form the scientific basis of climate change and survey the large body of evidence of anthropogenic warming. Topics include greenhouse gas emissions, climate forcings and feedbacks, observed and projected climate changes, effects on ecological and human systems, and the opportunities and challenges of a diverse suite of strategies for climate change mitigation and adaptation at the local, regional, and planetary scale. Prerequisite: ENVS 605.

**ENVS 616. Environmental Organization Development and Management. (3 Credits)**

An introduction to developing organizations at the nexus of economic, social, and natural systems, and to the key skills necessary to succeed in this complex and highly competitive environment. Course discusses competitively advantageous strategies and practices organizations adopt to grow revenues, cut costs, improve market share, enhance brands, and redesign products and processes toward positive environmental and social impacts. Course examples will include sustainable innovation, creativity, and entrepreneurship from around the world. Students learn to identify the best opportunities, generate innovative non-profit and for-profit business models, frame and reframe problems, produce creative solutions, and generate a culture of innovation, creativity, and entrepreneurship within an organization utilizing principles from a variety of thinking methods including systems, design, and group thinking.

Prerequisites: ENVS 605; ENVS 608; ENVS 611

**ENVS 617. Global Sustainability. (3 Credits)**

An exploration of how international governments, NGOs, and other entities join to move the world toward a more sustainable future. Addresses contemporary topics such as industrial ecology, international natural resource management, sustainable development, and other relevant areas of study. Students develop skills in accessing, assessing, and applying social, economic and environmental data and practices to global issues. Prerequisites: ENVS 605; ENVS 608; and ENVS 611.

**ENVS 618. Public Lands Management. (3 Credits)**

An exploration of the current and traditional approaches to public land and resource management. A regional focus on the Western U.S. is integrated with comparative examples from other regions and countries to enhance and broaden student perspectives. Course examines the history and future management implications of public lands agencies and policies, such as the National Parks, National Forests, Bureau of Land Management, NEPA and multi-use mandates. Special focus will be given to the management skills necessary in leading public lands agencies on the regional level. Prerequisites: ENVS 605; ENVS 608; ENVS 611.

**ENVS 620. Studies in Sustainable and Resilient Communities. (3 Credits)**

An examination of selected topics covering the content understanding, analytical skills, and management approaches vital to cultivating sustainable and resilient communities. Topics include subjects such as Climate Change Mitigation and Adaptation, Sustainable Food Systems, Sustainable Energy Futures, Sustainable Economic Development, Movements in Community Resilience, and Frameworks in Sustainability. This course is repeatable, since students are required to take this course three times, as long as the topic changes. Prerequisites: ENVS 616 or ENVS 617.

**ENVS 623. Studies in Environmental Management. (1-6 Credits)**

An examination of selected topics covering the content understanding, analytical skills, and management approaches vital to environmental management. Topics will vary from semester to semester based on faculty interest and student need. This course is repeatable, as long as the topic changes. Prerequisites: ENVS 616 or ENVS 617 or ENVS 618.

**ENVS 625. Studies in Integrative and Public Land Management. (3 Credits)**

An examination of selected topics covering the content understanding, analytical skills, and management approaches vital to cultivating sustainable and resilient communities. Topics include subjects such as Climate Change Mitigation and Adaptation, Sustainable Food Systems, Sustainable Energy Futures, Sustainable Economic Development, Movements in Community Resilience, and Frameworks in Sustainability. This course is repeatable, since students are required to take this course three times, as long as the topic changes. Prerequisites: ENVS 617 or ENVS 618.

**ENVS 690. MEM Project Development. (5 Credits)**

An introduction to the Master’s Project. Course examines environmental project design strategies, successful environmental solutions, and organizations/community stakeholder groups seeking environmental management assistance from MEM students in the Master’s Project. Students design, plan, and coordinate second year Master’s Project with faculty mentors and community stakeholders. Requires two-weeks residency in Gunnison during culmination of course. Prerequisites: MEM Core

**ENVS 692. Independent Study in Environment Management. (1-6 Credits)**

**ENVS 694. Master’s Project and Portfolio. (3-6 Credits)**

Students design and apply a specific research and environmental management project to an active environmental organization, green business, land agency, or community stakeholder group. Requires students to develop a lens and goal for environmental management; identify a project that enables the student to manifest his/her environmental management goal; research global best practices for similar projects; complete the project over 10 months; write up, present, and defend the results for the faculty mentor and MEM community; and complete an environmental career portfolio. Course spans Fall (3 credits) and Spring (6 credits) of the second year, and requires 9 total hours. This is a repeatable course for variable credit. Prerequisites: ENVS 690.

# Environment and Sustainability Comprehensive Major: Individualized Contract Emphasis Program Requirements

This Emphasis allows students to design a curriculum in consultation with an Environment and Sustainability advisor and with the approval of the Environment and Sustainability Council. A minimum of 57 credits is required including the 39-credit Standard Major.

Code	Title	Credits
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3
ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environmental Politics	3
ENVS 390	Environmental Monitoring	4
ENVS 400	Applied Sustainability	3
ENVS 410	Environmental Ethics	3
Select one of the following:		3
ENVS 360	Global Environmental Policy	
ENVS 370	Water Policy and Politics	

ENVS 375	Seminar in Water Topics	
<b>Required Supporting Courses</b>		
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environmental Biology Laboratory (GT-SC1)	1
PHYS 125	Energy and the Environment (GT-SC2)	3
ECON 215	Environmental Economics	3
One of the following:		1
HWTR 200	This Is The Headwaters	
HWTR 398	Headwaters Conference	
And one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
SOC 211	Quantitative Research Methods	
<b>Total Credits</b>		<b>39</b>

Proposals for an Individualized Contract should be developed before the second semester of the junior year, and applicants must have a minimum of a 3.200 GPA in the major and a 3.000 overall GPA. Consult an Environment and Sustainability advisor for details.

## Capstone Course Requirement

The following course in the Environment and Sustainability Major fulfills the capstone course requirement: Applied Sustainability.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environment Biology Laboratory (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
HWTR 100	First Year Seminar	1
Gen Ed	General Education Courses	3
		<b>Credits 14</b>

Spring		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
MATH 113	Statistical Thinking (GT-MA1)	3
PHYS 125	Energy and the Environment (GT-SC2)	3
Elective	Elective/Minor	3
Gen Ed	General Education Courses	3
Credits		15

Year Two		
Fall		
ENVS 200	Writing the Environment	3
HWTR 398	Headwaters Conference	1
Gen Ed	Natural Sciences	3
Gen Ed	Arts & Humanities or Social Sciences	3
Elective	Elective/Minor	6
Credits		16

Spring		
ECON 215	Environment Economics	3
Gen Ed	Arts & Humanities or Social Sciences	6
Elective	Elective/Minor	6
Credits		15

Year Three		
Fall		
ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environmental Politics	3
IC	Individualize Contract Requirement	3
Elective	Elective/Minor	6
Credits		15

Spring		
ENVS 360 or ENVS 370 or ENVS 373	Global Environmental Policy or Water Policy and Politics or The Water Planet	3
ENVS 390	Environment Monitoring	4
IC	Individualized Contract Requirement	3
Elective	Elective/Minor	6
Credits		16

Summer		
ENVS 499	Internship in Environment Studies (Recommended but optional)	1-6
Credits		1-6

Year Four		
Fall		
ENVS 410	Environment Ethics	3
IC	Individualized Contract Requirement	6
Elective	Elective/Minor	6
Credits		15

Spring		
ENVS 400	Applied Sustainability	3
IC	Individualized Contract Requirement	6
Elective	Elective/Minor	6
Credits		15
Total Credits		122-127

## Environment and Sustainability Comprehensive Major: Water Emphasis Program Requirements

A minimum of 65 credits is required.

Code	Title	Credits
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environmental Biology Laboratory (GT-SC1)	1
ECON 215	Environmental Economics	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3

ENVS 200	Writing the Environment	3
ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environmental Politics	3
ENVS 370	Water Policy and Politics	3
ENVS 373	The Water Planet	3
ENVS 375	Seminar in Water Topics	1-3
ENVS 376	The Colorado Water Workshop	1
ENVS 390	Environmental Monitoring	4
ENVS 400	Applied Sustainability	3
ENVS 410	Environmental Ethics	3
GEOG 340	Introduction to Geographic Information Systems	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
PHYS 125	Energy and the Environment (GT-SC2)	3
Select one of the following:		1
HWTR 200	This Is The Headwaters	
HWTR 398	Headwaters Conference	
Select one of the following:		3
CHEM 101	Introduction to Inorganic Chemistry (GT-SC2)	
CHEM 111	General Chemistry I (GT-SC2)	
Select one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
SOC 211	Quantitative Research Methods	
Select two of the following:		6-7
BIOL 476	Aquatic Ecology (with laboratory)	
BUAD 410	Water Law	
ECON 370	Natural Resource Economics	
ENVS 360	Global Environmental Policy	
ROE 293	Outdoor Pursuits Education- Water Based (with laboratory)	
Select one of the following:		3-6
ENVS 420	Natural History of the Gunnison Basin	
ENVS 430	Watersheds of the World	
ENVS 499	Internship in Environmental Studies	
Total Credits		63-69

Admission to Recreation and Outdoor Education courses for declared Water Emphasis students is based on instructor permission and available seats.

## Capstone Course Requirement

The following course in the Environment and Sustainability Major fulfills the capstone course requirement: Applied Sustainability.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 130 & BIOL 135	Environmental Biology (GT-SC2) and Environmental Biology Laboratory (GT-SC1)	4
CHEM 101 or CHEM 111	Introduction to Inorganic Chemistry (GT-SC2) or General Chemistry I (GT-SC2)	3
ENG 102	Academic Writing (GT-CO1)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
HWTR 100	First Year Seminar	1
		<b>Credits</b>
		14
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
GEOL 101	Physical Geology (GT-SC2) (Area II Gen Ed)	3
GEOL 105	Physical Geology Laboratory (GT-SC1) (Area II Gen Ed)	1
MATH 113	Statistical Thinking (GT-MA1)	3
PHYS 125	Energy and the Environment (GT-SC2)	3
Gen Ed	Arts & Humanities and Social Sciences	3
		<b>Credits</b>
		16
<b>Year Two</b>		
<b>Fall</b>		
HWTR 398	Headwaters Conference	1
ENVS 200	Writing the Environment	3

Gen Ed	Arts & Humanities and Social Sciences	3
Gen Ed	Arts & Humanities and Social Sciences	3
Elective	Elective	3
Elective	Elective	3
		Credits
		16
<b>Spring</b>		
ECON 215	Environmental Economics	3
Elective	Elective	3
Gen Ed	Arts & Humanities and Social Sciences	3
Gen Ed	Arts & Humanities and Social Sciences	3
Gen Ed	Arts & Humanities and Social Sciences	3
Gen Ed	Arts & Humanities and Social Sciences	3
		Credits
		15
<b>Year Three</b>		
<b>Fall</b>		
ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environment Politics	3
ENVS 370 or ENVS 375	Water Policy and Politics or Seminar in Water Topics	3
ENVS 370 and ENVS 375 are offered in alternating fall semesters.		
ENVS 373	The Water Planet	3
Elective	Elective	3
		Credits
		15
<b>Spring</b>		
ENVS 390	Environment Monitoring	4
BIOL 301	General Ecology	3
Elective	Elective	1
Elective	Elective	3
Elective	Elective	3
		Credits
		14
<b>Summer</b>		
ENVS 376	The Colorado Water Workshop	1
		Credits
		1

<b>Year Four</b>		
<b>Fall</b>		
GEOG 340	Introduction to Geographic Information Systems	3
ENVS 370 or ENVS 375	Water Policy and Politics or Seminar in Water Topics	3
ENVS 370 and ENVS 375 are offered in alternating fall semesters.		
Water Elective	ROE 293 or ECON 370 or ENVS 360 or BIOL 467 or BIOL 476	3
Elective	Elective	3
ENVS 410	Environmental Ethics	3
		Credits
		15
<b>Spring</b>		
Water Elective	ROE 293 or ECON 370 or ENVS 360 or BIOL 467 or BIOL 476	3
ENVS 499 or ENVS 420 or ENVS 430	Internship in Environment Studies or Natural History of the Gunnison Basin or Watership of the World	3
ENVS 400	Applied Sustainability	3
Elective	Elective	3
Elective	Elective	3
		Credits
		15
		Total
		Credits
		121

## Environment and Sustainability Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 39 credits is required.

Code	Title	Credits
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3

ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environmental Politics	3
ENVS 390	Environmental Monitoring	4
ENVS 400	Applied Sustainability	3
ENVS 410	Environmental Ethics	3
Select one of the following:		3
ENVS 360	Global Environmental Policy	
ENVS 370	Water Policy and Politics	
ENVS 375	Seminar in Water Topics	
<b>Required Supporting Courses</b>		
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environmental Biology Laboratory (GT-SC1)	1
PHYS 125	Energy and the Environment (GT-SC2)	3
ECON 215	Environmental Economics	3
Select one of the following:		3
HWTR 200	This Is The Headwaters	
HWTR 398	Headwaters Conference	
Select one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
SOC 211	Quantitative Research Methods	
<b>Total Credits</b>		<b>38</b>

## Environment and Sustainability and Business Administration Coordinated Double Major

If a student elects to complete an Environment and Sustainability Major: Standard Program and the coordinated Business Administration Major: Standard Program, the student must take ECON 202 Microeconomics instead of ECON 215 Environmental Economics; and ENVS 360 Global Environmental Policy must be elected. ECON 216 Statistics for Business and Economics must be elected, with MATH 140 College Algebra (GT-MA1) as its prerequisite.

## Capstone Course Requirement

The following course in the Environment and Sustainability Major fulfills the capstone course requirement: Applied Sustainability.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 130	Environmental Biology (GT-SC2)	3

BIOL 135	Environmental Biology Laboratory (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
HWTR 100	First Year Seminar	1
Gen Ed	General Education Courses	3
		<b>Credits</b>

<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
MATH 113	Statistical Thinking (GT-MA1)	3
PHYS 125	Energy and the Environment (GT-SC2)	3
Elective	Elective/Minor	3
Gen Ed	General Education Courses	3
		<b>Credits</b>

<b>Year Two</b>		
<b>Fall</b>		
ENVS 200	Writing the Environment	3
HWTR 398	Headwaters Conference	1
Elective	Elective/Minor	6
Gen Ed	Arts & Humanities and Social Sciences	3
Gen Ed	Natural Sciences	3
		<b>Credits</b>

<b>Spring</b>		
ECON 215	Environmental Economics	3
Gen Ed	Arts & Humanities and Social Sciences	6
Elective	Elective/Minor	6
		<b>Credits</b>

<b>Year Three</b>		
<b>Fall</b>		
ENVS 301	Science of Sustainability and Resilience	3



ENVS 350	U.S. and Western Environmental Politics	3
Elective	Elective/Minor	9
		Credits 15
<b>Spring</b>		
ENVS 360 or ENVS 370 or ENVS 373	Global Environment Policy or Water Policy and Politics or The Water Planet	3
Elective	Elective/Minor	9
		Credits 12
<b>Summer</b>		
ENVS 499	Internship in Environmental Studies (recommended, but optional)	1-6
		Credits 1-6
<b>Year Four</b>		
<b>Fall</b>		
ENVS 410	Environmental Ethics	3
Elective	Elective/Minor	12
		Credits 15
<b>Spring</b>		
ENVS 400	Applied Sustainability	3
Elective	Elective/Minor	12
		Credits 15
		Total 118-123 Credits

## Environment and Sustainability Minor

A minimum of 18 credits is required for a Minor in Environment and Sustainability including twelve credits of ENVS or HWTR electives, and the following:

Code	Title	Credits
Select 12 credits of ENVS or HWTR electives		12
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3
Total Credits		18

## Environmental Management Emphasis (with a 3+2 Master in Environmental Management)

The Environmental Management emphasis allows students to complete the B.A. in Environment and Sustainability (ENVS) and the Master in Environmental Management (MEM) at Western in five years. To remain qualified for the 3+2, upon earning 66 credits each student must have:

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. Upon meeting the requirements above, and after Junior Year (reaching 91 credits in this plan—see "MAJOR MAP" at [western.edu/3\\_2](http://western.edu/3_2) ([http://western.edu/3\\_2/](http://western.edu/3_2/))) holding to the same GPA and general performance standards outlined above, the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Upon completion of the final 29 credits of the Western B.A. in Year Four of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still have completed the undergraduate emphasis in Environmental Management and have earned the 120 credits necessary for a Western undergraduate degree.

## Program Requirements

A minimum of 65 credits is required for the B.A. components of the emphasis.

Code	Title	Credits
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3
ENVS 301	Science of Sustainability and Resilience	3
ENVS 350	U.S. and Western Environmental Politics	3
ENVS 390	Environmental Monitoring	4
ENVS 400	Applied Sustainability	3
ENVS 410	Environmental Ethics	3
ENVS 499	Internship in Environmental Studies	3
Required supporting courses		
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environmental Biology Laboratory (GT-SC1)	1
ECON 215	Environmental Economics	3
PHYS 125	Energy and the Environment (GT-SC2)	3

Select one of the following:	3
ENVS 360 Global Environmental Policy	
ENVS 370 Water Policy and Politics	
GEOG 340 Introduction to Geographic Information Systems	
Select one of the following:	1
HWTR 200 This Is The Headwaters	
HWTR 398 Headwaters Conference	
Select one of the following:	3
ECON 216 Statistics for Business and Economics	
MATH 113 Statistical Thinking (GT-MA1)	
MATH 213 Probability and Statistics	
SOC 211 Quantitative Research Methods	
<b>Core MEM Courses</b>	
ENVS 601 Introduction to Environmental Management	5
ENVS 605 Science of Environmental Management	3
ENVS 608 Environmental Politics and Policy	3
ENVS 611 Integrative Skill in Environmental Management	3
ENVS 612 Quantitative in Environmental Management	3
ENVS 615 Science of Climate Mitigation and Adaptation	3
Select one of the following from the MEM Emphases:	3
<b>Sustainable and Resilient Communities Emphasis:</b>	
ENVS 616 Environmental Organization Development and Management	
<b>Global Sustainability Emphasis:</b>	
ENVS 617 Global Sustainability	
<b>Integrative and Public Land Management Emphasis:</b>	
ENVS 618 Public Lands Management	
<b>Total Credits</b>	<b>65</b>

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

### Capstone Course Requirement

The following course in the Environment and Sustainability Major fulfills the capstone course requirement: Applied Sustainability.

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Sample Major Map: B.A. in Environment and Sustainability & MEM (3+2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
BIOL 130 & BIOL 135	Environment Biology (GT-SC2) and Environment Biology Laboratory (GT-SC1)	4
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
Elective	Elective	6
		<b>Credits</b>
		17
<b>Spring</b>		
ENVS 200	Writing the Environment	3
PHYS 125	Energy and the Environment (GT-SC2)	3
MATH 113	Statistical Thinking (GT-MA1)	3
Gen Ed	Social Sciences	6
		<b>Credits</b>
		15
<b>Year Two</b>		
<b>Fall</b>		
ENVS 301	Science of Sustainability and Resilience	3
HWTR 398 or HWTR 200	Headwaters Conference or This Is The Headwaters	1
Gen Ed	Other General Education Courses	6
Elective	Electives	6
		<b>Credits</b>
		16
<b>Spring</b>		
ENVS 350	U.S. and Western Environmental Politics	3
ECON 215	Environment Economics	3
Elective	Electives	3

Gen Ed	General Education Courses	6	ENVS 616 or ENVS 617 or ENVS 618	Environment Organization Development and Management or Global Sustaina or Public Lands Manager	3
		Credits			15
<b>Summer</b>					
ENVS 499	Internship in Environment Studies <sup>1</sup>	3			
		Credits			3
<b>Year Three</b>					
<b>Fall</b>					
ENVS 390	Environment Monitoring	4	ENVS 400	Applied Sustainability	3
GEOG 340 or ENVS 370	Introduction to Geographic Information Systems <sup>2</sup> or Water Policy and Politics	3			
		Credits			12
<b>Summer</b>					
ENVS 410	Environment Ethics	3	ENVS 690	MEM Project Development	5
Gen Ed	General Education Courses	3			
		Credits			5
<b>Year Five</b>					
<b>Fall</b>					
ENVS 360	Global Environmental Policy <sup>3</sup>	3	ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management	3
Gen Ed	General Education Courses	3			
Elective	Electives	6			
		Credits			12
<b>Summer</b>					
ENVS 601	Introduction to Environmental Management	5	ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management	3
		Credits			5
<b>Year Four</b>					
<b>Fall</b>					
ENVS 605	Science of Environmental Management	3	ENVS 694	Master's Project and Portfolio	3
ENVS 608	Environment Politics and Policy	3			
ENVS 611	Integrative Skill in Environmental Management	3			
Elective	Elective	3			
		Credits			12
<b>Spring</b>					
ENVS 612	Quantitative in Environment Management	3			
ENVS 615	Science of Climate Mitigation and Adaptation	3			
		Credits			9

## Spring

ENVS 620  
or ENVS 625  
or ENVS 623

3 Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management

ENVS 694	Master's Project and Portfolio	3
ENVS 694	Master's Project and Portfolio	3
		Credits 9
		Total Credits 143

- 1 66 credit mark completed. Submit 3+2 application materials by July 1.
- 2 or Elective to Global Env Policy (if ENVS 370 Water Policy and Politics or GIS has not been taken.)
- 3 Take ENVS 370 Water Policy and Politics if ENVS 360 Global Environmental Policy has not been taken.

## Environmental Science

Environmental science, by its broad scope, includes a diverse range of disciplines in the natural and physical sciences, and mathematics. The multidisciplinary Environmental Science minor is intended to complement many majors. The minor will encourage students to better understand environmental issues and concepts from a scientific perspective. This will broaden their perception of the natural world and society by allowing them to recognize and address the challenges of the future. The minor enhances both career and graduate school opportunities for students who complete it.

- Environmental Science Minor (p. 165)

## Biology Courses

### BIOL 120. Studies in Biology (GT-SC2). (3 Credits)

An introduction to selected biological topics and the methods of science through an exploration of current topics such as evolution, bioethics and conservation biology. Students may only take this course once for credit. GT-SC2

### BIOL 130. Environmental Biology (GT-SC2). (3 Credits)

An introduction to basic biological principles as they apply to interactions between organisms and their environment. Consideration is given to biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics, and evolution with a special emphasis on human impacts on these biological systems. This course establishes a strong foundation in applied biology from a scientific perspective. GT-SC2

### BIOL 135. Environmental Biology Laboratory (GT-SC1). (1 Credit)

An experimental approach in both the field and laboratory to explore fundamental biological principles including biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics and evolution. Additional course fee applies. Prerequisite or corequisite: BIOL 130. GT-SC1

### BIOL 150. Biological Principles (with laboratory) (GT-SC1). (4 Credits)

An introduction to the central unifying concepts of biology including the biochemical foundations of life, cell structure and function, cell metabolism, genetics, and evolution. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English. GT-SC1

### BIOL 151. Diversity and Patterns of Life (with laboratory). (4 Credits)

An overview of organismal diversity and evolution. Through a taxonomic survey, students are introduced to prokaryotic and eukaryotic diversity and evolution including microorganisms, fungi, plants, and animals. Fundamentals of evolution including the history of life, evidence for common ancestry, mechanisms of evolutionary change, and speciation are covered. Organismic structure, function, and ecology are also explored. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English.

### BIOL 197. Special Topics. (1-6 Credits)

### BIOL 200. Environmental and Public Health (GT-SC2). (3 Credits)

An appraisal of man's surroundings which influence his health, including an introduction to the societal structure designed to cope with health problems. Of particular benefit to those who plan to major in the social sciences or enter the field of public health. GT-SC2

### BIOL 201. Introduction to Microbiology (with laboratory). (4 Credits)

A study of the basic aspects of microbiology for allied health students that includes an introduction to the identification, physiology, growth and control of microbes. Laboratory exercises will emphasize aseptic, pure culture, and identification techniques. This course can only be used to fulfill graduation requirement for students in the allied health biology emphasis. Additional course fee applies.

### BIOL 292. Independent Study. (1-4 Credits)

### BIOL 297. Special Topics. (1-6 Credits)

### BIOL 300. Basic Nutrition. (3 Credits)

An introduction to the science of human nutrition. Consideration is given to the chemical nature and functions of the major groups of nutrients, the function of the digestive system, energy metabolism and balance, weight control, and nutrition for fitness. Human nutrition during the life span is also addressed. Prerequisites: BIOL 150; and CHEM 101 or CHEM 111.

### BIOL 301. General Ecology. (3 Credits)

An introduction to basic ecological principles and their relationships to natural systems. Human impact on the natural systems is assessed. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: COM 202.

**BIOL 302. Ecology Laboratory and Recitation. (2 Credits)**

An experimental approach in both field and laboratory to explore fundamental ecological principles. Students gather and analyze data to address ecological hypotheses, learn practical ecological skills (performing field techniques, using statistical and graphical tools, and interpreting ecological software), and develop oral and written communication skills. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and CHEM 113. Prerequisite or corequisite: BIOL 301.

**BIOL 310. Cell Biology. (3 Credits)**

An introduction to cellular function and structure. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: CHEM 231 or CHEM 331; and COM 202.

**BIOL 312. Genetics (with recitation). (4 Credits)**

A course in Mendelian inheritance, linkage, chromosomal aberrations, molecular genetics, gene regulation, genetic engineering, and population genetics. Prerequisites: BIOL 301, BIOL 310, CHEM 231, and CHEM 234; or CHEM 331.

**BIOL 313. Cell and Genetics Laboratory. (2 Credits)**

An introduction to experimentation and laboratory techniques used in cell biology, physiology, and genetics, including experimental design, data analysis, and presentation of research results. Additional course fee applies. Prerequisite or corequisite: BIOL 312.

**BIOL 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. BIOL 317 and MATH 317 cannot both be taken for credit. Prerequisites: BIOL 312 and MATH 213.

**BIOL 320. Ornithology (with laboratory and recitation). (4 Credits)**

An introduction to the study of bird evolution, ecology, and conservation. This course has a strong field component providing frequent opportunities to observe birds in their native environments. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission

**BIOL 322. Mammalogy (with laboratory and recitation). (4 Credits)**

An introduction to the study of mammal taxonomy, evolution, ecology and conservation. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 327. Field Entomology (with laboratory). (4 Credits)**

An introduction to the world of the most diverse and abundant form of animal life on Earth through an experiential, field, and laboratory class. The course emphasizes field study, collection and preservation, identification, ecology, and natural history. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 342. Microbiology (with laboratory). (4 Credits)**

An introduction to microbial morphology, identification, physiology, genetics, and microbiology laboratory techniques. A brief consideration is given to fungi. Additional course fee applies. Prerequisites: Biology Nucleus

**BIOL 352. Botany (with laboratory). (4 Credits)**

Using field and laboratory experiences this course explores the diversity within the plant kingdom using a comparative approach to examine evolutionary trends and relationships. Students are introduced to the structure and function of plants through an investigation of plant cells, tissues, organs, and basic physiological processes. Economic importance, human uses, and significance of plants to society are emphasized. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and ENG 102; or instructor permission.

**BIOL 353. Rocky Mountain Flora. (3 Credits)**

A field and laboratory course focusing on identification of flowering plants common to the Western Slope of the Colorado Rocky Mountains. This course covers methods of plant collection and preservation, field identification, natural history, and ecology as well as local plants of particular human interest, including those that are medically important, edible, and poisonous. Additional course fee applies. Prerequisites: BIOL 150 and BIOL 151; or instructor permission.

**BIOL 355. Spring Fungi Rocky Mountains (with laboratory). (3 Credits)**

An introduction to the enigmatic kingdom of Fungi. Fungal classification, life cycles, morphology, development, symbioses, and ecological and economic significance will be explored through lecture, lab, and field experiences. Methods of fungal collection, preservation, and identification will be covered with a focus on spring and snowbank fungi of the Rocky Mountains. Prerequisites: BIOL 150 and 151.

**BIOL 362. Evolution. (3 Credits)**

This course provides a comprehensive overview of evolutionary processes, mechanisms, and analytical techniques. Topics include population genetics, conservation genetics, phylogenetic analysis, adaptation, behavioral evolution, sexual selection, and speciation. Evolutionary perspectives in human health and medicine, conservation biology, agriculture, natural resource management, biotechnology, global change, and emerging diseases are considered. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or Both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 372. Human Anatomy and Physiology I (with laboratory). (4 Credits)**

An introduction to regulatory mechanisms which maintain normal body function. Specific topics include cytology, histology, integumentary system, skeletal system, muscular system, and nervous system. The course is designed for pre-nursing and exercise and sport science students. Additional course fee applies. Prerequisites: BIOL 150; CHEM 231 or CHEM 111.

**BIOL 373. Human Anatomy and Physiology II (with laboratory). (4 Credits)**

A continuation of BIOL 372 Human Anatomy and Physiology I. Specific topics include immunology, cardiovascular system, respiratory system, digestive system, excretory system, reproductive system, and endocrine system. Additional course fee applies. Prerequisite: BIOL 372.

**BIOL 392. Independent Study in Biology. (1-4 Credits)**

A study in a specific area of biology under the direction of a faculty member. May be taken for a maximum of four credits. Graded Satisfactory/Unsatisfactory only.

**BIOL 397. Special Topics. (1-10 Credits)**



**BIOL 398. Biology Teaching Practicum. (1 Credit)**

Under faculty supervision, students participate in the development of laboratory and field experience exercises, as well as in their instruction and execution. Specifically designed for students serving as teaching assistants in Biology. May be taken for a maximum of 3 credits. Graded Satisfactory/Unsatisfactory only. Prerequisite: Biol 150, Biol 151, and instructor permission

**BIOL 420. Molecular Biology (with laboratory). (4 Credits)**

A study of the molecular mechanisms by which cellular processes are controlled in prokaryotic and eukaryotic cells. Topics include the biochemistry of macromolecular processes, the structure of genes and chromosomes, the genetic and molecular techniques used to study gene expression, and the transcriptional and translational control of gene expression. The laboratory includes recombinant DNA techniques to manipulate the genome of a model organism. Additional course fee applies. Prerequisites: BIOL 312 and CHEM 471.

**BIOL 430. Wildlife Ecology and Management (with laboratory). (4 Credits)**

Principles of ecology are applied to population and habitat management towards wildlife conservation. Tools used by wildlife biologists to restore endangered species, harvest sustainable populations, reduce overpopulated species, and to monitor and study populations are emphasized. Habitat management approaches are discussed, along with human dimensions in wildlife conservation. A field component allows students to investigate wildlife populations and habitat issues in the Gunnison Basin. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 431. Wildlife Techniques Workshop. (1 Credit)**

A one week intensive field course focuses on wildlife conservation issues and wildlife management techniques such as trapping and marking wildlife, radio telemetry, population monitoring, GPS and GIS, and wildlife conflict resolution. The course includes a trip outside the basin; a field trip course fee is required. This course meets the week prior to the start of the fall semester. Prerequisite: BIOL 301 or instructor permission. Co-requisite: BIOL 430.

**BIOL 435. Animal Behavior. (3 Credits)**

An introduction to the study of animal behavior. This course emphasizes the importance of ecology and evolution in understanding animal behavior. Prerequisites: Biology Nucleus or instructor permission.

**BIOL 440. Conservation Biology. (3 Credits)**

This course addresses the reduction in biological diversity of the planet and suggested solutions to prevent further reduction. Integrating themes are drawn from scientific disciplines such as population genetics, ecology, evolutionary biology, botany, zoology, molecular biology, biochemistry, and wildlife management. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 444. Colorado Ecoregions. (3 Credits)**

A survey of the three main ecoregions of Colorado including the Great Plains, the Southern Rocky Mountains, and the Colorado Plateau. Students travel throughout Colorado and explore the ecology and natural history of the ecosystems by hiking, backpacking, and river rafting. Content includes an evolutionary perspective on ecosystem features and the adaptations of species characterizing each system, as well as applied issues in natural resources management. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 454. Developmental Biology (with laboratory). (4 Credits)**

An examination of the embryology of vertebrates, stressing mammalian embryonic development and comparisons with amphibians, reptiles, and birds. Additional course fee applies. Prerequisites: Biology 312.

**BIOL 467. Fisheries Biology. (3 Credits)**

An introduction to the science underlying fisheries and their management. Topics will include the morphology, evolution, ecology, behavior and conservation of fishes, including experimental design, data analysis and communication of results focusing primarily on freshwater fisheries and common fishes of Colorado. Marine fisheries will be covered briefly. Prerequisites: BIOL 301 or instructor permission.

**BIOL 474. Comparative Animal Physiology (with laboratory). (4 Credits)**

An analysis of function in invertebrates and vertebrates, utilizing an environmental approach and emphasizing evolutionary trends in physiological systems. Prerequisites: Biology Nucleus and PHYS 140 or PHYS 170 or PHYS 200.

**BIOL 476. Aquatic Ecology (with laboratory). (4 Credits)**

A study of physical, chemical, and biological parameters of lakes and streams in the functioning of freshwater eco-systems. Additional course fee applies. Prerequisites: Biology Nucleus and SCI 202; or instructor permission.

**BIOL 477. Plant Ecology (with laboratory). (3 Credits)**

An introduction to plant populations and communities, including their role within terrestrial ecosystems. Additional course fee applies. Prerequisites: Biol 301; or instructor permission

**BIOL 481. Forest Ecology (with laboratory). (4 Credits)**

Ecology of forest species, communities, landscapes, and ecosystems, with a focus on the Gunnison Basin. Topics include tree physiology, species interactions, fire and disturbance, succession, forest types, climate, forest management and restoration. Labs and field trips will provide hands-on experience and practical skills in tree identification, forest mensuration, vegetation sampling, statistics and GIS. Students will develop and conduct independent/group research projects. Additional course fee applies. Prerequisites: BIOL 301, MATH 213

**BIOL 492. Independent Study. (1-4 Credits)****BIOL 495. Senior Seminar. (1 Credit)**

An examination of biological subdisciplines through an investigation of the primary literature. The professional practices, procedures, and standards of the subdiscipline are discussed. This course may be repeated for credit and must be taken twice to fulfill the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 496. Senior Thesis. (2-4 Credits)**

An advanced research experience resulting in a Senior Thesis, supervised by a thesis committee of three faculty members including at least one biologist. A proposal of the project must be approved by the thesis committee prior to project initiation. In addition to completing the written thesis, students must present the results of their work in a departmental seminar. This course satisfies the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 497. Special topics. (1-6 Credits)**



## Chemistry Courses

### **CHEM 100. Contemporary Chemistry (GT-SC2). (3 Credits)**

An introductory course which addresses the basic facts and principles of chemistry, as well as the history of chemistry, practical aspects of chemistry, and relevance of chemistry. Topics covered in the course are dependent on the instructor and contemporary events. This course is designed for non-science majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

### **CHEM 101. Introduction to Inorganic Chemistry (GT-SC2). (3 Credits)**

A survey of inorganic chemistry, with an emphasis on chemical principles, atomic theory, periodic law, chemical equilibrium, equations, solutions, and descriptive chemistry of the elements. This course is designed for non-majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

### **CHEM 111. General Chemistry I (GT-SC2). (3 Credits)**

An introductory course designed for science majors focusing on principles and applications of chemistry. Previous experience with chemistry is expected. Topics covered are stoichiometry, bonding models, intermolecular forces, and periodic trends. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test score of 280 or above; or corequisite MATH 140 and ACT math score of 21 or above or SAT math score of 540 or above or Accuplacer Advanced Algebra and Functions test score of 245 or above; or instructor permission. GT-SC2

### **CHEM 112. General Chemistry Laboratory I (GT-SC1). (1 Credit)**

An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 111. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Corequisite: CHEM 111. GT-SC1

### **CHEM 113. General Chemistry II. (3 Credits)**

A continuation of CHEM 111. Topics covered are thermodynamics, kinetics, equilibrium, electrochemistry, and nuclear chemistry. Prerequisite: CHEM 111 with a minimum grade of C-.

### **CHEM 114. General Chemistry Laboratory II. (1 Credit)**

A continuation of CHEM 112. An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 113. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Prerequisite: CHEM 112. Corequisite: CHEM 113.

### **CHEM 121. General Chemistry for Engineers. (3 Credits)**

A single semester general chemistry course designed for engineering students. Previous experience with chemistry is expected. Topics include atomic structure, bonding models, stoichiometry, states of matter, intermolecular forces, thermodynamics (including calorimetry, enthalpy, entropy and Gibbs free energy), and equilibrium. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer university-level mathematics test score of 65 or above.

### **CHEM 197. Special Topics. (1-6 Credits)**

Special Topics.

### **CHEM 231. Introduction to Organic Chemistry and Biochemistry. (3 Credits)**

A descriptive survey course which introduces the essential topics and applications of organic chemistry and biochemistry. The course is designed for non-majors who need the second semester of a one-year chemistry core that includes general, organic, and biochemistry. This course may not be counted for credit toward the Chemistry Major or Minor. Prerequisite: CHEM 101 or CHEM 113.

### **CHEM 234. Introductory Organic and Biochemistry Laboratory. (1 Credit)**

An introductory laboratory to accompany CHEM 231. Experiments focus on reactions of organic functional groups, organic synthesis, and the chemistry of biological molecules. This course may not be counted for credit toward the Chemistry Major or Minor. Additional course fee applies. Prerequisite or corequisite: CHEM 231.

### **CHEM 292. Independent Study. (1-6 Credits)**

### **CHEM 297. Special Topics. (1-6 Credits)**

Special topics.

### **CHEM 302. Chemical Information Literacy and Communication. (3 Credits)**

In this course designed for chemistry majors, students learn about the organization of the chemical literature, important resources for navigating the literature of chemistry, and methods for selecting the most appropriate resources. Students will work on effective written, oral and graphical communication for chemistry and the sciences. Prerequisites: COM 202, CHEM113 and CHEM114.

### **CHEM 306. Analytical Chemistry (with laboratory). (4 Credits)**

A lecture/laboratory course involving principles, techniques and calculations involved with quantitative analysis of substances. Includes solution chemistry, gravimetric, volumetric, redox, and pH determinations. Additional course fee applies. Prerequisites: CHEM 113 and CHEM 114.

### **CHEM 331. Organic Chemistry I. (3 Credits)**

First semester course of a two semester organic chemistry sequence. This course is an in depth study of saturated and unsaturated hydrocarbons. Topics include their naming, electronic structure, bonding, reactivity, stereochemistry, and reaction mechanisms Prerequisite: CHEM 113.

### **CHEM 332. Organic Chemistry II. (3 Credits)**

A continuation of CHEM 331. This course discusses spectroscopic analysis, physical, and chemical properties of organic functional groups. Emphasis includes synthesis, mechanisms, and reactions of aromatic compounds, carbonyl containing compounds, and amines. Prerequisite: CHEM 331.

### **CHEM 334. Organic Chemistry Laboratory I. (1 Credit)**

An accompanying laboratory course for CHEM 331, serving as an introduction to basic macro-and micro- scale organic techniques used to separate, isolate, and characterize organic compounds. Methods utilized include distillation, extraction, chromatography, Infrared (IR) spectroscopy. Additional course fee applies. Prerequisite: CHEM 114. Corequisite: CHEM 331.

### **CHEM 335. Organic Chemistry Laboratory II. (1 Credit)**

This lab is a continuation of CHEM 334, with an expansion in scope that allows incorporation of more complex synthetic problems. The lab will employ the use of thin layer chromatography (TLC) to follow reaction progress along with NMR spectroscopy to determine reaction outcomes. Additional course fee applies. Prerequisite: CHEM 334. Corequisite: CHEM 332.

**CHEM 397. Special Topics. (1-6 Credits)**

Special Topics

**CHEM 406. Instrumental Analysis (with laboratory). (4 Credits)**

A lecture/laboratory course examining the theory and techniques of instrumental methods of quantitative analysis, including spectrophotometric methods, electrochemical methods, and chromatography. Additional course fee applies. Prerequisite: CHEM 306

**CHEM 451. Physical Chemistry I. (3 Credits)**

A detailed study of thermodynamics, phase equilibria, kinetic theory and chemical kinetics. Prerequisites: CHEM 113, MATH 251, and PHYS 201

**CHEM 452. Physical Chemistry II. (3 Credits)**

A continuation of CHEM 451, which examines quantum chemistry, atomic, and molecular structure and spectra, photochemistry, and statistical mechanics. Offered in alternate years. Prerequisites: CHEM 451.

**CHEM 454. Physical Chemistry Laboratory. (2 Credits)**

An experimental-techniques course in physical chemistry (including computer-assisted instruction), with emphasis on thermodynamics, chemical kinetics, quantum chemistry, statistical mechanics, and spectroscopy. Offered in alternate years. Additional course fee applies. Corequisite: CHEM 452 or PHYS 452.

**CHEM 461. Advanced Inorganic Chemistry. (3 Credits)**

Inorganic chemistry based on principles of bonding, structure, and reaction mechanisms. Chemistry of representative and transition elements and their compounds are covered. Offered in alternate years. Prerequisites: CHEM 113, CHEM 302, and MATH 251.

**CHEM 471. Biochemistry I. (3 Credits)**

Overview of the aqueous environment and its effects on solutes, including biomolecules. Other subject matters include the chemistry of proteins, carbohydrates, and lipids; the mechanisms and kinetics of enzymes; and the stoichiometry and chemistry underlying core metabolic processes, energy production, cellular respiration and the regulation of these processes. Prerequisites: BIOL 150 and CHEM 332

**CHEM 472. Biochemistry II. (3 Credits)**

A continuation of CHEM 471. The course integrates the study of metabolic processes and regulation to the synthesis of lipids and other biologically important molecules. Topics include membranes and molecular transport, biosignaling and receptors, hormonal regulation of metabolism, amino acid and nucleic acid synthesis, and nitrogen metabolism. Plant biochemistry, including photosynthesis and carbohydrate production are introduced as well. Prerequisite: CHEM 471

**CHEM 474. Biochemistry Laboratory. (2 Credits)**

Biochemical techniques laboratory course involving analytical experiments with proteins, nucleic acids and other biological molecules. Basic spectrophotometric techniques are introduced and utilized in biochemical research applications. Molecular separations using a variety of chromatographic techniques to purify and characterize enzymes from both native tissues and recombinant enzymes produced from bacterial systems are performed. Additional course fees apply. Prerequisite/ Corequisite: CHEM 471

**CHEM 494. Research Problem in Chemistry. (1-4 Credits)**

An advanced, supervised laboratory or literature research experience involving methods of chemical research in an area of analytical, physical, organic, or biochemistry. A research paper and oral presentation of research results is required. Prerequisite: CHEM 302.

**CHEM 497. Special Topics. (1-6 Credits)**

Special Topics

## Environmental Science Minor

A minimum of 23 credits is required including:

Code	Title	Credits
One of the following:		3-4
MATH 151	Calculus I (GT-MA1)	
MATH 213	Probability and Statistics	
Select at least 13 credits chosen from at least three disciplines (including two labs) from the following:		13
BIOL 130	Environmental Biology (GT-SC2)	
BIOL 135	Environmental Biology Laboratory (GT-SC1)	
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
CHEM 111	General Chemistry I (GT-SC2)	
CHEM 112	General Chemistry Laboratory I (GT-SC1)	
CHEM 113	General Chemistry II	
CHEM 114	General Chemistry Laboratory II	
GEOL 101	Physical Geology (GT-SC2)	
GEOL 105	Physical Geology Laboratory (GT-SC1)	
PHYS 120	Meteorology (GT-SC2)	
PHYS 125	Energy and the Environment (GT-SC2)	
Select at least six credits chosen from the following but cannot count toward another minor or another major:		6
BIOL 301	General Ecology	
BIOL 302	Ecology Laboratory and Recitation	
BIOL 440	Conservation Biology	
CHEM 231	Introduction to Organic Chemistry and Biochemistry	
CHEM 234	Introductory Organic and Biochemistry Laboratory	
CHEM 306	Analytical Chemistry (with laboratory)	
ENVS 373	The Water Planet	
ENVS 390	Environmental Monitoring	
GEOL 240	Introduction to Petroleum and Mining Geology	
GEOL 320	Geomorphology (with laboratory)	
And the following:		1
SCI 400	Environmental Science Seminar	
Total Credits		23-24

## Exercise and Sport Science (ESS)

The Exercise and Sport Science (ESS) program is designed to prepare a diverse student population for professional careers across the allied health, sport, fitness, wellness, and educational domains. Students are able to pursue comprehensive degrees in Clinical Exercise Science, Clinical Exercise Physiology with High Altitude Exercise Physiology (HAEP 3+2), Health & Fitness, K-12 Physical Education, and Sport & Fitness Management. In addition, the program offers a standard Exercise & Sport Science emphasis as well as minors in Exercise & Sport Science, Sport Psychology, and K-12 Physical Education. The program also provides students with the requisite foundational knowledge required to complete professional certifications and/or pursue graduate degrees in diverse fields such as: physical therapy, exercise physiology, athletic training, cardiac rehabilitation, chiropractic medicine, sport and exercise psychology, physical education, and sport management. Members of the ESS faculty are dedicated to the provision of high-quality instruction,

impactful and unique experiential learning opportunities, and the development of meaningful faculty-student relationships.

- Exercise and Sport Science Comprehensive Major: Clinical Exercise Physiology Emphasis (with HAEP 3+2) (p. 170)
- Exercise and Sport Science Comprehensive Major: Clinical Exercise Science Emphasis (p. 172)
- Exercise and Sport Science Comprehensive Major: Health and Fitness Emphasis (p. 174)
- Exercise and Sport Science Comprehensive Major: K-12 Physical Education Emphasis (p. 176)
- Exercise and Sport Science Comprehensive Major: K-12 Physical Education Emphasis (with a 3+2 Master of Arts) (<https://catalog.western.edu/undergraduate/programs/exercise-sport-science/exercise-sport-science-comprehensive-k-12-physical-education-3-2/>)
- Exercise and Sport Science Comprehensive Major: Sport and Fitness Management Emphasis (p. 179)
- Exercise and Sport Science Major: Standard Program (p. 181)
- Exercise and Sport Science Minor (p. 183)
- Exercise and Sport Science Minor: Sport Psychology Concentration (p. 183)
- K-12 Physical Education Minor (p. 183)

## Capstone Course Requirement

The following course in the Exercise and Sport Science Major fulfills the capstone course requirement: ESS 495 Senior Seminar in Exercise and Sport Science. Students completing the K-12 Physical Education Emphasis may use EDUC 410 K-12 Student Teaching to fulfill this requirement. Students completing the ESS Standard or the Sport and Fitness Management Standard Emphasis may use ESS 498 Internship in Exercise and Sport Science to fulfill this requirement. Students completing the ESS Clinical Exercise Physiology Emphasis must use ESS 498 Internship in Exercise and Sport Science to fulfill this requirement.

## Exercise and Sport Science Courses

All Exercise and Sport Science service courses (numbered 100-172) are beginner level unless otherwise designated.

- ESS 100. Intercollegiate Athletics: Basketball. (1 Credit)**  
Basketball open to members of the intercollegiate basketball team. May be taken one time for credit. Prerequisite: Coach/instructor permission
- ESS 101. Intercollegiate Athletics: Cross Country. (1 Credit)**  
Intercollegiate Athletics: Cross Country Open to members of the intercollegiate cross country team. May be taken one time for credit. Prerequisite: Coach/ instructor permission
- ESS 102. Intercollegiate Athletics: Football. (1 Credit)**  
Football Open to members of the intercollegiate Football team. May be taken one time for credit. Prerequisite: Coach/ instructor permission
- ESS 103. Intercollegiate Athletics: Indoor Track. (1 Credit)**  
Indoor Track Open to members of the intercollegiate Indoor Track team. May be taken one time for credit. Prerequisite: Coach/ instructor permission
- ESS 104. Intercollegiate Athletics: Outdoor Track. (1 Credit)**  
Open to members of the intercollegiate Outdoor Track team. May be taken one time for credit. Prerequisite: Coach/ instructor permission.

- ESS 105. Intercollegiate Athletics: Volleyball. (1 Credit)**  
Open to members of the intercollegiate Volleyball team. May be taken one time for credit. Prerequisite: Coach/ instructor permission.
- ESS 106. Intercollegiate Athletics: Wrestling. (1 Credit)**  
Open to members of the intercollegiate athletic wrestling team. May be taken one time for credit. Prerequisite: Coach/instructor permission.
- ESS 107. Intercollegiate Athletics: Soccer. (1 Credit)**  
Open to members of the intercollegiate athletic soccer team. May be taken one time for credit. Prerequisite: coach/instructor permission.
- ESS 108. Intercollegiate Athletics: Swimming. (1 Credit)**  
Open to members of the intercollegiate athletic swimming team. May be taken one time for credit. Prerequisite: coach/instructor permission.
- ESS 112. Select Activities in Recreation, Exercise, and Sport Science. (1 Credit)**  
A specific activity is offered as student interest, facilities, faculty, and equipment are available.
- ESS 131. Physical Conditioning. (1 Credit)**  
Off-season conditioning activities for intercollegiate athletes. Students develop the knowledge of how to improve and maintain fitness relevant to their sport during the off-season. Prerequisite: Instructor Permission.
- ESS 132. Weight Training. (1 Credit)**  
The theory and practice of weight training. Information is presented concerning physiological and bio-mechanical adaptations accompanying resistive training, reasonable methods of improving athletic performance, and methods of resistance training that can lead to improved quality of life.
- ESS 135. Mountain Bike Riding. (1 Credit)**  
Students develop general knowledge of and proficiency in the activity, equipment, safety procedures, and terminology of the fundamental skills of mountain bike riding.
- ESS 160. Swimming (Beginning). (1 Credit)**  
An introduction to swimming designed to equip the students with the basic watersafety skills and knowledge needed to be reasonably safe while in, on, or about the water.
- ESS 161. Swimming (Intermediate). (1 Credit)**  
Satisfactory completion of these skills leads to the Red Cross Intermediate and Swimmer's Certificate.
- ESS 170. Lifeguard Training. (2 Credits)**  
Provides the individual with the knowledge and skills designed to save one's own life or the life of another in the event of an emergency, with certification by the American Red Cross.
- ESS 172. Water Safety Instruction. (3 Credits)**  
Satisfactory completion of these skills leads to the Red Cross WSI Certificate.
- ESS 181. Foundations of Exercise and Sport Science. (3 Credits)**  
An introduction to the field of exercise and sport science. An overview of philosophical, historical, and scientific foundations, current trends and issues, professional opportunities, and skills and competencies required for careers in a wide variety of physical activity settings.
- ESS 185. Lifetime Wellness. (3 Credits)**  
Provides conceptual and experiential components designed as a basis for developing a healthier lifestyle.
- ESS 197. Special Topics. (1-6 Credits)**

**ESS 201. Essentials of Human Anatomy and Physiology (with Lab). (4 Credits)**

An introduction to basic anatomy and physiology of all human systems. Lab and lecture are integrated. Prerequisite: Sophomore standing.

**ESS 210. Skill Development and Analysis: Net and Wall Games. (1 Credit)**

Skill development and analysis in net and wall games, including tennis, volleyball, pickleball, handball, and badminton. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

**ESS 211. Skill and Development and Analysis: Invasion Games. (1 Credit)**

Skill development and analysis for invasion games, including soccer, lacrosse, team handball, speedball, basketball, ultimate Frisbee, and flagball. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

**ESS 212. Skill Development and Analysis: Target and Fielding Games. (1 Credit)**

Skill development and analysis for target and fielding games including bowling, archery, golf (traditional and disc), softball, and bocce. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

**ESS 213. Skill Development and Analysis: Dance. (1 Credit)**

Skill development and analysis for a variety of dance forms including fitness, folk, country, social, and ballroom. Learning and application of content in a developmental model. History, terminology, music choices, and safety considerations included.

**ESS 221. Methods of Coaching Football. (2 Credits)**

The fundamental principles and play of football, including a basic defensive and offensive game plan, the fundamentals and techniques involved in coaching football, a basic outline of coaching the quarterback, the moral and ethical responsibilities of the coach to game participants, administration, etc., as well as coaching philosophy and interpretation of the rules.

**ESS 223. Methods of Coaching Basketball. (2 Credits)**

A study of individual fundamentals and techniques, as well as team offensive and defensive patterns and strategies involved in coaching basketball.

**ESS 225. Methods of Coaching Wrestling. (2 Credits)**

An introduction to all phases of wrestling. Fundamental movements and techniques, rule interpretations, and approved coaching ethics are covered.

**ESS 227. Methods of Coaching Track and Field. (2 Credits)**

The techniques and fundamentals of each track and field event. The course also includes the important phase of practical track meet management.

**ESS 229. Methods of Coaching Volleyball. (2 Credits)**

Lecture and discussion with research assignments and practicum work. An understanding of basic offenses (6-0 and 4-2), basic defensive coverage and rotations, service reception, and serving sets are presented.

**ESS 275. Motor Development and Learning. (3 Credits)**

An application of the knowledge of motor development and learning to physical activity across the lifespan. This class introduces the physiological, perceptual, and cognitive, as well as the affective changes that occur in motor development and learning across the lifespan. Prerequisite: ENG 102 with a grade of C- or above.

**ESS 276. Emergency Response. (3 Credits)**

Students are provided essential knowledge and skills needed to develop CPR and advanced first-aid capabilities. For students who might be required to provide first aid frequently and for special interest groups. Exercise and Sports Science majors have first option for this course.

**ESS 282. Principles of Sport and Fitness Management. (3 Credits)**

A focus on the administration of programs within the sport and fitness industries. Topics include administrative theories and concepts, personnel, communication and problem solving, fiscal management, budgeting, ethical considerations, and program evaluation. Prerequisite: ENG 102 with a grade of C- or above, ESS 181, or instructor permission.

**ESS 290. Curriculum Development and the Learning Environment. (3 Credits)**

A comprehensive overview of materials, suggested teaching methods, procedures, techniques, well-directed and well-selected activities, and ways of evaluating physical education in K-12 schools.

**ESS 292. Independent Study. (1-6 Credits)****ESS 297. Special Topics. (1-6 Credits)****ESS 298. Fitness Instruction. (3 Credits)**

Students develop knowledge and skills to plan and implement group fitness classes as well as personal training sessions. Topics include: risk management, exercise plans, group fitness instruction, personal training, fitness pedagogy, training special populations, cardiovascular fitness, resistance training, flexibility training, and core stability. Prerequisite: ESS 201 or BIOL 372.

**ESS 320. Psychology of Sport and Physical Activity. (3 Credits)**

A variety of issues and research areas in the psychology of sport and physical activity are addressed. Topics covered include an overview of the development of sport and exercise psychology, personality theories, exercise and mood, exercise adherence, goal setting, motivation, psychological interventions for athletes, and cohesion theories. Prerequisite: minimum junior standing.

**ESS 330. Exercise Physiology. (3 Credits)**

An emphasis on the theory and principles of exercise physiology to health, physical fitness, and athletic performance in diverse populations. Prerequisites: ESS 201 or both BIOL 372 and BIOL 373; minimum Junior standing.

**ESS 331. Exercise Physiology Lab. (1 Credit)**

Basic laboratory techniques of exercise physiology correlating with ESS 330. Laboratory experiences include aerobic and anaerobic exercise, body composition, strength, flexibility, and body composition and other indicators of exercise. Prerequisites: completion of the College Mathematics course requirement; Corequisite: ESS 330.

**ESS 340. Mental Training for Peak Performance. (3 Credits)**

An application of theories and concepts of sport psychology. This course focuses on application of specific psychological skills necessary for high level performance and assisting students in teaching others those same skills. Prerequisite: ESS 320 or instructor permission.



**ESS 346. Psychology of Coaching. (3 Credits)**

Psychological factors involved in coaching and leadership are explored in this course. Relevant theory and research, as well as practical applications, are discussed. Topics include expert coaching characteristics and behaviors, leadership and motivational styles, the coach-athlete relationship, stresses of coaching, reinforcement strategies, ethics in coaching, and issues related to youth sport coaching. This course is designed for current and future coaches, individuals in leadership roles, as well as anyone interested in the coach's experience. Prerequisites: ESS 320, minimum junior standing or instructor permission.

**ESS 350. Assessment & Technology in Physical Education. (2 Credits)**

Planning, administering, and evaluating standards-based accountability systems in physical education. Multiple assessment strategies for psychomotor, cognitive, and affective learning objectives, using current technologies, are presented. Students evaluate, select and/or construct assessment tools to match specific learning outcomes in the K-12 physical education curriculum. Prerequisites: ESS 181 or ESS 185; and ESS 290 and completion of the University mathematics requirement.

**ESS 353. Coordinated School Health and Physical Activity Programs. (2 Credits)**

Overview of coordinated school health programs with a heavy focus on local wellness policy, comprehensive school health education and the role of physical activity and physical education in schools. Includes 6-8 hours of required field experience. Prerequisites: EDUC 000 and junior standing.

**ESS 355. Psychology of Injury. (3 Credits)**

Psychological factors involved in sport-related injuries and the rehabilitation process. Course content includes relevant theory and research as well as practical applications. Topics include: stress, responses to injury, mental skills used to manage injury (i.e., goal setting, motivation, and confidence), social support, potential psychological problems faced during rehabilitation, and returning to sport after injury. Prerequisites: ESS 320, minimum junior standing or instructor permission.

**ESS 360. Nutrition for Wellness and Performance. (3 Credits)**

A focus on concepts geared to promote peak performance based upon nutritional intake. An understanding of macronutrient ingestion along with other essential nutrients is gained and applied in detail to the healthy and chronically diseased populations. This includes an understanding of the metabolic effect of food. The pros and cons of select supplements are discussed and applied to real-life scenarios. Prerequisites or co-requisites: ESS 330 and ESS 331.

**ESS 363. Inclusive Physical Activity. (3 Credits)**

Students develop knowledge and skills necessary to work with diverse populations in physical activity settings. Content includes planning, instructional design & delivery, assessment, coordination of resources, and advocacy for inclusive physical activity programming. Prerequisites: ESS 185 or ESS 275; and minimum junior standing.

**ESS 365. Topics in Physical Activity. (3 Credits)**

Interdisciplinary study of the role of physical activity under a variety of conditions and settings, and for a variety of populations. Content focuses on current research and practice as it relates to the topic under consideration. Topics will rotate annually. Can be repeated up to three times for credit if a different topic is selected. Prerequisites: ESS 181, ESS 185; ESS 201 or BIOL 372; junior/senior standing.

**ESS 370. Essentials of Strength Training and Conditioning. (3 Credits)**

Exercise prescription and conditioning in the form of resistance training, including the use of free weights, machines, Olympic lifts, and plyometrics. Muscular adaptations to anaerobic and aerobic training, testing and evaluation, exercise techniques, and resistance training program design. Design, implementation, and demonstration of appropriate resistance training routines and proper lifting technique for a variety of populations. Content knowledge aligns with requirements for completion of certification as a Certified Strength and Conditioning Specialist (CSCS) from the National Strength and Conditioning Association (NSCA). Prerequisite: ESS 330 or instructor permission.

**ESS 380. Biomechanics. (3 Credits)**

Investigation and analysis of human movement. Basic mechanical principles of force, motion, and aerodynamics as related to fundamental physical skills and their application to exercise, sport, and physical activity. Prerequisites: ESS 185; ESS 201 or BIOL 372; completion of the University Mathematics course requirement.

**ESS 382. Management of Sport and Fitness Facilities. (3 Credits)**

A study of principles, guidelines and recommendations for planning, construction, and the use and maintenance of indoor and outdoor sports, physical education, recreation, and fitness facilities. Prerequisite: Junior Standing.

**ESS 385. Physical Activity Programming. (3 Credits)**

Topics include an overview of physical activity epidemiology, evidence-based physical activity interventions, behavior change theories, best practices, including use of technology, to increase physical activity among specific populations, and principles in program design, implementation, and evaluation. Students will design and administer a physical activity awareness or educational campaign for a target population. Prerequisite: ESS 185.

**ESS 392. Methods of Secondary Activities. (3 Credits)**

For students planning to obtain licensure in physical education. A variety of curriculum models (e.g., tactical, sport education, social responsibility) are used to present individual, dual and team sport activities. Lesson and unit plans are developed, implemented and assessed in keeping with Colorado and NASPE standards as they relate to secondary physical education. Prerequisites: 2 of the following: ESS 210, 211, 212, 213; ESS 290, minimum junior standing; Prerequisite or corequisite: ESS 350

**ESS 395. Methods of Elementary Activities. (3 Credits)**

Units covered may include apparatus and tumbling, dance, and games. Each unit breaks down into sub-units, and progressions are emphasized. Lesson and unit plans are developed, implemented, and assessed in keeping with national standards and as they relate to elementary physical education. Competencies in the basic skills of each unit are also tested. Prerequisites: two of the following: ESS 210, 211, 212, 213; ESS 290; and minimum junior standing; Prerequisite or corequisite: ESS 350.

**ESS 396. Methods of Alternative Physical Education. (3 Credits)**

Units covered may be: Nordic skiing, rock climbing, orienteering, camping, mountain biking, and adventure activities. Lesson and unit plans are developed, implemented, and assessed in keeping with national standards as they relate to secondary physical education. Prerequisites: ESS 290 and minimum junior standing.

**ESS 397. Special Topics. (1-6 Credits)**

**ESS 405. Practicum in Exercise and Sport Science. (1 Credit)**

Pre-professional experience in a physical activity setting. Such experiences include observing and participating in the professional activities associated with the particular setting. Students work with an Exercise and Sport Science faculty member to select an approved practicum experience, and are required to develop an approved learning contract. May be repeated once for credit (in a different setting). Prerequisites: ESS 181, ESS 185, junior or senior standing.

**ESS 410. Assessment and Exercise Prescription. (3 Credits)**

Students work with assessment formats, appraisal techniques, and metabolic calculations to gain information needed to construct exercise prescriptions designed to meet individual needs for different segments of the population. Prerequisites: ESS 331 and ESS 298 or instructor permission.

**ESS 411. Wellness Elevated I. (3 Credits)**

An opportunity for students to further their knowledge, skills, and abilities in exercise assessment, prescription, programming, implementation and outcome evaluation. Students will develop professional skills of healthcare documentation, communication and program analysis. A commitment of 6 hours per week, clinic time, in addition to weekly class meetings is required. Prerequisite: ESS 410.

**ESS 412. Exercise Biochemistry. (3 Credits)**

Essential concepts of biochemistry – molecular biology, basic chemistry, metabolism, and transcription regulation – as applied to the human during exercise. Prerequisites: ESS 330 and ESS 331.

**ESS 430. Topics in Clinical Exercise Physiology. (3 Credits)**

A study of diseased populations, including, but not limited to, exercise therapy in cardiac and cancer patients. Course content focuses on the etiology and pathophysiology of disease, electrocardiogram and diagnostic stress test interpretation, specialized exercise prescription, and other topics at the discretion of the instructor. Prerequisites: ESS 330 and ESS 331.

**ESS 431. Wellness Elevated II. (3 Credits)**

An opportunity for students to further their expertise in clinical exercise physiology. Students will gain direct experience in exercise assessment, prescription, programming, implementation and outcome evaluation in special population groups. Students will need to commit to 6 hours per week of clinical time (i.e., Wellness Elevated) as well as weekly meeting times. Prerequisite or co-requisite: ESS 430.

**ESS 440. Topics in Sport & Fitness Management. (3 Credits)**

A focus on various managerial functions within sport and fitness management through the study of various theoretical perspectives, the provisions of pre-professional experiences, and distinct topics at the discretion of the instructor. Topics rotate annually. The course may be repeated up to three times if a different topic is offered. Prerequisite: Junior standing or instructor permission.

**ESS 450. Risk Management in Physical Activity Settings. (3 Credits)**

A focus on risk assessment and management for physical activity professionals. Topics covered include risk assessment, standard of care, negligence, forms to limit liability, constitutional law as relevant for physical activity professionals, development of a risk management plan, and risk reduction strategies. Prerequisites: junior or senior standing.

**ESS 490. Sociology of Sport and Physical Activity. (3 Credits)**

A focus on the social organization of sport and physical activity and their relationship to the institutional structure, cultural patterns, and dynamics of American society. Students use different sociological approaches/theories to analyze sport and physical activity and to analyze current issues and problems in sport and physical activity settings. Prerequisite: minimum junior standing.

**ESS 492. Independent Study. (1-4 Credits)**

For qualified upper-level students who have specialized interests in a particular area of advanced study in Exercise and Sport Science.

**ESS 495. Senior Seminar in Exercise and Sport Science. (3 Credits)**

A capstone course required for all ESS majors addressing issues, ethical considerations, problem-solving and decision-making, leadership and communication in the discipline. Students integrate content from their course of study, write and speak in discipline-specific formats, and complete a comprehensive self-assessment in preparation for graduate school, internship, or entry-level job. Prerequisites: ESS 181, ESS 185, senior standing. Students are encouraged to take this course during their final semester.

**ESS 496. Field Experiences. (1-6 Credits)**

Directed field experiences in teaching, coaching, and laboratory settings. Guidelines for the field experiences are provided and agreed upon at the beginning of the course.

**ESS 498. Internship in Exercise and Sport Science. (3-12 Credits)**

An opportunity for in-depth work at a professional site in an area of exercise and sport science. The internship must meet standards of the department and the University, including completion of a pre-internship checklist. Prerequisites: Satisfactory grade in ESS 405, overall GPA of 2.750, department advisor permission, and senior standing.

**ESS 600. Advanced Statistics. (3 Credits)**

Statistical tools for scientific research, including parametric and non-parametric methods for ANOVA and group comparisons, simple linear and multiple linear regression. Emphasis placed on the use of dedicated statistical software.

**ESS 601. Quantitative Research Methods. (3 Credits)**

Research design and methodology in environmental exercise physiology.

**ESS 605. Exercise and Sport Science Testing and Instrumentation-Lab. (3 Credits)**

Techniques of in-lab exercise testing and result interpretation in healthy and/or diseased populations.

**ESS 606. Exercise and Sport Science Testing and Instrumentation-Field. (3 Credits)**

Techniques of field-based exercise testing and result interpretation in healthy and/or diseased populations.

**ESS 612. Exercise Biochemistry. (3 Credits)**

Provides advanced content on research-based findings of how exercise alters biochemical function in skeletal muscle, the liver and adipose tissue. Prerequisite: HAEP graduate standing.

**ESS 630. Clinical Exercise Physiology. (3 Credits)**

Physiological study of acute and chronic responses to exercise in diseased populations.

**ESS 640. Environmental Exercise Physiology I. (3 Credits)**

Principles of exercise physiology in extreme environmental conditions including extreme temperatures, hyper- and hypobarometric pressure, air pollution, sleep deprivation, and zero gravity. Healthy and diseased populations are studied.



**ESS 641. Environmental Physiology II. (3 Credits)**

Advanced research and principles of exercise physiology in extreme environmental conditions including extreme temperatures, hyper- and hypobarometric pressure, air pollution, sleep deprivation, and zero gravity. Healthy and diseased populations are studied. Prerequisite: ESS 640.

**ESS 650. Thesis Proposal Development. (3 Credits)**

Current topics and issues in exercise and sport science and environmental exercise physiology. Seminar topics change each semester. Emphasis may be placed on thesis proposal development and submission of the proposal to Western's Human Research Committee.

**ESS 660. Health Promotion. (3 Credits)**

Development of skills in health promotion program design, implementation and evaluation. Specific emphasis may be placed on healthy and diseased populations in extreme environments.

**ESS 675. Clinical Exercise Programming-Lab. (3 Credits)**

Role of exercise/physical activity in the prevention, pathophysiology and treatment of chronic diseases. Hands on clinical exercising programming experiences.

**ESS 685. Cardiopulmonary Physiology. (3 Credits)**

A foundation course that covers 1) the structure and function of the cardiopulmonary systems; 2) exercise-related physiological changes of the cardiopulmonary system and their applications to exercise training; and 3) pathophysiological changes secondary to cardiopulmonary dysfunction and their effects on function.

**ESS 692. Independent Study. (1-3 Credits)**

Advanced study for students with specialized interest in a particular area of environmental exercise physiology. Prerequisite: advisor permission.

**ESS 695. Thesis. (6 Credits)**

Independent research project, supervised by academic advisor. Prerequisites: second year graduate standing, ESS 650.

**ESS 698. Practicum/ Internship. (1-6 Credits)**

An opportunity for in-depth work at a site in the area of academic concentration. The experiences must meet standards of the department and the University. Prerequisite: advisor permission.

## Exercise and Sport Science Comprehensive Major: Clinical Exercise Physiology Emphasis (with HAEP 3+2)

The Clinical Exercise Physiology Emphasis allows students to complete the BS in ESS and the MS in High Altitude Exercise Physiology (HAEP) at Western in five years. Students in this emphasis must fulfill all the HAEP application requirements by the time they complete 97 credits. Admissions requirements for the HAEP program are listed below.

To remain qualified for the Clinical Exercise Physiology Emphasis, upon earning 65 credits by the end of the second year, the student must have:

- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Completed ESS 181 Foundations of Exercise and Sport Science, ESS 185 Lifetime Wellness, all 100 level major science courses, 21 credits of general education (not including AREA II: Natural Sciences), and the Biology Human Anatomy and Physiology sequence (BIOL 372 Human Anatomy and Physiology I (with laboratory)/BIOL 373 Human Anatomy and Physiology II (with laboratory)).

- Written, submitted and discussed a Letter of Intent with the HAEP program Director and his or her advisor. The Letter of Intent should include preliminary research interests and career goals. This letter will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.

Upon earning 97 credits by the end of the third year, the student must have:

- Completed all undergraduate course requirements for the Clinical Exercise Physiology track (except for ESS 410 Assessment and Exercise Prescription and ESS 412 Exercise Biochemistry, which will be taken in the fall and spring, respectively, of the fourth year). Please note: a student may elect to take ESS 498 Internship in Exercise and Sport Science during the summer before his or her fourth year. See MAJOR MAP at western.edu/ess (<https://www.western.edu/academics/undergraduate/exercise-sport-science/>).
- Completed the GRE with a minimum of 150 for Verbal and Quantitative Reasoning and 4.5 for Analytical Writing. GRE scores will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.
- Requested, and the School of Graduate Studies must have received, two letters of recommendation. At least one letter must be from a Western faculty member. Recommendation letters will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.
- Submitted a current resume. The resume will be kept on file with the School of Graduate Studies in partial fulfillment of the application to the HAEP program.

Upon satisfying all the requirements listed above, the School of Graduate Studies will consider the student a "HAEP candidate with provisional acceptance."

Upon earning 121 credits by the end of the fourth year, the student must have:

- Completed ESS 410 Assessment and Exercise Prescription and ESS 412 Exercise Biochemistry.
- Maintained a 3.0 cumulative GPA and a 3.25 GPA within the major.
- Completed 18 graduate level ESS credits, with at least a 3.0 GPA.

At this time, the School of Graduate Studies will consider the student a "HAEP M.S. degree seeking student."

## Program Requirements

A minimum of 81 credits is required for the BS. The following is required for the Comprehensive Program with Five-Year MS in High Altitude Exercise Physiology, in addition to First Aid/CPR competency, and the following:

Code	Title	Credits
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 298	Fitness Instruction	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
ESS 405	Practicum in Exercise and Sport Science	1
ESS 410	Assessment and Exercise Prescription	3

ESS 412	Exercise Biochemistry	3
ESS 430	Topics in Clinical Exercise Physiology	3
ESS 498	Internship in Exercise and Sport Science	3
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 141	Precalculus (GT-MA1)	4
MATH 213	Probability and Statistics	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
One of the following:		3
BIOL 300	Basic Nutrition	
ESS 360	Nutrition for Wellness and Performance	
<b>Year Four HAEP Requirements (18 credits)</b>		
ESS 600	Advanced Statistics	3
ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumentation-Lab	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3
ESS 640	Environmental Exercise Physiology I	3
ESS 675	Clinical Exercise Programming-Lab	3
Total Credits		81

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete the HAEP program must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the HAEP program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/high-altitude-exercise-physiology/>).

## Sample Major Map and Course Sequence

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1) <sup>1</sup>	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ESS 181	Foundations of Exercise and Sport Science	3

HWTR 100	First Year Seminar	1
MATH 141	Precalculus (GT-MA1)	4
		Credits 16
<b>Spring</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 102	Academic Writing (GT-CO1)	3
ESS 185	Lifetime Wellness	3
Gen Ed	General Education course	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
		Credits 17
<b>Year Two</b>		
<b>Fall</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Elective	Elective course	3
Gen Ed	General Education	6
MATH 213	Probability and Statistics	3
		Credits 19
<b>Spring</b>		
Gen Ed	General Education	9
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
ESS 298	Fitness Instruction	3
		Credits 16
<b>Year Three</b>		
<b>Fall</b>		
Elective	Elective course	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1

ESS 360	Nutrition for Wellness and Performance	3
ESS 405	Practicum in Exercise and Sport Science	1
Gen Ed	General Education	3
		Credits 14
<b>Spring</b>		
ESS 380	Biomechanic	3
ESS 430	Topics in Clinical Exercise Physiology	3
ESS 498	Internship in Exercise and Sport Science	3-12
Elective		6
		Credits 15-24
<b>Year Four</b>		
<b>Fall</b>		
ESS 410	Assessment and Exercise Prescription	3
ESS 601	Quantitative Research Methods	3
ESS 605	Exercise and Sport Science Testing and Instrumentation-Lab	3
ESS 640	Environment Exercise Physiology I	3
		Credits 12
<b>Spring</b>		
ESS 412	Exercise Biochemistry	3
ESS 600	Advanced Statistics	3
ESS 606	Exercise and Sport Science Testing and Instrumentation-Field	3
ESS 675	Clinical Exercise Programming-Lab	3
		Credits 12
Total		121-130
Credits		

<sup>1</sup> BIOL 150 Biological Principles (with laboratory) (GT-SC1), BIOL 151 Diversity and Patterns of Life (with laboratory); CHEM 111 General Chemistry I (GT-SC2), CHEM 112 General Chemistry Laboratory I (GT-SC1), CHEM 113 General Chemistry II, CHEM 114 General Chemistry Laboratory II and PHYS 170 Principles of Physics I (with laboratory) (GT-SC1), PHYS 171 Principles of Physics II (with laboratory) (GT-SC1) satisfy the General Education AREA II: Natural Sciences requirement

<sup>2</sup> PSY 100 General Psychology (GT-SS3) is a requirement for PT and other professional health degrees.

<sup>3</sup> PHYS 170 Principles of Physics I (with laboratory) (GT-SC1) and PHYS 171 Principles of Physics II (with laboratory) (GT-SC1) OR PHYS 200 General Physics I (with laboratory) (GT-SC1) and PHYS 201 General Physics II (with laboratory) (GT-SC1) may be taken in lieu of PHYS 140 Introductory Physics (with laboratory) (GT-SC1)

## Exercise and Sport Science Comprehensive Major: Clinical Exercise Science Emphasis

### Program Requirements

A minimum of 73 credits is required, including the 15-credit Exercise and Sport Science Nucleus:

To graduate, all exercise and sport science majors must complete ESS 181 Foundations of Exercise and Sport Science and ESS 185 Lifetime Wellness with a minimum grade of "C":

Code	Title	Credits
<b>Exercise and Sport Science Nucleus</b>		
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 320	Psychology of Sport and Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Select one of the following ESS Capstone courses: <sup>1</sup>		3
ESS 495	Senior Seminar in Exercise and Sport Science	
EDUC 410	K-12 Student Teaching	
ESS 498	Internship in Exercise and Sport Science	
Total Credits		15

<sup>1</sup> EDUC 410 K-12 Student Teaching is a capstone option for K-12 Physical Education majors seeking Colorado licensure; ESS 498 Internship in Exercise and Sport Science is a capstone option for the ESS Standard Emphasis.

First Aid/CPR competency and the following:

Code	Title	Credits
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 372	Human Anatomy and Physiology I (with laboratory)	4
BIOL 373	Human Anatomy and Physiology II (with laboratory)	4
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ESS 275	Motor Development and Learning	3

ESS 298	Fitness Instruction	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
ESS 410	Assessment and Exercise Prescription	3
ESS 411	Wellness Elevated I	3
ESS 412	Exercise Biochemistry	3
ESS 430	Topics in Clinical Exercise Physiology	3
ESS 431	Wellness Elevated II	3
MATH 140	College Algebra (GT-MA1)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
One of the following:		3
BIOL 300	Basic Nutrition	
ESS 360	Nutrition for Wellness and Performance	
<b>Total Credits</b>		<b>58</b>

### Chiropractic Education

Western has a 3+1 agreement with Palmer College of Chiropractic. Students must complete 90 credits at Western, including General Education and the Clinical Exercise Science Emphasis. Students who meet Palmer's entrance requirements may enroll at one of the three Palmer campuses, and after successful completion of the first year of the D.C. program, receive credit for completion of their fourth year at Western, transferring Palmer credits back to Western in order to complete their undergraduate degree. Appropriate coursework should be taken in consultation with an academic advisor.

Course	Title	Credits
<b>Year One</b>		
	"C" or better required for both ESS 181 and ESS 185 to receive credit toward ESS degree.	
	Credits	0
<b>Fall</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
CHEM 111	General Chemistry I (GT-SC2) Milestone course & prerequisite for BIOL 372.	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
ENG 102	Academic Writing (GT-CO1)	3

MATH 140	College Algebra (GT-MA1)	3
HWTR 100	First Year Seminar	1
Gen Ed	General Education Courses	3
		<b>Credits 17</b>
<b>Spring</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
BIOL 150	Biological Principles (with laboratory) (GT-SC1) Milestone course & prerequisite for BIOL 372.	4
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
Gen Ed	General Education Courses	6
		<b>Credits 17</b>
<b>Year Two</b>		
<b>Fall</b>		
BIOL 372	Human Anatomy and Physiology I (with laboratory) Milestone course. Must achieve a "D" or better to enroll in many higher level ESS classes.	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
PHYS 140	Introductory Physics (with laboratory) (GT-SC1)	4
Gen Ed	General Education Courses	4
		<b>Credits 15</b>
<b>Spring</b>		
ESS 275	Motor Development and Learning	3
ESS 298	Fitness Instruction	3

BIOL 373	Human Anatomy and Physiology II (with laboratory) Milestone course. Must achieve a "D" or better to enroll in many higher level ESS classes.	4
Gen Ed	General Education Courses	6
		Credits 16
<b>Year Three</b>		
<b>Fall</b>		
ESS 320	Psychology of Sport and Physical Activity	3
ESS 330	Exercise Physiology Milestone course. Must achieve a "D" or better to enroll in many higher level ESS classes.	3
ESS 331	Exercise Physiology Lab Milestone course. Must achieve a "D" or better to enroll in many higher level ESS classes.	1
ESS 380	Biomechanic	3
Gen Ed	General Education Courses	6
		Credits 16
<b>Spring</b>		
ESS 276	Emergency Response	3
ESS 410	Assessment and Exercise Prescription	3
ESS 412	Exercise Biochemistry	3
Elective	Elective/ Minor/2nd Minor	6
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
ESS 360	Nutrition for Wellness and Performance	3
ESS 411	Wellness Elevated I	3

ESS 430	Topics in Clinical Exercise Physiology	3
Elective	Elective (upper division) ESS/ Minor/2nd Major	6
		Credits 15
<b>Spring</b>		
Capstone	Senior Sem/ Internship	3
ESS 431	Wellness Elevated II	3
ESS 490	Sociology of Sport and Physical Activity	3
Elective	Elective (upper division) ESS/ Minor/2nd Major	6
		Credits 15
		Total Credits 126

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## Exercise and Sport Science Comprehensive Major: Health and Fitness Emphasis

### Program Requirements

A minimum of 62 credits is required, including the 15-credit Exercise and Sport Science Nucleus:

To graduate, all exercise and sport science majors must complete ESS 181 Foundations of Exercise and Sport Science and ESS 185 Lifetime Wellness with a minimum grade of "C":

Code	Title	Credits
<b>Exercise and Sport Science Nucleus</b>		
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 320	Psychology of Sport and Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Select one of the following ESS Capstone courses: <sup>1</sup>		
ESS 495	Senior Seminar in Exercise and Sport Science	3
EDUC 410	K-12 Student Teaching	3

ESS 498	Internship in Exercise and Sport Science	
<b>Total Credits</b>		<b>15</b>

<sup>1</sup> EDUC 410 K-12 Student Teaching is a capstone option for K-12 Physical Education majors seeking Colorado licensure; ESS 498 Internship in Exercise and Sport Science is a capstone option for the ESS Standard Emphasis.

First Aid/CPR Competency and the following:

Course	Title	Credits
ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	4
ESS 275	Motor Development and Learning	3
ESS 298	Fitness Instruction	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 370	Essentials of Strength Training and Conditioning	3
ESS 380	Biomechanics	3
ESS 385	Physical Activity Programming	3
ESS 410	Assessment and Exercise Prescription	3
ESS 411	Wellness Elevated I	3
ESS 450	Risk Management in Physical Activity Settings	3
One of the following:		3
BIOL 300	Basic Nutrition	
ESS 360	Nutrition for Wellness and Performance	
One of the following:		3
ESS 382	Management of Sport and Fitness Facilities	
ROE 466	Facilities and Administration	
Select three of the following:		9
ESS 340	Mental Training for Peak Performance	
ESS 355	Psychology of Injury	
ESS 363	Inclusive Physical Activity	
ESS 365	Topics in Physical Activity	
<b>Total Credits</b>		<b>47</b>

Course	Title	Credits
<b>Year One</b>		
	"C" or better required for both ESS 181 and ESS 185 to receive credit toward ESS degree.	
	Credits	0
<b>Fall</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
ENG 102	Academic Writing (GT-CO1)	3

HWTR 100	First Year Seminar	1
Gen Ed	General Education Courses	9
	Credits	16
<b>Spring</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
MATH 140	College Algebra (GT-MA1)	3
Gen Ed	General Education Courses	9
	Credits	15
<b>Year Two</b>		
<b>Fall</b>		
ESS 201	Essentials of Human Anatomy and Physiology (with Lab) Milestone course & prerequisite for ESS 330 & Ess 380.	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	General Education Courses	4
Elective	Elective/Minor/2nd Major	3
	Credits	14
<b>Spring</b>		
ESS 275	Motor Development and Learning	3
ESS 276	Emergency Response	3
ESS 298	Fitness Instruction	3
Gen Ed	General Education Courses	4
Elective	Elective/Minor/2nd Major	3
	Credits	16
<b>Year Three</b>		
<b>Fall</b>		
ESS 330	Exercise Physiology milestone	3
ESS 331	Exercise Physiology Lab	1



ESS 360	Nutrition for Wellness and Performance	3
ESS 380	Biomechanic	3
ESS 385	Physical Activity Programming	3
Elective	Elective (upper division) ESS/ Minor/2nd Major	3
		Credits 16
<b>Spring</b>		
ESS 320	Psychology of Sport and Physical Activity	3
ESS 340	Mental Training for Peak Performance	3
ESS 370	Essentials of Strength Training and Conditioning	3
ESS 411	Wellness Elevated I	3
Elective	Elective (upper division) ESS/ Minor/2nd Major	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
ESS 355	Psychology of Injury	3
ESS 405	Practicum in Exercise and Sport Science	1
ESS 410	Assessment and Exercise Prescription	3
ESS 450	Risk Management in Physical Activity Settings	3
Elective	Electives (upper division) ESS/ Minor/2nd Major	6
		Credits 16
<b>Spring</b>		
Capstone	Senior Sem/ Internship	3

ESS 382	Management of Sport and Fitness Facilities	3
ESS 363	Inclusive Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Elective	Electives (upper division) ESS/ Minor/2nd Major	3
		Credits 15
		Total Credits 123

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## Exercise and Sport Science Comprehensive Major: K-12 Physical Education Emphasis Program Requirements

A minimum of 54 credits is required, including the 15-credit Exercise and Sport Science Nucleus:

To graduate, all exercise and sport science majors must complete ESS 181 Foundations of Exercise and Sport Science and ESS 185 Lifetime Wellness with a minimum grade of "C":

Code	Title	Credits
<b>Exercise and Sport Science Nucleus</b>		
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 320	Psychology of Sport and Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Select one of the following ESS Captone courses: <sup>1</sup>		3
ESS 495	Senior Seminar in Exercise and Sport Science	
EDUC 410	K-12 Student Teaching	
ESS 498	Internship in Exercise and Sport Science	
<b>Total Credits</b>		<b>15</b>

<sup>1</sup> EDUC 410 K-12 Student Teaching is a capstone option for K-12 Physical Education majors seeking Colorado licensure; ESS 498 Internship in Exercise and Sport Science is a capstone option for the ESS Standard Emphasis.

First Aid/CPR competency and the following:

Code	Title	Credits
ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	4
ESS 275	Motor Development and Learning	3
ESS 290	Curriculum Development and the Learning Environment	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 350	Assessment & Technology in Physical Education	2
ESS 353	Coordinated School Health and Physical Activity Programs	2
ESS 363	Inclusive Physical Activity	3
ESS 380	Biomechanics	3
ESS 392	Methods of Secondary Activities	3
ESS 395	Methods of Elementary Activities	3
ESS 396	Methods of Alternative Physical Education	3
One of the following:		3
ROE 189	Principles of Outdoor Education	
ESS 298	Fitness Instruction	
Select three of the following:		3
ESS 210	Skill Development and Analysis: Net and Wall Games	
ESS 211	Skill and Development and Analysis: Invasion Games	
ESS 212	Skill Development and Analysis: Target and Fielding Games	
ESS 213	Skill Development and Analysis: Dance	
<b>Total Credits</b>		<b>39</b>

Students seeking Colorado licensure must fulfill the requirements for K-12 Physical Education Licensure (see description under Education).

Course	Title	Credits
<b>Year One</b>		
	"C" or better required for both ESS 181 and ESS 185 to receive credit toward ESS degree.	
	Credits	0
<b>Fall</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1

Gen Ed	General Education Courses	9
		Credits 16
<b>Spring</b>		
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3
ESS 275	Motor Development and Learning	3
MATH 105	Mathematic: for the Liberal Arts (GT-MA1)	3
ESS 210 or ESS 211 or ESS 212 or ESS 213	Skill Development and Analysis: Net and Wall Games or Skill and Development and Analysis: Invasion Games or Skill Development and Analysis: Target and Fielding Games or Skill Development and Analysis: Dance	1

Gen Ed	General Education Courses	6
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	4
ESS 290	Curriculum Development and the Learning Environment	3

ESS 210 or ESS 211 or ESS 212 or ESS 213	Skill Development and Analysis: Net and Wall Games or Skill and Developr and Analysis: Invasion Games or Skill Developr and Analysis: Target and Fielding Games or Skill Developr and Analysis: Dance	1
COM 202	Academic Writing and Inquiry (GT- CO2)	3
Gen Ed	General Education Courses	4
		Credits 15
<b>Spring</b>		
ESS 276	Emergency Response	3
ESS 298 or ROE 189	Fitness Instruction or Principles of Outdoor Education	3
ESS 392 or ESS 395	Methods of Secondary Activities or Methods of Element: Activities	3

ESS 210 or ESS 211 or ESS 212 or ESS 213	Skill Development and Analysis: Net and Wall Games or Skill and Development and Analysis: Invasion Games or Skill Development and Analysis: Target and Fielding Games or Skill Development and Analysis: Dance	1
Gen Ed	General Education Courses	7
		Credits 17
<b>Year Three</b>		
<b>Fall</b>		
ESS 320	Psychology of Sport and Physical Activity	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 353	Coordinated School Health and Physical Activity Programs	2
ESS 380	Biomechanic	3
ESS 396	Methods of Alternative Physical Education	3
		Credits 15
<b>Spring</b>		
ESS 350	Assessment & Technology in Physical Education	2
ESS 363	Inclusive Physical Activity	3
ESS 392 or ESS 395	Methods of Secondary Activities or Methods of Elementary Activities	3

ESS 490	Sociology of Sport and Physical Activity	3
EDUC 340	Application of Pedagogy and Practice	3
		Credits 14
<b>Year Four</b>		
<b>Fall</b>		
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environment	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 410	K-12 Student Teaching	3
		Credits 15
<b>Spring</b>		
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 410	K-12 Student Teaching	3
EDUC 420	Application of Classroom Strategies to Engage All Learners	3
EDUC 424	Differentiated Applying Learner-Centered Instruction	3
		Credits 12
		Total Credits 120
		Credits

Western is committed to doing our part to provide each student a clear path to graduation. This four-year degree plan is a sample map for fulfilling requirements in the major and General Education. The pathway that you take to your degree may differ somewhat from this illustration, depending on where you start and the detours and side trips you may take along the way. You are responsible for ensuring your overall, upper division, and major-specific credits as well as GPA requirements are fulfilled for graduation.

## Exercise and Sport Science Comprehensive Major: Sport and Fitness Management Emphasis Program Requirements

A minimum of 55 credits is required, including the 15-credit Exercise and Sport Science Nucleus:

To graduate, all exercise and sport science majors must complete ESS 181 Foundations of Exercise and Sport Science and ESS 185 Lifetime Wellness with a minimum grade of "C":

Code	Title	Credits
<b>Exercise and Sport Science Nucleus</b>		
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 320	Psychology of Sport and Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Select one of the following ESS Capstone courses: <sup>1</sup>		3
ESS 495	Senior Seminar in Exercise and Sport Science	
EDUC 410	K-12 Student Teaching	
ESS 498	Internship in Exercise and Sport Science	
<b>Total Credits</b>		<b>15</b>

<sup>1</sup> EDUC 410 K-12 Student Teaching is a capstone option for K-12 Physical Education majors seeking Colorado licensure; ESS 498 Internship in Exercise and Sport Science is a capstone option for the ESS Standard Emphasis.

First Aid/CPR competency and the following:

Code	Title	Credits
ACC 201	Introduction to Financial Accounting	3
ACC 202	Introduction to Managerial Accounting	3
ECON 202	Microeconomics	3
ESS 282	Principles of Sport and Fitness Management	3
ESS 385	Physical Activity Programming	3
ESS 405	Practicum in Exercise and Sport Science	1
ESS 440	Topics in Sport & Fitness Management	3
ESS 450	Risk Management in Physical Activity Settings	3
ESS 498	Internship in Exercise and Sport Science	3
MATH 140	College Algebra (GT-MA1)	3
ROE 333	Recreation and Sport Marketing	3
One of the following:		3
BUAD 220	Spreadsheets and Analysis	
CS 120	Professional Computer Skills	
One of the following:		3
ESS 382	Management of Sport and Fitness Facilities	
ROE 466	Facilities and Administration	
<b>Total Credits</b>		<b>37</b>

Course	Title	Credits	Gen Ed	General Education Courses	Credits
<b>Year One</b>					6
	"C" or better required for both ESS 181 and ESS 185 to receive credit toward ESS degree.				
		Credits			15
			<b>Spring</b>		
			ACC 202	Introduction to Managerial Accounting	3
			BUAD 220 or CS 120	Spreadsheet and Analysis or Professional Computer Skills	3
			ECON 202	Microeconomics	3
			Gen Ed	General Education Courses	3
			Elective	Elective/Minor/2nd Major	3
					Credits
					15
<b>Fall</b>					
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3			
ENG 102	Academic Writing (GT-CO1)	3			
HWTR 100	First Year Seminar	1			
Gen Ed	General Education Courses	9			
		Credits			16
<b>Spring</b>					
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3			
MATH 140	College Algebra (GT-MA1) "C" or better required to move on to ACC 201 and ECON 202.	3			
Gen Ed	General Education Courses	9			
		Credits			15
<b>Year Two</b>					
<b>Fall</b>					
ESS 282	Principles of Sport and Fitness Management	3			
ACC 201	Introduction to Financial Accounting "C" or better required to move on to ACC 202.	3			
COM 202	Academic Writing and Inquiry (GT-CO2)	3			
			<b>Spring</b>		
			ESS 382	Management of Sport and Fitness Facilities	3
			ESS 440	Topics in Sport & Fitness Management	3
			ROE 333	Recreation and Sport Marketing	3
			Elective	Elective (upper division) ESS/Minor/2nd Major	6
					Credits
					15
			<b>Year Four</b>		
			<b>Fall</b>		
			ESS 405	Practicum in Exercise and Sport Science	1

ESS 450	Risk Management in Physical Activity Settings	3
ESS 490	Sociology of Sport and Physical Activity	3
Elective	Elective (upper division) ESS/ Minor/2nd Major	9
		Credits 16
<b>Spring</b>		
ESS 440	Topics in Sport & Fitness Management	3
ESS 495	Senior Seminar in Exercise and Sport Science	3
ESS 498	Internship in Exercise and Sport Science	3-12
Elective	Elective (upper division) ESS/ Minor/2nd Major	6
		Credits 15-24
		Total 122-131 Credits

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## Exercise and Sport Science Major: Standard Program

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

### Exercise and Sport Science Emphasis

A minimum of 38 credits is required, including the 15-credit Exercise and Sport Science Nucleus:

To graduate, all exercise and sport science majors must complete ESS 181 Foundations of Exercise and Sport Science and ESS 185 Lifetime Wellness with a minimum grade of "C":

Code	Title	Credits
<b>Exercise and Sport Science Nucleus</b>		
ESS 181	Foundations of Exercise and Sport Science	3
ESS 185	Lifetime Wellness	3
ESS 320	Psychology of Sport and Physical Activity	3
ESS 490	Sociology of Sport and Physical Activity	3
Select one of the following ESS Capstone courses: <sup>1</sup>		
ESS 495	Senior Seminar in Exercise and Sport Science	
EDUC 410	K-12 Student Teaching	
ESS 498	Internship in Exercise and Sport Science	
<b>Total Credits</b>		<b>15</b>

<sup>1</sup> EDUC 410 K-12 Student Teaching is a capstone option for K-12 Physical Education majors seeking Colorado licensure; ESS 498 Internship in Exercise and Sport Science is a capstone option for the ESS Standard Emphasis.

First Aid/CPR competency, and the following:

Code	Title	Credits
ESS 201	Essentials of Human Anatomy and Physiology (with Lab)	4
ESS 275	Motor Development and Learning	3
ESS 330	Exercise Physiology	3
ESS 331	Exercise Physiology Lab	1
ESS 380	Biomechanics	3
Select three of the following: 9		
ESS 282	Principles of Sport and Fitness Management	
ESS 290	Curriculum Development and the Learning Environment	
ESS 340	Mental Training for Peak Performance	
ESS 346	Psychology of Coaching	
ESS 355	Psychology of Injury	
ESS 360	Nutrition for Wellness and Performance	
ESS 363	Inclusive Physical Activity	
ESS 365	Topics in Physical Activity	
ESS 370	Essentials of Strength Training and Conditioning	
ESS 382	Management of Sport and Fitness Facilities	
ESS 385	Physical Activity Programming	
ESS 392	Methods of Secondary Activities	
ESS 395	Methods of Elementary Activities	
ESS 396	Methods of Alternative Physical Education	
ESS 410	Assessment and Exercise Prescription	
ESS 430	Topics in Clinical Exercise Physiology	
ESS 450	Risk Management in Physical Activity Settings	
<b>Total Credits</b>		<b>23</b>



Course	Title	Credits		
<b>Year One</b>			Gen Ed	General Education Courses 4
	"C" or better required for both ESS 181 and ESS 185 to receive credit toward ESS degree.		Elective	Elective/Minor/2nd Major 3
				Credits 14
			<b>Spring</b>	
			ESS 275	Motor Development and Learning 3
			ESS 276	Emergency Response 3
			Gen Ed	General Education Courses 7
			Elective	Elective/Minor/2nd Major 3
				Credits 16
			<b>Year Three</b>	
			<b>Fall</b>	
			ESS 330	Exercise Physiology 3
			ESS 331	Exercise Physiology Lab 1
			Elective	Elective (upper division) ESS/Minor/2nd Major 12
				Credits 16
			<b>Spring</b>	
			ESS 320	Psychology of Sport and Physical Activity 3
			Elective	ESS Elective 3
			Elective	Elective (upper division) ESS/Minor/2nd Major 9
				Credits 15
			<b>Year Four</b>	
			<b>Fall</b>	
			ESS 380	Biomechanic 3
			Elective	ESS Elective 3
			Elective	Elective (upper division) ESS/Minor/2nd Major 9
				Credits 15
			<b>Spring</b>	
			Capstone	Senior Sem/ Internship 3
<b>Fall</b>				
ESS 181 or ESS 185	Foundations of Exercise and Sport Science or Lifetime Wellness	3		
ENG 102	Academic Writing (GT-CO1)	3		
HWTR 100	First Year Seminar	1		
Gen Ed	General Education Courses	9		
				Credits 16
<b>Spring</b>				
ESS 181 or ESS 185	Foundations of Exercise and Sport Science ("C" or better required to receive credit toward ESS degree.) or Lifetime Wellness	3		
MATH 140	College Algebra (GT-MA1)	3		
Gen Ed	General Education Courses	8		
				Credits 14
<b>Year Two</b>				
<b>Fall</b>				
ESS 201	Essentials of Human Anatomy and Physiology (with Lab) milestone course & prerequisite for ESS 330 & ESS 380	4		
COM 202	Academic Writing and Inquiry (GT-CO2)	3		

ESS 490	Sociology of Sport and Physical Activity	3
Elective	ESS Elective	3
Elective	Elective (upper division) ESS/Minor/2nd Major	6
Credits		15
Total Credits		121

Western is committed to doing our part to provide each student a clear path to graduation. This four-year degree plan is a sample map for fulfilling requirements in the major and General Education. The pathway that you take to your degree may differ somewhat from this illustration, depending on where you start and the detours and side trips you may take along the way. You are responsible for ensuring your overall, upper division, and major-specific credits as well as GPA requirements are fulfilled for graduation.

## Exercise and Sport Science Minor

This Minor consists of 18 credits including:

Code	Title	Credits
ESS 181 or ESS 185	Foundations of Exercise and Sport Science Lifetime Wellness	3
ESS electives at the 200-level or above <sup>1</sup>		9
ESS upper-division electives		6
Total Credits		18

<sup>1</sup> excluding ESS 276 Emergency Response and ESS 221-229

## Exercise and Sport Science Minor: Sport Psychology Concentration

This minor consists of 18 credits including:

Code	Title	Credits
ESS 320	Psychology of Sport and Physical Activity	3
ESS 340	Mental Training for Peak Performance	3
ESS 346	Psychology of Coaching	3
ESS 355	Psychology of Injury	3
One of the following:		3
ESS 275	Motor Development and Learning	
ESS 490	Sociology of Sport and Physical Activity	
One of the following:		3
PSY 368	Psychopathology	
PSY 369	Health Psychology	
Total Credits		18

## K-12 Physical Education Minor

This minor consists of 18 credits including:

Code	Title	Credits
ESS 185	Lifetime Wellness	3
ESS 290	Curriculum Development and the Learning Environment	3
ESS 350	Assessment & Technology in Physical Education	2
ESS 353	Coordinated School Health and Physical Activity Programs	2
ESS 363	Inclusive Physical Activity	3
ESS 395	Methods of Elementary Activities	3
Two of the following:		2
ESS 210	Skill Development and Analysis: Net and Wall Games	
ESS 211	Skill and Development and Analysis: Invasion Games	
ESS 212	Skill Development and Analysis: Target and Fielding Games	
ESS 213	Skill Development and Analysis: Dance	
Total Credits		18

## Geography and Geospatial Analysis (GEOG)

Geographers study places, natural and human-altered landscapes, and processes by which people make their livelihood and give their lives meaning, and in so doing, create and modify their environments. Geospatial analysis builds on the traditional tools of geography by applying specialized software to facilitate combination of data, maps, aerial and satellite images, and to analyze landscape processes and change over time, at multiple scales, and with attention to features not always visible from the ground.

The Geography and Geospatial Analysis minor provides a foundation in human geography and the fundamental skills and methods of the growing field of geospatial analysis, and complements studies in many other disciplines including Anthropology, Biology, Business Administration, Economics, English, Environment and Sustainability, Geology, History, Politics and Government, Psychology, and Sociology.

- Geography and Geospatial Analysis Minor (p. 184)

## Geography Courses

### GEOG 110. World Regional Geography (GT-SS2). (3 Credits)

A survey of the major regions of the contemporary world-defined according to a combination of biophysical, cartographic, cultural, religious, linguistic, political, and economic criteria. Emphasis is given to understanding regional characteristics and processes, and to relationships between events and processes occurring in different regions. Current events of major importance are incorporated where appropriate. GT-SS2

### GEOG 120. Introduction to Human Geography (GT-SS2). (3 Credits)

A thematic study of cultural landscapes and the processes by which people create and modify them. Topics of discussion range from ancient to modern, rural to urban, local to international, and include themes as diverse as the origins and spread of agriculture, migration and immigration, urban morphologies and social interactions, ethnicity, development and underdevelopment, and environmental concerns. GT-SS2

**GEOG 197. Special Topics. (1-6 Credits)****GEOG 222. Our Digital Earth. (3 Credits)**

Using primarily on-line data and sources of maps, aerial photographs and satellite images, students develop and apply understanding of basic principles and techniques of map interpretation, communication with maps, and the appropriate use and interpretation of aerial photographs and satellite images. The course emphasizes both the skilled use of these standard tools of geographic analysis and visualization and communication of data and analysis with free on-line mapping tools and location-enabled mobile phone applications.

**GEOG 250. Geography of North America (GT-SS2). (3 Credits)**

A survey of the major biophysical, cultural, and economic regions of the United States and Canada. Major themes of human geography including demography, migration, land use change, and ecological concerns are addressed in appropriate regional contexts. Prerequisite: GEOG 120 or sophomore standing. GT-SS2

**GEOG 292. Independent Study. (1-6 Credits)****GEOG 297. Special Topics. (1-6 Credits)****GEOG 340. Introduction to Geographic Information Systems. (3 Credits)**

An introduction to the concepts and techniques of Geographic Information Systems (GIS). Topics covered include fundamentals of mapping, data formats, data acquisition, and quantitative analysis of spatial data. The laboratory component emphasizes practical applications of GIS to contemporary problems including but not limited to watershed analysis, land-use planning, environmental assessment, and market analysis. Prerequisites: GEOG 222 or GEOL 105; college-level mathematics requirement with a minimum grade of C-; junior standing or instructor permission.

**GEOG 351. Geography of Latin America and the Caribbean. (3 Credits)**

A thematic study of the physiographic and cultural regions of Latin America and the major historical and contemporary geographic processes that characterize the region. Major topics of discussion include climate and physiography, environmental concerns and human rights, the nature of Latin American cities, pre-Hispanic and modern agriculture, and the nature of contemporary economic processes in the region. Prerequisite: GEOG 120 or sophomore standing.

**GEOG 360. 'Natural' Disasters. (3 Credits)**

This course examines a variety of natural processes which have the potential to inflict dramatic damage and loss of life and a wide range of social, economic, political, and other factors that tend to increase exposure to those events and reduce the abilities of certain populations to respond to them—causing natural processes to become disasters. Prerequisite: GEOG 120 or instructor permission.

**GEOG 392. Special Topics. (1-6 Credits)**

An opportunity for detailed study and/or research by advanced students. Prerequisites: GEOG 110 and GEOG 120.

**GEOG 397. Special Topics. (1-6 Credits)****GEOG 460. Geospatial Analysis. (3 Credits)**

Students enhance their understanding of concepts, skills, and techniques learned in an earlier GIS course by applying additional training in advanced vector and raster analysis, utilization of satellite imagery, and geospatial analysis methods to inform analysis of landscape change processes such as wildfire, deforestation, urbanization, reforestation, drought, flooding, climate change, and agricultural intensification. Prerequisite: GEOG 340.

**GEOG 492. Geography Independent Study. (1-6 Credits)****GEOG 497. Special Topics. (1-6 Credits)****GEOG 499. Internship in Geography. (1-3 Credits)**

Provides the opportunity for advanced students to apply skills and knowledge gained from course work to an applied setting typical of those in which geographers are employed. Prerequisite: junior standing and completion of all other geography requirements.

## Geography and Geospatial Analysis Minor

A minimum of 21 credits is required including:

Code	Title	Credits
GEOG 120	Introduction to Human Geography (GT-SS2)	3
GEOG 222	Our Digital Earth	3
One of the following:		3
GEOG 110	World Regional Geography (GT-SS2)	
GEOG 250	Geography of North America (GT-SS2)	
Select one of the following:		3-4
BIOL 130	Environmental Biology (GT-SC2)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
CS 190	Computer Science I	
GEOL 101	Physical Geology (GT-SC2)	
PHYS 120	Meteorology (GT-SC2)	
Select three of the following:		9
GEOG 340	Introduction to Geographic Information Systems	
GEOG 351	Geography of Latin America and the Caribbean	
GEOG 360	'Natural' Disasters	
GEOG 460	Geospatial Analysis	
GEOG 499	Internship in Geography	
ANTH 320	Cultural Ecology	
ENVS 360	Global Environmental Policy	
Total Credits		21-22

## Geology (GEOL)

Geology is the study of the Earth. This includes the study of rocks and minerals, topography, the tectonics of the Earth (earthquakes, volcanism, and mountain building), the physical history of the Earth, and the history of life on the Earth. In studying the Earth, the Geology student is closely involved with the related sciences of chemistry, physics, and mathematics. The interrelationship between Earth processes and humanity is stressed in many Geology classes. Western Colorado University is a particularly wonderful place to study Geology because of the natural setting that enables field studies to be utilized in all Geology classes.

The Geology Major successfully prepares students for entry-level positions in the petroleum and mineral industries, in environmental science, or in various government agencies. Students are also well prepared to enter graduate programs in Geology. The program meets or exceeds American Geological Institute standards.

## Program Requirements

The Geology program provides a Comprehensive Major with an area of emphasis selected according to the interests and career goals of the student. These emphases are: environmental geology, geology,

geochronology, petroleum geology, and secondary licensure in earth-space science. The program requirements for the various emphases range from 60 to 73 credits.

The Secondary Licensure in Earth-Space Science Emphasis qualifies students for the State of Colorado License in Science Education. Other Geology emphases may also be used for secondary licensure but may require additional classes.

- Geology Comprehensive Major: Environmental Geology Emphasis (p. 187)
- Geology Comprehensive Major: Geochronology Emphasis (p. 189)
- Geology Comprehensive Major: Geology Emphasis (p. 191)
- Geology Comprehensive Major: Petroleum Geology Emphasis (p. 193)
- Geology Comprehensive Major: Secondary Licensure in Earth-Space Science Emphasis (p. 195)
- Geology Comprehensive Major: Secondary Licensure in Earth-Space Science Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/geology/geology-comprehensive-secondary-licensure-earth-space-science-3-2/>)
- Geology Minor (p. 197)

## Capstone Course Requirement

One of the following: GEOL 411 Research in Volcanology and Petrology (with laboratory), GEOL 420 Research in Geomorphology (with laboratory), GEOL 435 Research in Structure and Tectonics (with laboratory), or GEOL 465 Research in Basin Analysis (with laboratory); EDUC 409 Secondary Student Teaching (Secondary Licensure in Earth-Space Science Emphasis).

## Geology Courses

### GEOL 101. Physical Geology (GT-SC2). (3 Credits)

An introductory class that emphasizes the environmental aspects of geology. The course covers the basic principles of physical geology, such as minerals, rocks, plate tectonics, earthquakes, volcanoes, and origin of landscapes by mass wasting, rivers, glaciers, ground water, and nearshore processes. Throughout this course, focus is on the effect of geology on human society through the study of geologic hazards, energy resources, and mineral resources. GT-SC2

### GEOL 105. Physical Geology Laboratory (GT-SC1). (1 Credit)

An introduction to identification of minerals and rocks and a discussion of their genesis followed by a study of landscapes formed by mass wasting, rivers, glaciers, ground water, and nearshore processes. Many of these principles are observed on local field trips. Additional course fee applies. Prerequisite or corequisite: GEOL 101. GT-SC1

### GEOL 197. Special Topics. (1-6 Credits)

### GEOL 201. Historical Geology (with laboratory). (4 Credits)

A study of the interpretation of the geologic history, structure, and evolution of the Earth with emphasis on methods and concepts rather than factual information. Colorado geologic history and various principles are observed during three or four field trips. Topics and concepts such as geophysics, continental drift, and plate tectonics are integrated into discussions of Earth history. Additional course fee applies. Prerequisites: GEOL 101 and GEOL 105.

### GEOL 220. Field Geology of Western North America. (1 Credit)

An illustration of basic geologic principles using field trips to classic localities throughout western North America. Field trips change each year depending on student interest. Past field trips have gone to the Grand Canyon as well as other locales. A student may earn a maximum of two credits under this course number. Prerequisite: GEOL 201 or instructor permission.

### GEOL 240. Introduction to Petroleum and Mining Geology. (3 Credits)

A survey of the physical and chemical processes responsible for the distribution of hydrocarbon and mineral resources in the Earth's crust and techniques for hydrocarbon and mineral resource exploration, assessment, and development. Includes field trips to oil and gas and mining operations in Colorado and Utah. Prerequisites: GEOL 101 and GEOL 105.

### GEOL 297. Special Topics. (1-6 Credits)

### GEOL 300. Geology Field Trip. (1-6 Credits)

Provides students exposure to varied geologic terranes and settings. The course normally consists of preparatory lectures and the actual field trip, followed by a paper, talk, or examination. Students may earn a maximum of six credits under this course title. Prerequisite: GEOL 201.

### GEOL 302. Geoscience Writing. (2 Credits)

An introduction to the proper methods and accepted formats of written, graphical, and oral communication in the geological sciences. These skills are addressed through critical evaluation and discussion of the geological literature, by writing reports, review papers and research proposals, and giving oral presentations. Prerequisites: ENG 102 with a grade of C- or above and GEOL 201. Corequisite: GEOL 310.

### GEOL 305. Mineralogy (with laboratory). (4 Credits)

An introduction to the study of minerals. Important topics include the crystallography, crystal chemistry, and optics of important rock and ore forming minerals. Emphasis is placed on the crystal chemistry and stability of major silicate mineral groups. The laboratory emphasizes the field identification of minerals and the application of optics to the identification of minerals in thin section. Additional course fee applies. Prerequisites: GEOL 101, GEOL 105, MATH 141. Prerequisite or corequisite: CHEM 111 and CHEM 112.

### GEOL 310. Stratigraphy and Sedimentation (with laboratory). (4 Credits)

A study of the basic principles and origins of sedimentary rock units. Topics studied include sub-division of the geologic column and geologic time, depositional systems, stratigraphic nomenclature and rules, principles of correlation, including a review of modern geophysical, geochemical, and chronostratigraphic methods, biostratigraphy, and event stratigraphy. Laboratory includes measurement of sections, examination of depositional systems in the field, and surface and subsurface stratigraphic techniques, including geophysical-log interpretation and computer mapping. Additional course fee applies. Prerequisites: ENG 102 with a minimum grade of C-, GEOL 201.

### GEOL 311. Igneous and Metamorphic Petrology (with laboratory). (4 Credits)

A study of igneous and metamorphic rocks, including their classification, field relations, tectonic setting, phase petrology, mineralogy, and geochemistry. The laboratory emphasizes both field identification of rocks and the use of petrographic microscopes. Several field trips are included. Additional course fee applies. Prerequisite: GEOL 305. Prerequisite or corequisite: CHEM 113 and CHEM 114

**GEOL 320. Geomorphology (with laboratory). (4 Credits)**

A study of the processes that create the landforms we see at the Earth's surface. In particular, processes associated with modern and ice-age climate are studied including erosion and weathering, soil formation, flooding, glaciation, and mass wasting. The laboratory emphasizes field-observation and data-collection techniques, and the interpretation of aerial photographs. Additional course fee applies. Prerequisites: GEOL 101 and GEOL 105; CHEM 101 or CHEM 111.

**GEOL 335. Introduction to Engineering Geology. (3 Credits)**

An introduction to the fundamentals, methods, and techniques used in engineering geology. This course explores investigation methods, and characterization of the engineering properties of geological materials. We investigate the mechanics of soil and rock as engineering materials. This class introduces the specific field methods used in engineering geology for assessment of foundations, slopes, dams, tunnels, and other earth structures. Prerequisites: GEOL 345, and either PHYS 170 or PHYS 200.

**GEOL 343. Exploration Geophysics (with laboratory). (3 Credits)**

Current geophysical techniques used in the exploration for, and development of, petroleum resources. Topics include: potential fields methods, thermochronology, refraction and reflection seismic theory and application, an introduction to quantitative geophysics, microseismic, and forward and reverse modeling. Laboratory projects use industry standard geophysical data and software to solve problems in petroleum exploration and development. Additional course fee applies. Prerequisite: GEOL 310, Prerequisites or Corequisites: GEOL 345; and either PHYS 170 or PHYS 200.

**GEOL 345. Structural Geology (with laboratory). (4 Credits)**

A study of the deformation of the Earth's crust. The course begins with a study of the forces and movements within the crust which cause folding and faulting of rocks and a description of the resulting structures. These topics are followed by an analysis of the regional tectonic patterns of the Earth's surface and theories for their origin. Additional course fee applies. Prerequisite: GEOL 201 with a minimum grade of C- and MATH 141.

**GEOL 346. Subsurface Geology (with laboratory). (4 Credits)**

An advanced undergraduate course in subsurface structural and stratigraphic methods pertinent to petroleum, groundwater, environmental, and tectonics investigations. Traditional and computer-assisted techniques are used. Students gain experience in integrating surface geology with subsurface well and geophysical data, understanding and managing subsurface data types, the principles and application of petrophysics, subsurface mapping methods, core and cuttings description and interpretation, and case studies of oil and gas fields. Field exercises emphasize the integration of surface and subsurface data. Additional course fee applies. Prerequisite: GEOL 343. Prerequisite or corequisite: GEOL 345.

**GEOL 352. Applied Geophysics (with laboratory). (3 Credits)**

The theoretical and practical application of physics to geology with an emphasis on the shallow subsurface. Exercises emphasize the interpretation of real-world data and cover the topics of seismic, potential fields, heat flow, electrical, wireline, and ground penetrating radar methods. Students gain proficiency in the use of several advanced analysis and modeling software packages and the application of geophysics to solving problems in stratigraphy, structure, hydrology, environmental geology, mining, and oil and gas. Prerequisites: GEOL 345, and either PHYS 170 or PHYS 200.

**GEOL 360. Isotope Geochemistry. (3 Credits)**

A study of the distribution and movement of chemical elements and isotopes in the geologic environment. Topics include nucleosynthetic processes and the isotopic abundances of the elements; geochronology using radioactive decay schemes, including U-Pb, Rb-Sr, Sm-Nd, K-Ar, U-series isotopes, and cosmogenic isotopes; trace element partitioning; and the use of stable isotopes in geothermometry and ore petrogenesis. Examples illustrate the use of radiogenic and stable isotopes in petrology and their application to study of the Earth and Solar system and the evolution of the crust and mantle. Additional course fee applies. Prerequisites: Geol 305 with a "C-" or better and Chem 113 and 114.

**GEOL 362. Environmental Geochemistry. (3 Credits)**

An advanced geology course covering the low-temperature chemistry of the near-surface geologic environment. Topics include equilibrium thermodynamics, natural-water geochemistry, the carbonate system, mineral weathering, basic organic geochemistry and the evolution of Earth's atmosphere. Students gain quantitative problem solving skills through comprehensive problem sets and the collection and analysis of real-world geochemical data. Prerequisite: Geol 305 with a "C-" or better and Chem 113 and 114.

**GEOL 392. GEOLOGY INDEPENDENT STUDY. (1-4 Credits)****GEOL 397. Special Topics. (1-6 Credits)****GEOL 401. Career Pathways in Geology. (1 Credit)**

Exploration of post-baccalaureate degree options. Students will receive guidance in finding and applying to graduate degree programs and job opportunities. This combined on line and face-to-face course will also provide a comprehensive review of material required by the Association of State Board of Geology (ASBOG) for the Fundamentals of Geology Exam (FGE). The FGE is the first step to becoming a licensed professional geologist. When available guest speakers will meet with students to discuss their career paths and experiences. Prerequisites: minimum junior standing or instructor permission.

**GEOL 411. Research in Volcanology and Petrology (with laboratory). (3 Credits)**

An examination of the physical volcanology, petrology, and petrogenesis of volcanic rocks. A strong emphasis is placed on fieldwork and the description of the volcanic rocks of the Gunnison Basin and adjacent regions. The course is topical in nature and emphasizes individual and/or group research projects through study of the geologic literature, the collection of geologic data, and the presentation of results. Prerequisite: GEOL 311.

**GEOL 420. Research in Geomorphology (with laboratory). (3 Credits)**

An advanced study of geomorphology. Topics may include fluvial, glacial, mass movement, neotectonic, and eolian processes and landforms as well as weathering and soils. The course is topical in nature and emphasizes individual and/or group research projects through study of the geologic literature, the collection of geologic data, and the presentation of results. Prerequisites: GEOL 320, GEOL 345, and GEOG 340.

**GEOL 430. Hydrogeology. (3 Credits)**

A study of the occurrence, movement and chemical properties of surface water and groundwater. Topics include the hydrologic cycle, surface-water hydrology, principles of ground water flow, groundwater flow to wells and natural water chemistry. Laboratory assignments focus on quantitative analysis and modeling of surface and groundwater data. Additional course fee applies. Prerequisites: GEOL 310, CHEM 111, and MATH 151. Prerequisite or corequisite: PHYS 170 or PHYS 200.



**GEOL 435. Research in Structure and Tectonics (with laboratory). (3 Credits)**

Advanced study of structural geology and tectonic processes, rheology and rock failure/deformation, and the relationships between plate boundaries, structural deformation and basin formation and fill. A strong emphasis is placed on field relations and structural analysis of outcrop and subsurface data. The course is topical in nature and requires individual and/or group research projects through the study of the geologic literature, the collection and analysis of geologic data, and the presentation of results. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345.

**GEOL 450. Field Geology. (4 Credits)**

An emphasis on field observation, proper geologic mapping techniques on both maps and aerial photos, and interpretation and synthesis of field data into a report. Different geologic terrains in Colorado or other states are examined. Ideally, this course should be taken during the Summer semester, immediately prior to the senior year. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345; or instructor permission.

**GEOL 452. Advanced Field Geology. (2 Credits)**

A study of advanced geological field techniques and special field problems that concentrate on the interpretation of rock types and structures, their distributions, and the collection of field data. Students will interpret field data and make connections between their field observations and the tectonic evolution of the Western United States. Additional course fee applies. Prerequisite: GEOL 450 with a minimum grade of "C-".

**GEOL 455. Petroleum Geology (with laboratory). (4 Credits)**

The petroleum system and modern exploration techniques including detailed study of petroleum source rocks, their deposition, thermal maturation and the chemical and physical characteristics of hydrocarbons, hydrocarbon migration, accumulation and retention, reservoir types and properties. Current techniques used in hydrocarbon exploration and resource assessment are taught through laboratory projects using real-world data and industry standard software tools. Additional course fee applies. Prerequisite: GEOL 346.

**GEOL 456. Petroleum Geology of Unconventional Resources (with laboratory). (4 Credits)**

The geology of unconventional resources, the identification and mapping of resource plays, a survey of current industry development and resource estimation techniques, and an introduction to play and project economics. Unconventional and emerging petroleum plays including shale reservoirs for oil and gas, heavy oil and bitumen deposits, coal bed methane, and hybrid reservoirs are emphasized. Projects include play mapping and analysis, rock mechanics, reservoir stimulation and EOR techniques, decline curve analysis and forecasting, and integrate sustainability and environment/stakeholder management best practices. Prerequisite: GEOL 346.

**GEOL 465. Research in Basin Analysis (with laboratory). (3 Credits)**

A study of sedimentary processes and environments, including the tectonic origin of sedimentary basins. This includes the most common terrestrial and marine depositional systems and their relationships. A strong emphasis is placed on field relations and research on the sedimentary rocks of Western Colorado and the Colorado Plateau. The course is topical in nature and requires individual and/or group research projects through the study of the geologic literature, the collection of geologic data in the field, and the presentation of results. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345.

**GEOL 493. Independent Study in Geology. (1-4 Credits)**

Advanced undergraduates can engage in independent research projects under the direction of a faculty member. Topics may include any research specialty in geology or geophysics depending on the mutual interests of the student and faculty.

**GEOL 495. Geology Seminar. (1 Credit)**

A seminar where advanced undergraduate students can develop critical reading and thinking skill through discussion and presentation of research literature. Topics are chosen from the current research literature. A student may earn a maximum of four credits under this course title. Prerequisite: GEOL 305, GEOL 310, GEOL 320, or GEOL 345.

**GEOL 497. Special Topics. (1-6 Credits)**

## Geology Comprehensive Major: Environmental Geology Emphasis Program Requirements

The Environmental Geology Emphasis requires a minimum of 73 credits:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2
GEOL 305	Mineralogy (with laboratory)	4
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 430	Hydrogeology	3
GEOL 450	Field Geology	4
Select two of the following:		6
GEOL 335	Introduction to Engineering Geology	
GEOL 352	Applied Geophysics (with laboratory)	
GEOL 362	Environmental Geochemistry	
Select one of the following:		3
GEOL 411	Research in Volcanology and Petrology (with laboratory)	
GEOL 420	Research in Geomorphology (with laboratory)	
GEOL 435	Research in Structure and Tectonics (with laboratory)	
GEOL 465	Research in Basin Analysis (with laboratory)	
<b>Required Supporting Courses</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
GEOG 340	Introduction to Geographic Information Systems	3
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
Select one of the following:		8



PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)
<hr/>	
Total Credits	73

## Capstone Course Requirement

One of the following: GEOL 411 RESEARCH/VOLCANOLOGY&PETROLOGY, GEOL 420 RESEARCH IN GEOMORPHOLOGY, GEOL 435 Research in Structure and Tectonics (with laboratory) , or GEOL 465 RESEARCH IN BASIN ANALYS W/ LAB; EDUC 409 SECONDARY STUDENT TEACHING(Secondary Licensure in Earth-Space Science Emphasis).

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1) (or higher, depending on MATH placement) <sup>1</sup>	3
Gen Ed	General Education Courses	3
<hr/>		Credits 15
<b>Spring</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1

ENG 102	Academic Writing (GT-CO1)	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) <sup>1</sup>	4
<hr/>		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
GEOG 340	Introduction to Geographic Information Systems	3
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
Gen Ed	General Education Courses	3
<hr/>		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
GEOL 345	Structural Geology (with laboratory)	4
PHYS 171 or PHYS 201	Principles of Physics II (with laboratory) (GT-SC1) or General Physics II (with laboratory) (GT-SC1)	4
Elective	Elective	
<hr/>		Credits 11

**Year Three****Fall**

GEOL 305	Mineralogy (with laboratory)	4
GEOL 335	Introduction to Engineering Geology	3
GEOL 352	Applied Geophysics (with laboratory)	3
Elective	Elective	3
Gen Ed	General Education Courses	6
Credits		19

**Spring**

GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 362	Environmental Geochemistry	3
GEOL 495 or GEOL 401	Geology Seminar or Career Pathway in Geology	1
Gen Ed	General Education Courses	3
Elective	Elective	3
Credits		14

**Summer**

GEOL 450	Field Geology	4
Credits		4

**Year Four****Fall**

GEOL 320	Geomorphol (with laboratory)	4
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GEOL 411 or GEOL 420 or GEOL 435 or GEOL 465	Research in Volcanology and Petrology (with laboratory) or Research in Geomorphology (with laboratory) or Research in Structure and Tectonics (with laboratory) or Research in Basin Analysis (with laboratory)	3
Gen Ed	General Education Courses	3
Elective	Elective	3
Credits		13
<b>Spring</b>		
GEOL 430	Hydrogeology	3
Elective	Electives	9
Credits		12
Total		119
Credits		

<sup>1</sup> Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.

## Geology Comprehensive Major: Geoarchaeology Emphasis Program Requirements

The Geoarchaeology Emphasis requires a minimum of 60 credits:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 450	Field Geology	4
One of the following:		3
GEOL 411	Research in Volcanology and Petrology (with laboratory)	
GEOL 420	Research in Geomorphology (with laboratory)	
GEOL 435	Research in Structure and Tectonics (with laboratory)	

GEOL 465	Research in Basin Analysis (with laboratory)	
<b>Required Supporting Courses</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ANTH 218	Physical Anthropology (with laboratory)	4
ANTH 219	Archaeology (with laboratory)	4
ANTH 230	Cultural Anthropology (with laboratory)	4
GEOG 340	Introduction to Geographic Information Systems	3
Select two of the following:		7-8
ANTH 322	Analysis of Material Culture (with laboratory)	
ANTH 333	Archaeology of Colorado	
ANTH 469	Archaeology Field School	
Select one of the following:		3-4
CHEM 101	Introduction to Inorganic Chemistry (GT-SC2)	
CHEM 111 & CHEM 112	General Chemistry I (GT-SC2) and General Chemistry Laboratory I (GT-SC1)	
One of the following:		3
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
<b>Total Credits</b>		<b>60-62</b>

### Capstone Course Requirement

One of the following: GEOL 411 RESEARCH/VOLCANOLOGY&PETROLOGY, GEOL 420 RESEARCH IN GEOMORPHOLOGY, GEOL 435 Research in Structure and Tectonics (with laboratory) , or GEOL 465 RESEARCH IN BASIN ANALYS W/ LAB; EDUC 409 SECONDARY STUDENT TEACHING(Secondary Licensure in Earth-Space Science Emphasis).

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1

MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) 1	4
Gen Ed	General Education Courses	3
		<b>Credits 16</b>
<b>Spring</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 102	Academic Writing (GT-CO1)	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 151	Calculus I (GT-MA1) (or higher, depending on MATH placement) 1	4
		<b>Credits 15</b>
<b>Year Two</b>		
<b>Fall</b>		
CS 190	Computer Science I	3
	or GEOG 340	
	or MATH 213	
	or MATH 252	
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
Elective		3
		<b>Credits 16</b>

<b>Spring</b>			
COM 202	Academic Writing and Inquiry (GT-CO2)	3	
GEOL 345	Structural Geology (with laboratory)	4	
PHYS 171 or PHYS 201	Principles of Physics II (with laboratory) (GT-SC1) or General Physics II (with laboratory) (GT-SC1)	4	
Gen Ed	General Education Courses	3	
		Credits	14

**Year Three**

<b>Fall</b>			
GEOL 305	Mineralogy (with laboratory)	4	
GEOL 495	Geology Seminar	1	
Elective	Elective	3	
Gen Ed	General Education Courses	6	
		Credits	14

<b>Spring</b>			
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4	
GEOL 495 or GEOL 401 or GEOL 300	Geology Seminar or Career Pathway in Geology or Geology Field Trip	1	
Gen Ed	General Education Courses	6	
		Credits	11

<b>Summer</b>			
GEOL 450	Field Geology	4	
GEOL 452	Advanced Field Geology	2	
		Credits	6

<b>Year Four</b>			
<b>Fall</b>			
GEOL 320	Geomorphol (with laboratory)	4	
Elective	Electives	12	
		Credits	16

<b>Spring</b>			
GEOL 411 or GEOL 420 or GEOL 435 or GEOL 465	Research in Volcanology and Petrology (with laboratory) or Research in Geomorphology (with laboratory) or Research in Structure and Tectonics (with laboratory) or Research in Basin Analysis (with laboratory)	3	
Elective	Electives	9	
		Credits	12
		Total	120
		Credits	

<sup>1</sup> Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.

## Geology Comprehensive Major: Geology Emphasis

### Program Requirements

The Standard Geology Emphasis requires a minimum of 66 credits:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2
GEOL 305	Mineralogy (with laboratory)	4
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 450	Field Geology	4
Two credits from the following:		2
GEOL 300	Geology Field Trip	

GEOL 401	Career Pathways in Geology	
GEOL 452	Advanced Field Geology	
GEOL 495	Geology Seminar	
<b>One of the following:</b>		
GEOL 411	Research in Volcanology and Petrology (with laboratory)	
GEOL 420	Research in Geomorphology (with laboratory)	
GEOL 435	Research in Structure and Tectonics (with laboratory)	
GEOL 465	Research in Basin Analysis (with laboratory)	
<b>Required Supporting Courses</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
<b>One of the following:</b>		3-4
CS 190	Computer Science I	
GEOG 340	Introduction to Geographic Information Systems	
MATH 213	Probability and Statistics	
MATH 252	Calculus III	
<b>Either both:</b>		8
PHYS 170	Principles of Physics I (with laboratory) (GT-SC1)	
PHYS 171	Principles of Physics II (with laboratory) (GT-SC1)	
<b>or both:</b>		
PHYS 200	General Physics I (with laboratory) (GT-SC1)	
PHYS 201	General Physics II (with laboratory) (GT-SC1)	
<b>Total Credits</b>		<b>63-64</b>

## Capstone Course Requirement

One of the following: GEOL 411 RESEARCH/VOLCANOLOGY&PETROLOGY, GEOL 420 RESEARCH IN GEOMORPHOLOGY, GEOL 435 Research in Structure and Tectonics (with laboratory) , or GEOL 465 RESEARCH IN BASIN ANALYS W/ LAB; EDUC 409 SECONDARY STUDENT TEACHING(Secondary Licensure in Earth-Space Science Emphasis).

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3

CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement) <sup>1</sup>	4
Gen Ed	General Education Courses	3
		<b>Credits</b>
		<b>16</b>
<b>Spring</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 102	Academic Writing (GT-CO1)	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 151	Calculus I (GT-MA1) (or higher, depending on MATH placement) <sup>1</sup>	4
		<b>Credits</b>
		<b>15</b>

<b>Year Two</b>		
<b>Fall</b>		
CS 190 or GEOG 340 or MATH 213 or MATH 252	Computer Science I or Introduction to Geographic Information Systems or Probability and Statistics or Calculus III	3
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4

PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT- SC1)	4
Elective	Elective	3
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT- CO2)	3
GEOL 345	Structural Geology (with laboratory)	4
PHYS 171 or PHYS 201	Principles of Physics II (with laboratory) (GT-SC1) or General Physics II (with laboratory) (GT- SC1)	4
Gen Ed	General Education Courses	3
		Credits 14
<b>Year Three</b>		
<b>Fall</b>		
GEOL 305	Mineralogy (with laboratory)	4
GEOL 495	Geology Seminar	1
Elective	Elective	3
Gen Ed	General Education Courses	6
		Credits 14
<b>Spring</b>		
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 495 or GEOL 401 or GEOL 300	Geology Seminar or Career Pathway in Geology or Geology Field Trip	1

Gen Ed	General Education Courses	6
		Credits 11
<b>Summer</b>		
GEOL 450	Field Geology	4
GEOL 452	Advanced Field Geology	2
		Credits 6
<b>Year Four</b>		
<b>Fall</b>		
GEOL 320	Geomorphol (with laboratory)	4
Elective	Electives	12
		Credits 16
<b>Spring</b>		
GEOL 411 or GEOL 420 or GEOL 435 or GEOL 465	Research in Volcanology and Petrology (with laboratory) or Research in Geomorphology (with laboratory) or Research in Structure and Tectonics (with laboratory) or Research in Basin Analysis (with laboratory)	3
Elective	Electives	9
		Credits 12
		Total 120 Credits

<sup>1</sup> Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.

## Geology Comprehensive Major: Petroleum Geology Emphasis Program Requirements

A minimum of 69 credits is required:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2



GEOL 305	Mineralogy (with laboratory)	4
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 343	Exploration Geophysics (with laboratory)	3
GEOL 345	Structural Geology (with laboratory)	4
GEOL 346	Subsurface Geology (with laboratory)	4
GEOL 450	Field Geology	4
GEOL 455	Petroleum Geology (with laboratory)	4
GEOL 456	Petroleum Geology of Unconventional Resources (with laboratory)	4
One of the following:		3
GEOL 411	Research in Volcanology and Petrology (with laboratory)	
GEOL 420	Research in Geomorphology (with laboratory)	
GEOL 435	Research in Structure and Tectonics (with laboratory)	
GEOL 465	Research in Basin Analysis (with laboratory)	
<b>Required Supporting Courses</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
Select one of the following:		8
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)	
Total Credits		72

## Capstone Course Requirement

One of the following: GEOL 411 RESEARCH/VOLCANOLOGY&PETROLOGY, GEOL 420 RESEARCH IN GEOMORPHOLOGY, GEOL 435 Research in Structure and Tectonics (with laboratory) , or GEOL 465 RESEARCH IN BASIN ANALYS W/ LAB; EDUC 409 SECONDARY STUDENT TEACHING(Secondary Licensure in Earth-Space Science Emphasis).

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
MATH 141	Precalculus (GT-MA1) <sup>1</sup>	4
		Credits 13
<b>Spring</b>		
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
ENG 102	Academic Writing (GT-CO1)	3
GEOL 201	Historical Geology (with laboratory)	4
MATH 151	Calculus I (GT-MA1) <sup>1</sup>	4
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
Gen Ed	General Education Courses	6
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3

GEOL 345	Structural Geology (with laboratory)	4
PHYS 171 or PHYS 201	Principles of Physics II (with laboratory) (GT-SC1) or General Physics II (with laboratory) (GT-SC1)	4
Gen Ed	General Education Courses	6
		Credits 17
<b>Year Three</b>		
<b>Fall</b>		
GEOL 305	Mineralogy (with laboratory)	4
GEOL 343	Exploration Geophysics (with laboratory)	3
Gen Ed	General Education Courses	6
Elective	Elective	3
		Credits 16
<b>Spring</b>		
GEOL 311	Igneous and Metamorphic Petrology (with laboratory)	4
GEOL 346	Subsurface Geology (with laboratory)	4
Elective	Elective	3
		Credits 11
<b>Summer</b>		
GEOL 450	Field Geology	4
GEOL 452	Advanced Field Geology	2
		Credits 6
<b>Year Four</b>		
<b>Fall</b>		
GEOL 455	Petroleum Geology (with laboratory)	4
Elective	Electives	9
		Credits 13

**Spring**

GEOL 411 or GEOL 420 or GEOL 435 or GEOL 465	Research in Volcanology and Petrology (with laboratory) or Research in Geomorphology (with laboratory) or Research in Structure and Tectonics (with laboratory) or Research in Basin Analysis (with laboratory)	3
GEOL 456	Petroleum Geology of Unconventional Resources (with laboratory)	4
Elective	Electives	6
		Credits 13
		Total Credits 120

## Geology Comprehensive Major: Secondary Licensure in Earth-Space Science Emphasis Program Requirements

Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible. The Secondary Licensure in Earth-Space Science Emphasis requires a minimum of 68 credits, and the requirements of the Secondary Licensure Program (see description under Education).

Code	Title	Credits
<b>Geology Requirements</b>		
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
GEOL 302	Geoscience Writing	2
GEOL 305	Mineralogy (with laboratory)	4
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 345	Structural Geology (with laboratory)	4
GEOL 450	Field Geology	4
GEOL 495	Geology Seminar	1
<b>Required Supporting Courses</b>		

BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
BIOL 301	General Ecology	3
CHEM 111	General Chemistry I (GT-SC2)	3
CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
PHYS 110	Introductory Astronomy (GT-SC2)	3
PHYS 120	Meteorology (GT-SC2)	3
Select one of the following:		8
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)	
MATH 141 or MATH 151	Precalculus (GT-MA1) or Calculus I (GT-MA1)	4

Total Credits 68

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ENG 102	Academic Writing (GT-CO1)	3
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
HWTR 100	First Year Seminar	1
Gen Ed	General Education Courses	6
		Credits 14
<b>Spring</b>		
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	4
GEOL 201	Historical Geology (with laboratory)	4
MATH 141	Precalculus (GT-MA1) (or higher, depending on MATH placement)	4
Gen Ed	General Education Courses	3
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
CHEM 111	General Chemistry I (GT-SC2)	3

CHEM 112	General Chemistry Laboratory I (GT-SC1)	1
GEOL 302	Geoscience Writing	2
GEOL 310	Stratigraphy and Sedimentation (with laboratory)	4
PHYS 110	Introductory Astronomy (GT-SC2)	3
Gen Ed	General Education Courses	3
		Credits 16
<b>Spring</b>		
BIOL 151	Diversity and Patterns of Life (with laboratory)	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
CHEM 113	General Chemistry II	3
CHEM 114	General Chemistry Laboratory II	1
GEOL 345	Structural Geology (with laboratory)	4
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
BIOL 301	General Ecology	3
GEOL 305	Mineralogy (with laboratory)	4
GEOL 320	Geomorphology (with laboratory)	4
GEOL 495	Geology Seminar	1
PHYS 170 or PHYS 200	Principles of Physics I (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
		Credits 16
<b>Spring</b>		
EDUC 340	Application of Pedagogy and Practice	3

PHYS 120	Meteorology (GT-SC2)	3
PHYS 171 or PHYS 200	Principles of Physics II (with laboratory) (GT-SC1) or General Physics I (with laboratory) (GT-SC1)	4
Gen Ed	General Education Courses	6
	Credits	16
<b>Summer</b>		
GEOL 450	Field Geology	4
	Credits	4
	Total Credits	96

<sup>1</sup> Geology requires completion of mathematics through Calculus II. Additional mathematics courses may be required and would fill Elective courses as needed.

## Geology Minor

A minimum of 18 credits including:

Code	Title	Credits
GEOL 101	Physical Geology (GT-SC2)	3
GEOL 105	Physical Geology Laboratory (GT-SC1)	1
GEOL 201	Historical Geology (with laboratory)	4
Select ten credits of the following:		10
GEOL 220	Field Geology of Western North America	
Geology courses numbered 300 or above		
Total Credits		18

## Headwaters Regional Studies (HWTR)

Western Colorado University sits near the headwaters of the major rivers of the American Southwest and the lower Midwest—the South Platte and Arkansas Rivers that are part of the great Mississippi-Missouri Basin, the Rio Grande, and the central tributaries of the Colorado River. Surrounded by the geographically, ecologically, and culturally diverse “learning laboratories” of the Headwaters region, Western is uniquely situated for using “place” as a medium for integrated learning. These two Headwaters classes are designed to help students develop cross-disciplinary relationships with the qualities of the region that attract many students to the University.

## Headwaters Courses

### HWTR 100. First Year Seminar. (1 Credit)

An introduction to Western’s interactive educational experience and the diverse learning environments of the Gunnison Valley. Through a multidisciplinary study of the Headwaters region, this course provides students with skills for success in higher education and access to resources in the campus community. A discussion-based seminar, course may include regular convocations, community service projects, workshops, and field experiences. Academic themes include an introduction to the liberal arts, community sustainability, and the social, natural, and cultural surroundings of the region. First year students are required to attend Orientation and are expected to enroll in the first year seminar.

### HWTR 200. This Is The Headwaters. (1 Credit)

A fall offering that gives students a broad cross-disciplinary overview of the Headwaters Region surrounding the College, with some field trips out into the region and an opportunity to look into some of the issues impacting the region.

### HWTR 398. Headwaters Conference. (1 Credit)

An annual two-day gathering on campus each fall, bringing together writers and scholars, local community leaders and activists, artists, government officials, and other interested citizens from the colleges and communities of the Headwaters Region to consider challenges and opportunities confronting the region. Students attend and participate in the conference and write a paper about the experience in the context of their own lives and future plans. Students attend and participate in the conference, complete applied research projects throughout the month following the conference, and write a paper about the experience in the context of their own lives and future plans. Student may take the course four times for additional credit. Prerequisite: junior standing or instructor permission.

## History (HIST)

In a world increasingly characterized by the ten-second soundbite, our understanding of world events is often limited to the superficial. Despite the speed and intensity of these events, the conflicts and achievements of our times emerge from long established influences and sequences of events. The study of history adds both breadth and depth to an individual’s understanding of our fast-changing world. History provides the means to discover how the past shapes and affects the present and how seemingly unrelated events and forces connect to frame human endeavors. There is something profoundly enduring about the study of history, as it allows us to realize the complexity of human affairs from a multitude of perspectives. It is both an intellectually satisfying and eminently practical pursuit. History majors at Western acquire and sharpen skills that enrich educational experiences and increase employment opportunities in a number of fields. Such skills include: cause and effect analysis, critical evaluation and organization of evidence, document and data base research, development and understanding of analytical frameworks, and organization and synthesis of information—all skills essential to solving problems and presenting results.

The History League student club and the Iota Nu Chapter of Phi Alpha Theta, the national history Honor Society, are active on campus.

- History Comprehensive Major: Public History Emphasis (p. 200)
- History Comprehensive Major: Secondary Licensure Emphasis (p. 202)

- History Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/history/history-comprehensive-secondary-licensure-3-2/>)
- History Major: Standard Program (p. 204)
- History Minor (p. 205)
- Public History Emphasis (with a 3+2 Master in Environmental Management) (p. 205)
- Public History Emphasis (with a 3+2 Master of Arts in Gallery and Museum Management) (<https://catalog.western.edu/undergraduate/programs/history/public-history-3-2-mgmm/>)

## Capstone Course Requirement

The following course in the History Major fulfills the Capstone Course Requirement: HIST 402 Engaging the Past.

## History Courses

### HIST 101. World History to 1500 (GT-HI1). (3 Credits)

A survey of the cultural, political, religious, artistic, technological and philosophical journeys of human beings, from the prehistoric age, the birth of civilization and emergence of agriculture to the establishment of great empires and the impact of the great religious and philosophical revolutions of the ancient and medieval world. GT-HI1

### HIST 102. World History Since 1500 (GT-HI1). (3 Credits)

A continuation of HIST 101 and a survey of the transformation of human development as a result of modernization. Students consider the rise and fall of empires and shifting regional influences as a result of the emergence of the transatlantic region. Europe's revolutionary transformation and its impact on the world; the rise of global interaction and conflict; the colonial and post-colonial eras and the resulting tensions and achievements of these events are examined within the context of modernity. GT-HI1

### HIST 126. U.S. History to 1865 (GT-HI1). (3 Credits)

A survey of American history from its European beginnings to the Civil War, providing description and analysis of the historical development of politics, economics, society, and foreign policy. Attention is given to the people and forces that influenced these developments. GT-HI1

### HIST 127. U.S. History Since 1865 (GT-HI1). (3 Credits)

A survey of American history from the Civil War to modern times, providing description and analysis of the major developments and trends in politics, economics, society, and foreign policy. Attention is given to the people and forces that influenced and shaped the American experience. GT-HI1

### HIST 197. Special Topics. (1-6 Credits)

### HIST 200. Historical Inquiry. (3 Credits)

Students examine the ways scholars have studied, interpreted, debated and represented the past through time. This course introduces students to History as not only a discipline of study and scholarship but as an inquiry into human experience and a public pursuit. Students develop the research and writing skills required in the field of History across a variety of formats and topics. It is recommended students complete this course no later than sophomore year.

### HIST 254. A History of Africa (GT-HI1). (3 Credits)

A survey of sub-Saharan African history from earliest times to the present, with particular emphasis on social, cultural, economic, and political responses to imperialist or other outside influences. GT-HI1

### HIST 257. History of East Asia. (3 Credits)

A study of the civilization of China and Japan. The course offers a survey covering ancient, medieval, and modern developments, including cultural, religious, political, military, and economic factors.

### HIST 258. History of Southeast Asia. (3 Credits)

A survey of the history of Southeast Asia, which includes the countries of Myanmar, Thailand, Singapore, Malaysia, Indonesia, the Philippines, Cambodia, Laos and Vietnam. Each regional discussion is organized by cultural, social, and political themes. This course stresses the influence of India and China on the region; cultural exchange in the region through warfare, trade, and religion; Western encroachment and colonialism; nationalistic movements in reaction to colonialism and oppression. The class ends with the effects of WWII.

### HIST 260. Latin American History (GT-HI1). (3 Credits)

A survey of the major events and themes of Latin American History from pre-Columbian times through the modern era with special emphasis on the interaction of New and Old World cultures and the impact of colonization and the construction of national identity after independence into the modern era. GT-HI1

### HIST 297. Special Topics. (1-6 Credits)

### HIST 301. The Ancient World. (3 Credits)

Studies of the Ancient World. This course is a rotating topic which may include studies of the Egyptians, Romans, Maya, Greeks, or specific African and Asian cultures. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

### HIST 309. Modern Germany. (3 Credits)

Examines the cultural and political forces which led to the creation of Germany and then shaped its behavior through two world wars. Topics include the role of nationalism, the failure of liberalism, the causes of racism, and the nature of the Nazi regime. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

### HIST 311. The Medieval World. (3 Credits)

Studies of the medieval world. This course is a rotating topic which may include studies of the Black Death and Europe, the Byzantines, Shogun Era in Japan, Irish and Scots, the 'Vikings' or specific African and Asian cultures. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

### HIST 312. Renaissance and Reformation. (3 Credits)

A course which covers the Babylonian Captivity of the Roman Catholic Church; the artistic, literary, and political developments of Renaissance Italy and Northern Europe; the subsequent emergence of the Protestant Reformation; and the religious wars which engulfed Europe. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

### HIST 313. Early Modern Europe: Topics. (3 Credits)

An in-depth study into themes and or regions of early modern European history (15th-18th centuries). This course examines the political, cultural, military, social, environmental, and economic evolutions of the era. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

### HIST 315. France and the Revolution. (3 Credits)

A study of the origins, character, and significance of the French Revolution. This course begins with an examination of the relation of the Old Regime to the failure of absolutism and concludes with a discussion of the general nature of revolution and social change. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 317. Modern Europe: Topics. (3 Credits)**

An in-depth study into themes of modern European history (19th-20th centuries). This course examines themes of political, cultural, military, social, environmental, and economic evolutions of the 20th century. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 327. Colorado History. (3 Credits)**

A study of the history of Colorado from prehistoric times to the modern era, emphasizing the Native American and Spaniard, mining, cattle, transportation and farming frontiers, and problems of the 20th century involving water, energy, and growth. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 330. Colonial American. (3 Credits)**

A study of the indigenous peoples of North America and European expansion into the region including the French in Canada, Spanish in Florida and the English establishment of the Thirteen Colonies. Topics include colonial development, westward expansion, and conflicts with the indigenous populations, the role of women in the colonies, and social, intellectual, political and military activities from 1607 to the French Indian War in 1754. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 333. American Revolution and the Early Republic. (3 Credits)**

A study of the economic, social and political causes of the American Revolution. Focused attention is given to the Articles of Confederation, Hamiltonian and Jeffersonian America, the Constitutional Convention, Bill of Rights, Jeffersonian and Jacksonian Democracy, Louisiana Purchase and the Lewis and Clarke expedition and the early national era. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 336. U.S. Civil War and Reconstruction. (3 Credits)**

A study of the causes of the Civil War with emphasis on the differing worlds of the North and the South and the social, intellectual and economic movements of the time. The military actions of the war are examined and the legacy of the war considered. The challenges and issues of the post war years of Reconstruction are explored. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 340. Emergence of the Modern U.S.. (3 Credits)**

A study of U.S. history from the end of Reconstruction in 1877 to the Great Depression in 1929. Topics include industrialization, immigration, the Progressive movement, the causes and impact of World War I and the exciting but troubled 1920s all leading to the Great Depression. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 343. Depression and World War II. (3 Credits)**

An exploration of the ramifications that the economic collapse had on America's social, economic, cultural, and political life. The United States' entrance into the World War II is also discussed, with major focus on the changes that took place, both internally and abroad, because of the conflict. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 346. Recent American History. (3 Credits)**

A history of the United States since 1945 with emphasis on the Cold War, the Eisenhower years, the turbulent decade of the 1960s, and the transformations of the 1970s and 1980s. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 348. History of the Trans-Mississippi West. (3 Credits)**

A history of the Trans-Mississippi West from 1800 to the present time, emphasizing the Native Americans, Spanish settlement, and Westward Expansion. Manifest Destiny, mining and cattle frontiers, settlement of the Great Plains and the Rocky Mountains, closing of the western frontier, and the New West of today. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 349. History of the Hispanic Southwest. (3 Credits)**

Students examine the historical development of Hispanic settlement and culture in the American Southwest from its inception to the present day. Students study the interaction of Hispanic communities with nomadic and settled indigenous peoples and with Anglo ranchers, settler and commercial interests. From the 16th century settlements to the Mexican-American War and the territory's incorporation into the United States to the development of the Chicano identity in the 20th century, students analyze the American Southwest, as a patria chica of success and failure, achievement and potential. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 350. Environmental History of the Borderlands. (3 Credits)**

Students examine the process of historical development of the Borderlands region between Mexico and the United States and consider its implications for the region's environment. Settlement patterns, a blending of cultural and ethnic identities, economic development and integration and emerging social tensions have resulted in an environmental transformation of the region with far-reaching implications for both nations north and south of the Rio Grande/Bravo. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 351. History of Russia. (3 Credits)**

A study of Russia which may include topics such as the development of Kievan Rus, the invasion and occupation of the Golden Horde, the Romanov line, Revolutionary Russia and the Soviet Union. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 355. African History: Topics. (3 Credits)**

This course examines a particular topic, era or region in African History thus course content will vary. Rotating topics may include colonialism, conflict, or a country or regional study. Students may take this course twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 360. Mexico. (3 Credits)**

A broad survey of Mexican history from pre-Columbian times to the present, with particular emphasis on social, cultural, political and economic issues. This course also examines Mexico's relations with Europe during the colonial and early national periods and with the United States during the 19th and 20th centuries. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 365. Latin American Revolutions. (3 Credits)**

Beginning with an examination of theories of revolution, students explore how the theoretical relates to events in Latin American history. Students examine the development of revolutionary consciousness and the role of women, indigenous peoples and the rural and urban masses in revolutionary movements throughout the region. Students consider the influence of revolution on Latin American artistic expression. Finally, students investigate specific historical case studies of Latin American revolutions. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.



**HIST 366. Modern Latin America. (3 Credits)**

This class examines the modern era of Latin America tracing the transition of the region from colonies into free and independent nations. Students follow the development of Latin America through the nineteenth and twentieth centuries and explore the political, social, economic, and cultural changes that occurred throughout the region. The course explores how and why this region has changed and how Latin America has dealt with the challenges of the last 200 years. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 367. Latin American History: Topics. (3 Credits)**

This course examines a particular topic, theme or region in Latin American History thus course content will vary. Topics may rotate between women and gender, film and history, travel accounts, environmental history or a country or regional study. Students may take this course twice for credit. Prerequisites: minimum sophomore status or instructor permission. HIST 200 recommended.

**HIST 370. Public History. (3 Credits)**

This course explores the ways historians have engaged the public with the past. It provides an introduction to the theory and practice of interpreting history in institutions such as museums, archives, historical societies, and in historic preservation projects, digital projects, and oral histories. The course examines theoretical constructs including memory, heritage, community and commemoration and explores how academic history and public history complement and enrich one another. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 371. Oral History Workshop. (3 Credits)**

An examination of the theory and practice of the field of oral history. Through the course of the semester, students will examine the field of oral history, learn how to conduct oral history interviews, and produce an oral history. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 372. Monuments and Museums. (3 Credits)**

Students explore the interconnected concepts of memory, change and time through the examination of monuments, memorials and museums. Through readings, discussions and field experiences students consider the representation of past events in public spaces and the ways in which such places can both shape a shared sense of the past and become sites of contention and representations of power. Students trace the evolution of museums and the nature of preservation, interpretation and scholarship of collections and exhibits. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 373. History of the National Parks Service. (3 Credits)**

Students study the history and development of the National Parks Service of the United States exploring the social, political and economic attitudes towards Wilderness, preservation and conservation. Students trace the development of the guiding principles of the NPS and the evolution of the National Parks system over time while examining the development of national parks systems outside of the United States. This seminar also includes a number of weekend field trips to regional National Parks and National Historic Sites during the semester. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 397. Special Topics. (6 Credits)**

Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 399. Internship in History. (1-3 Credits)**

History majors and minors obtain archival, museum and public history experience through direct, supervised contact with archivists, curators and professionals from related areas. Graded Satisfactory/Unsatisfactory only. Maximum 6 credits can be applied to the major. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 402. Engaging the Past. (3 Credits)**

Students explore the myriad of ways human beings engage with the Past. Through examination of the development and role of historical inquiry to how we preserve, restore, remember, reenact, manipulate and silence the past, students develop an understanding of how we interpret and analyze the Past as individuals, as communities and as Historians. The role of the historian in society and the ethical considerations which guide the Historian's work are woven through the course content. History majors should take this course during or after their second semester of their junior year. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 497. Special Topics. (1-6 Credits)**

## History Comprehensive Major: Public History Emphasis

### Program Requirements

The comprehensive programs in History are the Public History Emphasis and the Secondary Licensure Emphasis. These emphases do not require a separate minor, and allow students to pursue a course of study in which History is integrated with other disciplines across campus.

This emphasis prepares students for graduate work and employment in Public History fields. A minimum of 65 credits is required, including the required 33 credit History Core, 26 credits of required supporting courses and 6 credits of designated elective courses.

Code	Title	Credits
HIST 200	Historical Inquiry	3
HIST 370	Public History	3
HIST 371	Oral History Workshop	3
HIST 372	Monuments and Museums	3
HIST 373	History of the National Parks Service	3
HIST 399	Internship in History	3
HIST 402	Engaging the Past	3
Select two of the following:		6
HIST 101	World History to 1500 (GT-H11)	
HIST 102	World History Since 1500 (GT-H11)	
HIST 126	U.S. History to 1865 (GT-H11)	
HIST 127	U.S. History Since 1865 (GT-H11)	
Select two of the following:		6
HIST 330	Colonial American	
HIST 333	American Revolution and the Early Republic	
HIST 340	Emergence of the Modern U.S.	
HIST 343	Depression and World War II	
HIST 346	Recent American History	

HIST 348	History of the Trans-Mississippi West	
HIST 349	History of the Hispanic Southwest	
HIST 350	Environmental History of the Borderlands	
Total Credits		33

Code	Title	Credits
<b>Required Supporting Courses</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ANTH 219	Archaeology (with laboratory)	4
ANTH 230	Cultural Anthropology (with laboratory)	4
COM 231	Technical Production I	4
COM 323	Media/ Arts Management	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ROE 230	Interpretation of Natural and Cultural History	3
One of the following:		3-4
BIOL 130	Environmental Biology (GT-SC2)	
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
GEOL 101	Physical Geology (GT-SC2)	
Two of the following:		6
ACC 201	Introduction to Financial Accounting	
ANTH 344	Indians of North America	
ANTH 467	Ethnography Field School	
ART 222	Art History I	
ART 223	Art History II	
ART 321	American Art: Colonial to Modern	
ART 422	Native American Art of North America	
BUAD 185	Business Communication	
BUAD 210	Legal Environment of Business	
BUAD 270	Principles of Marketing	
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	
BUAD 300	Business Ethics	
COM 205	Communication Arts I	
COM 305	Communication Arts II	
COM 346	Multimedia Communication	
CS 120	Professional Computer Skills	
CS 160	Introduction to Web Design	
GEOG 120	Introduction to Human Geography (GT-SS2)	
GEOG 222	Our Digital Earth	
POLS 282	Issues in State and Local Government	
ROE 235	Foundations of Teaching Environmental Education	
Total Credits		33-34

## Capstone Course Requirement

The following course in the History Major fulfills the Capstone Course Requirement: HIST 402 ENGAGING THE PAST.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-

division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 113	Statistical Thinking (GT-MA1)	3
Elective	HIST Elective	3
		Credits
		13
<b>Spring</b>		
ANTH 218	Physical Anthropology (with laboratory)	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
HIST 200	Historical Inquiry	3
Elective	HIST Elective	3
		Credits
		16
<b>Year Two</b>		
<b>Fall</b>		
ANTH 219	Archaeology (with laboratory)	4
HIST 370	Public History	3
Gen Ed	Natural Sciences w/lab (BIOL 130/BIOL 135 or GEOL 101/GEOL 105 or BIOL 150)	4
Gen Ed	Arts & Humanities	3
		Credits
		14
<b>Spring</b>		
ANTH 230	Cultural Anthropology (with laboratory)	4

ROE 230	Interpretation of Natural and Cultural History	3
COM 231	Technical Production I	4
Gen Ed	Arts & Humanities	3
Elective	Elective	3
		Credits 17
<b>Summer</b>		
HIST 373	History of the National Parks Service	3
		Credits 3
<b>Year Three</b>		
<b>Fall</b>		
HIST 371	Oral History Workshop	3
HIST 399	Internship in History	1-3
Elective	Elective (upper division)	6
Elective	Public History Elective	3
		Credits 13-15
<b>Spring</b>		
COM 323	Media/ Arts Management	3
HIST 372	Monuments and Museums	3
Elective	Elective (upper division)	6
Elective	Public History Elective	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
HIST 402	Engaging the Past	3
Elective	Elective (upper division)	9
Elective	HIST Elective (upper division)	3
		Credits 15
<b>Spring</b>		
Elective	Elective (upper division)	10

Elective	HIST Elective (upper division)	3
		Credits 13
		Total 119-121
		Credits

## History Comprehensive Major: Secondary Licensure Emphasis Program Requirements

The comprehensive programs in History are the Public History Emphasis and the Secondary Licensure Emphasis. These emphases do not require a separate minor, and allow students to pursue a course of study in which History is integrated with other disciplines across campus.

This emphasis qualifies students for the State of Colorado License in Social Science Education. A minimum of 66 credits is required, including:

Code	Title	Credits
HIST 101	World History to 1500 (GT-HI1)	3
HIST 102	World History Since 1500 (GT-HI1)	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3
HIST 200	Historical Inquiry	3
Select two upper division History electives		6
HIST 402	Engaging the Past	3
Select three of the following:		9
HIST 330	Colonial American	
HIST 333	American Revolution and the Early Republic	
HIST 336	U.S. Civil War and Reconstruction	
HIST 340	Emergence of the Modern U.S.	
HIST 346	Recent American History	
HIST 348	History of the Trans-Mississippi West	
HIST 349	History of the Hispanic Southwest	
Select two of the following:		6
HIST 309	Modern Germany	
HIST 311	The Medieval World	
HIST 312	Renaissance and Reformation	
HIST 313	Early Modern Europe: Topics	
HIST 315	France and the Revolution	
HIST 317	Modern Europe: Topics	
HIST 351	History of Russia	
HIST 355	African History: Topics	
HIST 360	Mexico	
HIST 365	Latin American Revolutions	
HIST 366	Modern Latin America	
HIST 367	Latin American History: Topics	
Select one of the following:		3
HIST 254	A History of Africa (GT-HI1)	
HIST 257	History of East Asia	
HIST 258	History of Southeast Asia	

HIST 260	Latin American History (GT-HI1)	
<b>Total Credits</b>		<b>42</b>

In addition, the student must fulfill the requirements of the Secondary Licensure Program (see description under Education), and the following:

Code	Title	Credits
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 303	International Economics and Globalization	3
GEOG 110	World Regional Geography (GT-SS2)	3
GEOG 120	Introduction to Human Geography (GT-SS2)	3
GEOG 250	Geography of North America (GT-SS2)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 282	Issues in State and Local Government	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
<b>Total Credits</b>		<b>27</b>

No more than six credits of independent study or correspondence can be counted toward any History Major.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
EDUC 000	Education Gateway Course	0
HIST 101	World History to 1500 (GT-HI1)	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
GEOG 110	World Regional Geography (GT-SS2)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
Essential Skills	Essential Skills GE	3
		<b>Credits 15</b>
<b>Spring</b>		
HIST 102	World History Since 1500 (GT-HI1)	3
HIST 200	Historical Inquiry	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3
POLS 282	Issues in State and Local Government	3
Essential Skills	Essential Skills GE	3
		<b>Credits 15</b>

<b>Year Two</b>		
<b>Fall</b>		
ECON 201	Macroeconomics (GT-SS1)	3
GEOG 120	Introduction to Human Geography (GT-SS2)	3
Essential Skills	Essential Skills GE	3
Elective	HIST Elective (upper division) - World History	3
Elective	HIST Elective (upper division) - U.S. History	3
Elective	HIST Elective (upper division) - Regional History or World History	3
		<b>Credits 18</b>

<b>Spring</b>		
ECON 202	Microeconomics	3
GEOG 250	Geography of North America (GT-SS2)	3
Elective	HIST Elective - World History or Regional History	3
Elective	HIST Elective - U.S. History	3
Elective	HIST Elective (upper division)	3
		<b>Credits 15</b>

<b>Year Three</b>		
<b>Fall</b>		
HIST 402	Engaging the Past	3
Elective	HIST Elective - U.S. History	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Arts & Humanities	3
Gen Ed	Arts & Humanities	3
		<b>Credits 16</b>
<b>Spring</b>		
ECON 303	International Economics and Globalization	3

EDUC 340	Application of Pedagogy and Practice	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
Gen Ed	Natural Sciences w/lab	4
Elective	HIST Elective (upper division)	3
		Credits 16
<b>Year Four</b>		
<b>Fall</b>		
EDUC 403	Instruction and Assessment in Content Area	3
EDUC 404	Creating Positive Learning Environment	3
EDUC 405	Data-driven Instructional Practices	3
EDUC 406	Content Area Literacy	3
EDUC 409	Secondary Student Teaching	3
		Credits 15
<b>Spring</b>		
EDUC 407	Maximizing Learning through 21st Century Skills	3
EDUC 409	Secondary Student Teaching	3
EDUC 420	Application of Classroom Strategies to Engage All Learners	3
EDUC 424	Differentiated Applying Learner-Centered Instruction	3
		Credits 12
		<b>Total Credits 122</b>

## History Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 42 credits is required including the following:

Code	Title	Credits
Select two of the following 100 level courses:		3
HIST 101	World History to 1500 (GT-HI1)	
HIST 102	World History Since 1500 (GT-HI1)	
HIST 126	U.S. History to 1865 (GT-HI1)	
HIST 127	U.S. History Since 1865 (GT-HI1)	
Select two of the following courses in regional history:		3
HIST 254	A History of Africa (GT-HI1)	
HIST 257	History of East Asia	
HIST 258	History of Southeast Asia	
HIST 260	Latin American History (GT-HI1)	
And the following:		
HIST 200	Historical Inquiry	3
HIST 402	Engaging the Past	3
History Electives <sup>1</sup>		21
<b>Total Credits</b>		<b>33</b>

<sup>1</sup> Numbered 300 or above.

No more than six credits in independent studies, internships or correspondence courses can be counted toward any History Major.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3) (GE I)	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
MATH 113	Statistical Thinking (GT-MA1)	3
Elective	HIST Elective	3
		Credits 13
<b>Spring</b>		
ANTH 218	Physical Anthropology (with laboratory)	4
HIST 200	Historical Inquiry	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Elective	HIST Elective	3

Gen Ed	Social Sciences / Minor	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
Gen Ed	Natural Sciences w/lab (BIOL 130/BIOL 135 or GEOL 101/GEOL 105 or BIOL 150)	4
Elective	HIST Elective - Regional History	3
Elective	Minor	3
Gen Ed	Arts & Humanities	3
Gen Ed	Arts & Humanities	3
		Credits 16
<b>Spring</b>		
Elective	HIST Elective - Regional History	3
Elective	Minor	3
Elective	Elective	3
Elective	HIST Elective (upper division)	3
Elective	Minor	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
HIST 399	Internship in History	1-3
Elective	HIST Elective (upper division)	6
Elective	Minor (upper division)	3
Elective	Minor (upper division)	3
		Credits 13-15
<b>Spring</b>		
Elective	HIST Elective (upper division)	6
Elective	Minor (upper division)	3
Elective	Elective	3
Elective	Elective	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
HIST 402	Engaging the Past	3

Elective	HIST Elective (upper division)	3
Elective	Elective	3
Elective	Elective	3
Elective	Elective	3
		Credits 15
<b>Spring</b>		
HIST 399	Internship in History	1-3
Elective	HIST Elective (upper division)	6
Elective	Minor (upper division)	3
Elective	Elective	3
		Credits 13-15
		Total 116-120
		Credits

## History Minor

A minimum of 21 credits is required including 12 credits of upper-division History electives, and the following:

Code	Title	Credits
HIST 200	Historical Inquiry	3
Select one of the following:		3
HIST 101	World History to 1500 (GT-HI1)	
HIST 102	World History Since 1500 (GT-HI1)	
HIST 126	U.S. History to 1865 (GT-HI1)	
HIST 127	U.S. History Since 1865 (GT-HI1)	
Select one of the following:		3
HIST 254	A History of Africa (GT-HI1)	
HIST 257	History of East Asia	
HIST 258	History of Southeast Asia	
HIST 260	Latin American History (GT-HI1)	
Total Credits		9

No more than three credits of HIST 492 Independent Study or HIST 399 Internship in History may be used to satisfy the upper-division electives.

## Public History Emphasis (with a 3+2 Master in Environmental Management)

The Public History emphasis with a 3+2 MEM allows students to complete the B.A. in History with Public History emphasis and the Master in Environmental Management at Western in five years. The Public History Comprehensive major requires a minimum of 65 credits, including the required 33 credit History Core, 23 credits of required supporting courses and 6 credits of designated elective courses.

Upon successful completion of the prescribed Public History program, University defined General Education, and elective requirements totaling 120 credits (with 40 at 300-level or higher), students are eligible for the B.A. conferral. Students electing to complete the MEM must follow the



balance of their declared emphasis curriculum. To remain qualified for the 3+2 by the end of his/her sophomore year each student must have:

- Maintained a 3.0 cumulative GPA and a 3.25 within the major
- Completed 65 credits
- Completed General Education credits

By the end his/her junior year

- Fulfilled the 3-credit internship requirement with a B or above and positive letter from the project sponsor
- Provided three letters of reference from professors or supervisors in related fields
- Provided an 8-10 page writing sample
- Provided a written 800-1,000 word Statement of Purpose to the MEM program, describing the student’s intellectual and professional interests in environmental management and the connections to the field(s) of Public History

In addition to meeting the requirements above, and after Junior Year and completion of Public History emphasis requirements (95 credits in this plan), students will be designated as “MEM candidates with provisional acceptance.” Upon completion of the final 29 credits of the Western B.A. after Year Four of this plan, students will be designated as “MEM degree seeking students.” Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still be able to complete the HIST undergraduate emphasis in Public History and the 120 credits necessary for a Western undergraduate degree within 4 years.

A minimum of 65 credits is required, including the required 33 credit History Core, 23 credits of required supporting courses and 6 credits of designated elective courses.

Code	Title	Credits
HIST 200	Historical Inquiry	3
HIST 370	Public History	3
HIST 371	Oral History Workshop	3
HIST 372	Monuments and Museums	3
HIST 373	History of the National Parks Service	3
HIST 399	Internship in History	3
HIST 402	Engaging the Past	3
Select two of the following:		6
HIST 101	World History to 1500 (GT-HI1)	
HIST 102	World History Since 1500 (GT-HI1)	
HIST 126	U.S. History to 1865 (GT-HI1)	
HIST 127	U.S. History Since 1865 (GT-HI1)	
Select two of the following:		6
HIST 330	Colonial American	
HIST 333	American Revolution and the Early Republic	
HIST 340	Emergence of the Modern U.S.	
HIST 343	Depression and World War II	
HIST 346	Recent American History	
HIST 348	History of the Trans-Mississippi West	
HIST 349	History of the Hispanic Southwest	
HIST 350	Environmental History of the Borderlands	
<b>Total Credits</b>		<b>33</b>

Code	Title	Credits
<b>Required Supporting Courses</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ANTH 219	Archaeology (with laboratory)	4
ANTH 230	Cultural Anthropology (with laboratory)	4
COM 231	Technical Production I	4
COM 323	Media/ Arts Management	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ROE 230	Interpretation of Natural and Cultural History	3
One of the following:		3-4
BIOL 130	Environmental Biology (GT-SC2)	
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
GEOL 101	Physical Geology (GT-SC2)	
Two of the following:		6
ACC 201	Introduction to Financial Accounting	
ANTH 344	Indians of North America	
ANTH 467	Ethnography Field School	
ART 222	Art History I	
ART 223	Art History II	
ART 321	American Art: Colonial to Modern	
ART 422	Native American Art of North America	
BUAD 185	Business Communication	
BUAD 210	Legal Environment of Business	
BUAD 270	Principles of Marketing	
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)	
BUAD 300	Business Ethics	
COM 205	Communication Arts I	
COM 305	Communication Arts II	
COM 346	Multimedia Communication	
CS 120	Professional Computer Skills	
CS 160	Introduction to Web Design	
GEOG 120	Introduction to Human Geography (GT-SS2)	
GEOG 222	Our Digital Earth	
POLS 282	Issues in State and Local Government	
ROE 235	Foundations of Teaching Environmental Education	
<b>Total Credits</b>		<b>33-34</b>

Code	Title	Credits
<b>Core MEM Courses</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
<b>Total Credits</b>		<b>20</b>

Code	Title	Credits
Select one of the following MEM Emphases:		3
ENVS 616	Environmental Organization Development and Management	
ENVS 617	Global Sustainability	
ENVS 618	Public Lands Management	
Total Credits		3

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

### Capstone Course Requirement

The following course in the History Major fulfills the Capstone Course Requirement: HIST 402 ENGAGING THE PAST.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Upon successful completion of the prescribed courses listed below, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

## Major: B.A. in Public History & Master in Environmental Management (3 + 2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3) (GE I)	3
ENG 102	Academic Writing (GT-CO1)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2) (GE I)	3

HWTR 100	First Year Seminar	1
Essential Skills	MATH <sup>1</sup>	3
Elective	HIST Elective	3
Credits		16

Spring		
ANTH 218	Physical Anthropology (with laboratory)	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
HIST 200	Historical Inquiry	3
Elective	HIST Elective	3
Elective	Public History Elective	3
Credits		16

Year Two		
Fall		
ANTH 219	Archaeology (with laboratory)	4
BIOL 130 & BIOL 135 or BIOL 150/151 or GEOL 101/105	Environmental Biology (GT-SC2) (GE 2) or Biological Principles (with laboratory) (GT-SC1) or Physical Geology (GT-SC2)	4
HIST 370	Public History	3
Gen Ed	Arts & Humanities	3
Credits		14

Spring		
ANTH 230	Cultural Anthropology (with laboratory)	4
COM 231	Technical Production I	4
ROE 230	Interpretation of Natural and Cultural History	3
Gen Ed	Arts & Humanities	3
Elective	Public History Elective	3
Credits		17

<b>Summer</b>			
HIST 373	History of the National Parks Service	3	
		Credits	3
<b>Year Three</b>			
<b>Fall</b>			
HIST 371	Oral History Workshop	3	
HIST 399	Internship in History	3	
Elective	HIST Elective (upper division)	3	
Elective	Elective	3	
		Credits	12
<b>Spring</b>			
COM 323	Media/ Arts Management	3	
HIST 372	Monuments and Museums	3	
Elective	HIST Elective (upper division)	3	
Elective	Elective	6	
		Credits	15
<b>Summer</b>			
ENVS 601	Introduction to Environmental Management	5	
		Credits	5
<b>Year Four</b>			
<b>Fall</b>			
ENVS 605	Science of Environmental Management	3	
ENVS 608	Environment Politics and Policy	3	
ENVS 611	Integrative Skill in Environmental Management	3	
HIST 402	Engaging the Past	3	
		Credits	12
<b>Spring</b>			
ENVS 612	Quantitative in Environment Management	3	
ENVS 615	Science of Climate Mitigation and Adaptation	3	

ENVS 618 or ENVS 617 or ENVS 616	Public Lands Management or Global Sustainability or Environmental Organization Development and Management	3
Elective	Elective/ Internship (upper division)	3
		Credits
		12
		Total
		122
		Credits

<sup>1</sup> MATH 113 Statistical Thinking (GT-MA1) or MATH 213 Probability and Statistics or a college level statistics course

## Public History Emphasis (with a 3+2 Master in Gallery Management and Exhibits Specialization)

The Public History emphasis with a 3+2 MGES allows students to complete the B.A. in History with Public History emphasis and the Master in Art with Gallery Management and Exhibits Specialization at Western in five years. The Public History Emphasis requires a minimum of 65 credits, including the required 33 credit History Core, 23 credits of required supporting courses and 6 credits of designated elective courses.

Upon successful completion of the prescribed Public History program, University defined General Education, and elective requirements totaling 120 credits (with 40 at 300-level or higher), students are eligible for the B.A. conferral. Students electing to complete the MGES must follow the balance of their declared emphasis curriculum. To remain qualified for the 3+2 by the end of his/her sophomore year each student must have:

- Maintained a 3.0 cumulative GPA and a 3.25 within the major
- Completed 65 credits
- Completed General Education credits

By the end his/her junior year

- Fulfilled the 3-credit internship requirement with a B or above and positive letter from the project sponsor
- Provided three letters of reference from professors or supervisors in related fields
- Provided an 8-10 page writing sample
- Provided a written 800-1,000 word Statement of Purpose to the MGES program, detailing early career ambitions and ideas/connections for the eventual Master's Project

In addition to meeting the requirements above, and after Junior Year and completion of Public History emphasis requirements (95 credits in this plan), students will be designated as "MGES candidates with provisional acceptance." Upon completion of the final 28 credits of the Western B.A. after Year Four of this plan, students will be designated as "MGES degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate

Select one of the following Masters Emphases:

requirements, yet choose to leave the MGES program before Year 5, will still have completed the History program with an emphasis in Public History and have earned 120 credits necessary for a Western undergraduate degree.

The Public History Emphasis requires a minimum of 65 credits, including the required 33 credit History Core, 23 credits of required supporting courses and 6 credits of designated elective courses.

Code	Title	Credits
HIST 200	Historical Inquiry	3
HIST 370	Public History	3
HIST 371	Oral History Workshop	3
HIST 372	Monuments and Museums	3
HIST 373	History of the National Parks Service	3
HIST 399	Internship in History	3
HIST 402	Engaging the Past	3
Select two of the following:		6
HIST 101	World History to 1500 (GT-HI1)	
HIST 102	World History Since 1500 (GT-HI1)	
HIST 126	U.S. History to 1865 (GT-HI1)	
HIST 127	U.S. History Since 1865 (GT-HI1)	
Select two of the following:		6
HIST 330	Colonial American	
HIST 333	American Revolution and the Early Republic	
HIST 340	Emergence of the Modern U.S.	
HIST 343	Depression and World War II	
HIST 346	Recent American History	
HIST 348	History of the Trans-Mississippi West	
HIST 349	History of the Hispanic Southwest	
HIST 350	Environmental History of the Borderlands	
Total Credits		33

Code	Title	Credits
<b>Required Supporting Courses</b>		
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
ANTH 219	Archaeology (with laboratory)	4
ANTH 230	Cultural Anthropology (with laboratory)	4
COM 231	Technical Production I	4
COM 323	Media/ Arts Management	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ROE 230	Interpretation of Natural and Cultural History	3
One of the following:		3-4
BIOL 130	Environmental Biology (GT-SC2)	
BIOL 150	Biological Principles (with laboratory) (GT-SC1)	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
GEOL 101	Physical Geology (GT-SC2)	
Two of the following:		6
ACC 201	Introduction to Financial Accounting	
ANTH 344	Indians of North America	
ANTH 467	Ethnography Field School	
ART 222	Art History I	
ART 223	Art History II	

ART 321	American Art: Colonial to Modern
ART 422	Native American Art of North America
BUAD 185	Business Communication
BUAD 210	Legal Environment of Business
BUAD 270	Principles of Marketing
BUAD 275	Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset)
BUAD 300	Business Ethics
COM 205	Communication Arts I
COM 305	Communication Arts II
COM 346	Multimedia Communication
CS 120	Professional Computer Skills
CS 160	Introduction to Web Design
GEOG 120	Introduction to Human Geography (GT-SS2)
GEOG 222	Our Digital Earth
POLS 282	Issues in State and Local Government
ROE 235	Foundations of Teaching Environmental Education

Total Credits 33-34

Code	Title	Credits
<b>Core MGES Courses:</b>		
MGES 600		3
MGES 601		3
	or MGES 612	
MGES 602		3
	or MGES 613	
Total Credits		9

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MGES must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the MGES program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/gallery-management-exhibits/>).

### Capstone Course Requirement

The following course in the History Major fulfills the Capstone Course Requirement: HIST 402 ENGAGING THE PAST.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Major: B.A. in Public History and M.A. in Gallery Management & Exhibits Specialization (3 + 2)

Course	Title	Credits	Spring		
<b>Year One</b>					
<b>Fall</b>					
HIST 1xx	100 Level History (GE 1)	3	ANTH 230	Cultural Anthropolog (with laboratory)	4
ANTH 107	Introduction to General Anthropolog (GT-SS3) (GE 1)	3	ROE 230	Interpretation of Natural and Cultural History	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2) (GE 1)	3	COM 231	Technical Production I	3
MATH 113	Statistical Thinking (GT-MA1)	3	Area 3 Gen Ed	General Education	3
ENG 102	Academic Writing (GT-CO1)	3	Open Elective		3
HWTR 100	First Year Seminar	1			
	Credits	16		Credits	16
<b>Spring</b>					
HIST 1xx	100 Level History	3	<b>Summer</b>		
ANTH 218	Physical Anthropology (with laboratory) (GE 2)	4	HIST 373	History of the National Parks Service	3
HIST 200	Historical Inquiry	3			
COM 202	Academic Writing and Inquiry (GT-CO2)	3			
	Credits	13			
<b>Year Two</b>					
<b>Fall</b>					
HIST 370	Public History	3	<b>Year Three</b>		
ANTH 219	Archaeology (with laboratory)	4	<b>Fall</b>		
BIOL 130 & BIOL 135 or GEOL 101/105 or BIOL 150	Environmental Biology (GT-SC2) (GE 2) or Physical Geology (GT-SC2) or Biological Principles (with laboratory) (GT-SC1)	4	HIST 3xx	History Elective	3
Area III Gen Ed	General Education	3	HIST 371	Oral History Workshop	3
	Credits	14	Open Electives		6
			Public History Elective		3
			HIST 399	Internship in History (Upper Division Credits)	3
				Credits	18
			<b>Spring</b>		
			HIST 372	Monuments and Museums	3
			COM 323	Media/ Arts Management	3
			Open Electives		3
			Public History Elective		3
			3xx	History Electives	3
				Credits	15
			<b>Summer</b>		
			MGES 600		3
				Credits	3
			<b>Year Four</b>		
			<b>Fall</b>		
			MGES 601 or MGES 612	or	3
			Electives		6
			HIST 402	Engaging the Past	3
				Credits	12
			<b>Spring</b>		
			MGES 602 or MGES 613	or	3
			Electives		10
				Credits	13

Year Five		
<b>Fall</b>		
MGES 601	or	3
or MGES 612		
MGES 621		3
MGES 631		3
		Credits
		9
<b>Spring</b>		
MGES 602	or	3
or MGES 613		
MGES 622		3
MGES 699		3
		Credits
		9
<b>Summer</b>		
MGES 691		3
		Credits
		3
		Total
		144
		Credits

## Honors Program (HNRS)

The Western Honors Program provides enhanced and challenging academic programming to a carefully selected group of highly motivated and accomplished students from all disciplines. The Honors Program at Western seeks to promote the goals of a liberal arts education by providing students with the opportunity to become autonomous learners within a highly supportive and collaborative academic community. Honors students are encouraged and challenged to free themselves from not only external constraints on the acquisition of knowledge and understanding but also from internal limitations that can prevent critical thinking, reflective analysis, and responsible choice. The Honors Program and its courses enables students to develop the capacity for informed analysis and responsible evaluation and a willingness to submit discoveries and conclusions to an academic community of their peers and mentors to be mutually investigated and critiqued. Small class size, extensive interaction among peers and teachers, experiences outside the traditional classroom, and interdisciplinary and multidisciplinary approaches to education are all features of the program. Such opportunities allow students to explore avenues of intellectual inquiry within and beyond their selected majors and minors.

## Program Benefits

Honors students have the opportunity to become a part of a scholarly community composed of faculty and students committed to the pursuit of intellectual inquiry, creativity, and academic excellence. Benefits of membership in the Western Honors Program also include automatic eligibility for Honors housing and Honors classes, use of the Honors Center, computer lab and classroom in Taylor Hall, participation in Honors Orientation and Honors social and intellectual activities beyond the classroom, priority registration, exclusive opportunity to apply yearly for the Presidential Honors Scholarship, and special recognition at graduation upon completion of the program. Students may also register for Honors Special Topics classes or develop independent and special Honors projects which offer challenging and accelerated learning experiences inside and outside the regular course offerings.

## Admission Requirements

Invitations to the program are extended to high school students who have achieved a 3.50 cumulative grade point average or who have successfully completed International Baccalaureate programs. The test score requirements are an ACT composite score of 25 or higher or an SAT

composite score of 1190. First or second-year Western students who have a minimum overall 3.3 grade point average may also apply. Upper-division students are considered on an individual basis. Transfer students with 29 or fewer credits are invited to join Honors if they have achieved a minimum overall 3.3 college grade point average as well as fulfilled the high school GPA and test score requirements. Transfer students with 29 or more credits and a minimum overall 3.3 college grade point average are considered on an individual basis.

## Program Requirements

Continuation in the program is based on maintaining an overall grade point average of 3.0. Graduation from the program requires a grade point average of 3.3 and completion of program requirements.

A minimum of 21 credits is required:

Code	Title	Credits
HNRS 100	Gateway	3
HNRS 200	Honors Forum (repeated twice for two credits)	2
HNRS 304	Introduction to the Great Conversation	1
HNRS 400	Oxford Tutorial	1
Honors General Education courses <sup>1</sup>		6
Select eight credits of the following (at least six credits must be upper division):		8
HNRS 101	Honors Colloquium	
HNRS 197	Special Topics	
HNRS 201	Honors Colloquium	
HNRS 202	Service Learning in Honors	
HNRS 297	Special Topics	
HNRS 301	Honors Colloquium	
HNRS 302	Service Learning in Honors	
HNRS 303	Honors Field Experience	
HNRS 305	Place as Text	
HNRS 397	Special Topics	
HNRS 402	Service Learning in Honors	
HNRS 401	Honors Colloquium	
HNRS 403	Honors Field Experience	
HNRS 492	Independent Study	
HNRS 494	Thesis Preparation	
HNRS 495	Thesis	
HNRS 497	Special Topics	
Total Credits		21

<sup>1</sup> The six Honors General Education credits will be redistributed to Honors Electives for students who enter the Honors program with completed General Education programs either through Western or gtPathways.



## Honors Courses

### **HNRS 100. Gateway. (3 Credits)**

Through the Gateway students are introduced to different ways of knowing thereby laying the foundation for the further development of a liberal arts education. Students enhance their capacity for informed analysis, responsible evaluation and effective argument construction leading to the ability to base actions and decisions upon the former. The students are encouraged to recognize value in varying epistemologies and engage in an active and intellectual exchange of ideas as part of an academic community formed via students' and instructors' co-investigation of various topics and disciplines. The course culminates with student-chosen and directed group presentations. Prerequisites: admission to the Honors Program and participation in the Honors Orientation program.

### **HNRS 101. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

### **HNRS 197. Special Topics. (1-6 Credits)**

### **HNRS 200. Honors Forum. (2 Credits)**

An application of the core values of the Honors Program including citizenship and community, experiential learning, interdisciplinarity, risk taking and autonomy. Students together develop a research question and engage in active community service-based investigations to complement the exchange of ideas and research to address their question. Students determine an appropriate vehicle for a public presentation of their work and must demonstrate coherent understanding of the selected research question rather than presenting a collection of separate insights. Prerequisites: HNRS 100, and sophomore standing.

### **HNRS 201. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

### **HNRS 202. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

### **HNRS 297. Special Topics. (1-6 Credits)**

### **HNRS 301. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

### **HNRS 302. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

### **HNRS 303. Honors Field Experience. (1-2 Credits)**

Honors students develop field experiences outside the classroom to complement courses without specified field experiences or to develop a more in-depth project for disciplinary-based field experiences. Through formal arrangement between the instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to develop a specific field experience related to the course material. Honors students who successfully complete both the Field Experience and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Field Experience project form in consultation with supervising faculty and the Honors Director.

### **HNRS 304. Introduction to the Great Conversation. (1 Credit)**

An introduction to the ongoing discussion of the timeless and universal ideas that are the foundation of Western Civilization. Students pursue the study of these ideas through guided reading of selections taken from the range of Western intellectual history. Prerequisites: HNRS 100, and junior standing, or instructor permission.

**HNRS 305. Place as Text. (2,3 Credits)**

Provides Honors students with opportunities to integrate experiences of theory and observation with place, time and self through a site-specific active learning experience. Students participate in a series of orientation sessions and complete associated assignments in preparation for a site visit. The class travels to a selected site and explores the concept of “extending text” and mapping the site from a variety of multi and interdisciplinary perspectives. Modeled on the National Collegiate Honors Council City as Text program. Students may take this course twice for credit. Prerequisite: junior standing.

**HNRS 397. Special Topics. (6 Credits)**

**HNRS 400. Oxford Tutorial. (1 Credit)**

Honors students come together as autonomous learners in a supportive academic community to investigate a mutually decided upon theme or topic relating to a liberal arts education and constructive citizenship. Students are expected to illustrate a mastery of the goals promoted by the Honors Program and a liberal arts education including the rigorous application of analysis resulting in a coherent and integrated understanding of the selected theme or topic. Provides an opportunity to engage in larger philosophical inquiry and debate. Prerequisite: HNRS 200, HNRS 304 and senior standing or instructor permission.

**HNRS 401. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

**HNRS 402. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

**HNRS 403. Honors Field Experience. (1-2 Credits)**

Honors students develop field experiences outside the classroom to complement courses without specified field experiences or to develop a more in-depth project for disciplinary based field experiences. Through formal arrangement between the instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to develop a specific field experience related to the course material. Honors students who successfully complete both the Field Experience and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Field Experience project form in consultation with supervising faculty and the Honors Director.

**HNRS 492. Independent Study. (1-6 Credits)**

An opportunity for Honors students to undertake detailed study and/or research into a unique topic or issue stemming from the Honors Core curriculum under supervision of the Honors Director and appropriate regular faculty. May be taken for a maximum of three credits in one semester. Maximum credit toward Honors Program is three credits. Prerequisites: minimum junior standing and/or Honors Director approval.

**HNRS 494. Thesis Preparation. (1 Credit)**

An introduction to the process of developing a thesis project. Students undertake initial research on a potential thesis topic, develop a research plan and write a thesis proposal in preparation of writing an Honors thesis.

**HNRS 495. Thesis. (2-3 Credits)**

The student is required to complete a written thesis based on advanced study in a self-designed research project and present his/her findings to the Honors Council in a public forum. The project must be supervised by a faculty member from a field of study relevant to the student’s thesis. Prerequisites: junior or senior standing; good standing in the Honors Program; and successful completion of at least nine hours in Honors, including HNRS 100.

**HNRS 497. Special Topics. (1-6 Credits)**

## Suggested 4-Year Degree Plan with the Honors Program

As each student’s overall degree plan will vary, depending upon transfer credit and/or major, this is a suggested plan. Students transferring significant numbers of GE credits should meet with the Honors Program Director to make an individualized degree plan.

Course	Title	Credits
<b>Year One</b>		
HNRS 100	Gateway	3
Gen Ed	HNRS section of GE course	3
		Credits 6
<b>Year Two</b>		
HNRS 200	Honors Forum	2
Gen Ed	HNRS section of GE course	3
HNRS	Special Topics elective course Students are encouraged to consider taking an Honors Maymester Abroad course, as available, to earn 3 elective credits.	3
		Credits 8
<b>Year Three</b>		
HNRS 304	Introduction to the Great Conversation	1

HNRS	Special Topics elective course	3
<b>Year Four</b>		
HNRS 400	Oxford Tutorial	1
HNRS	Special Topics elective course	2
Credits		3
Total Credits		21

<b>Spring</b>		
HNRS 304	Introduction to the Great Conversation	1
Credits		1
<b>Year Three</b>		
HNRS 400	Oxford Tutorial	1
HNRS	Special Topics elective course and/or Honors colloquium added to a non-Honors course	3-4
Credits		4-5
Total Credits		19-21

## Suggested 3-Year Degree Plan with the Honors Program

This plan is intended primarily for students either in K-12/Secondary Licensure or 3+2 programs. As each student’s overall degree plan will vary, depending upon transfer credit and/or major, this is a suggested plan. Students transferring significant numbers of GE credits should meet with the Honors Program Director to make an individualized degree plan.

Course	Title	Credits
<b>Year One</b>		
HNRS 100	Gateway	3
Gen Ed	HNRS section of GE course	3
Gen Ed	HNRS section of GE course	3
Credits		9
<b>Year Two</b>		
HNRS	Special Topics elective course and/or Honors colloquium added to a non-Honors course. Students are encouraged to consider taking an Honors Maymester Abroad course, as available, to earn 3 electives credits.	3-4
Credits		3-4
<b>Fall</b>		
HNRS 200	Honors Forum	2
Credits		2

## Latin American Studies

Latin America is a complex and diverse region that resulted from the encounter of indigenous societies, European colonizers, and African peoples. Latin America today is one of the most dynamic regions in the world in terms of economic growth, political interaction with the U.S., and the preservation of natural and cultural resources. The minor in Latin American Studies provides students an opportunity to study this region from a variety of disciplinary angles. By employing the tools of various disciplines, including Art and Art History, the Spanish language, History, Geography and others, students can begin the process of understanding the fascinating peoples and nations of Latin America. The increasing interdependence of the Americas demands that students gain as much exposure as possible to the issues and forces related to the constantly changing relationship between the United States and Latin America.

- Latin American Studies Minor (p. 214)

## Latin American Studies Courses

### LAS 400. Latin American Studies Senior Portfolio. (0 Credits)

A culminating experience to the minor in Latin American Studies in which students develop a portfolio of their best work from courses taken in the minor, and write a reflective essay indicating how those projects represent their learning in the program. The portfolio and essay will be assessed by the LAS Council members, and the Coordinator’s signature is required as evidence of completion of the requirement. A grade of Satisfactory/Unsatisfactory will be reported to the Registrar once the portfolio has been evaluated by the Coordinator. Prerequisite: senior standing and prior completion of all, or co-enrollment in any remaining LAS requirements.

## Latin American Studies Minor

The Latin American Studies minor consists of 21 credits: 15 credits of core courses and 6 credits of electives:

Code	Title	Credits
ART 421	Art of Mesoamerica and the Andean of South America	3
GEOG 351	Geography of Latin America and the Caribbean	3
HIST 260	Latin American History (GT-HI1)	3

SPAN 101	Elementary Spanish I <sup>1</sup>	3
SPAN 102	Elementary Spanish II <sup>1</sup>	3
LAS 400	Latin American Studies Senior Portfolio	0
Select two of the following: <sup>2</sup>		6
ANTH 320	Cultural Ecology	
ECON 303	International Economics and Globalization	
HIST 360	Mexico	
HIST 366	Modern Latin America	
HIST 367	Latin American History: Topics	
POLS 255	Introduction to Comparative Politics (GT-SS1)	
SPAN 341	Latin American Civilization and Culture	
Total Credits		21

<sup>1</sup> Students may substitute SPAN 101 Elementary Spanish I with SPAN 201 Intermediate Spanish I and substitute SPAN 102 Elementary Spanish II with SPAN 202 Intermediate Spanish II. Requests for substitute languages spoken in Latin America (e.g. Portuguese) may be submitted to the designated coordinators of the Latin American Studies minor for substitution consideration.

<sup>2</sup> Students may petition to have other courses that have at least 40% Latin American content count toward the minor. The student is required to submit written evidence of the Latin American content of such courses, including the instructor's signature, to the Coordinator for approval

## Mathematics (MATH)

Mathematics is the language used to understand the universe, from atomic-level chemical reactions, to the motion of the planets around the sun, and everything in between. While many graduates continue on to masters- or doctoral-level studies it's no surprise that others use the critical thinking and reasoning skills learned at Western in a wide variety of fields including engineering, education, software programming, database management, research for business firms, and more. A degree in Mathematics can open the door to almost any career.

Western's Mathematics program provides several paths into these exciting professions. The standard major gives a sound foundation from which one can pursue advanced degrees or enter the business world with excellent quantitative skills. The secondary licensure emphasis is designed for people who want to teach in high schools or middle schools, where a shortage of well-qualified math teachers provides excellent job opportunities. The actuarial science emphasis trains students to analyze risk for the insurance and finance industries. Many actuarial science students are able to pass the first professional certification test before they graduate.

Regardless of one's major, the two mathematics minors will add quantitative skills critical to success and advancement in any profession. The standard minor provides a well-rounded set of problem solving skills and the ability to analyze complicated situations. The data analytics minor is designed to add the computational fluency which is driving nearly every profession now. This minor prepares students to analyze large data sets and extract valuable knowledge from data. These data are being produced in many fields and this minor allows students to work with professionals in other fields to derive appropriate solutions.

- Data Analytics Minor (p. 218)
- Mathematics Comprehensive Major: Actuarial Science Emphasis (p. 218)

- Mathematics Comprehensive Major: Secondary Licensure Emphasis (p. 219)
- Mathematics Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/mathematics/mathematics-comprehensive-secondary-licensure-3-2/>)
- Mathematics Major: Standard Program (p. 221)
- Mathematics Minor (p. 223)

## Capstone Course Requirement

The following course fulfills the capstone course requirement: MATH 495 Senior Seminar

## Mathematics Courses

### MATH 098. Beginning Algebra. (3 Credits)

An introduction to algebra with a review of basic arithmetic. Includes decimals, fractions, percentages, ratios, proportions, signed numbers, algebraic expressions, factoring, exponents and radicals, linear equations, and graphs. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only.

### MATH 099. Intermediate Algebra. (3 Credits)

A review of the arithmetic of fractions and decimals, percentage problems, signed numbers, arithmetic, and topics of basic algebra, including simplifying algebraic expressions, solving and graphing linear equations, basic factoring, working with algebraic fractions, and solving rational and quadratic equations. This course is designed for students who need a review of the basic algebra skills necessary to complete the required mathematics course MATH 140. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only. Prerequisite: ACT math score of 16 or above; SAT math score of 440 or above, MATH 098; or Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 265 or above.

### MATH 102. College Algebra Skills. (1 Credit)

A review of the math skills necessary to succeed in MATH 140, College Algebra. Prerequisites: an assessment equivalent to ACT math score between 17-20; a SAT Math score between 450-530; an Accuplacer Advanced Algebra and Functions test score of 235 or above; or a Compass Algebra score between 26-44; and a high school GPA of 2.75 or higher. Co-requisite MATH 140. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in Math.

### MATH 103. Statistical Thinking Skills. (1 Credit)

A review of the math skills necessary to succeed in MATH 113, Statistical Thinking. Prerequisites: an assessment equivalent to ACT math score between 16-20; a SAT Math score between 440-530; an Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 230 or above; and a high school GPA of 2.75 or higher; or MATH 098. Co-requisite MATH 113. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in Math.

### MATH 105. Mathematics for the Liberal Arts (GT-MA1). (3 Credits)

Topics may include practical applications such as personal finance and numbers in the media, along with aesthetic applications such as connections between mathematics and art or music. GT-MA1



**MATH 113. Statistical Thinking (GT-MA1). (3 Credits)**

A course introducing the ideas of statistical analysis. Topics include data visualization and summarization, parameter estimation, and hypothesis testing. This course emphasizes practical aspects of data analysis and makes extensive use of spreadsheets and real data. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 240 or above; or co-requisite MATH 103 (SAI). GT-MA1

**MATH 140. College Algebra (GT-MA1). (3 Credits)**

An integration of the essential algebraic manipulations, solving equations and inequalities, polynomial functions, exponential and logarithmic functions, and techniques of graphing. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Elementary Advanced Algebra and Functions test score of 245 or above; or co-requisite MATH 102 (SAI). GT-MA1

**MATH 141. Precalculus (GT-MA1). (4 Credits)**

This course explores the theory and applications of trigonometry, and includes an introduction to vector and matrix analysis. Topics may include the unit circle, triangle trigonometry, trigonometric functions, polar coordinates, complex numbers, vector geometry, and applied matrix techniques. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above. GT-MA1

**MATH 151. Calculus I (GT-MA1). (4 Credits)**

A study of differential calculus, including limits, continuous functions, Intermediate Value Theorem, tangents, linear approximation, inverse functions, implicit differentiation, extreme values and the Mean Value Theorem. This course also introduces Integral calculus including anti-derivatives, definite integrals, and the Fundamental Theorem of Calculus. Prerequisite: ACT math score of 27 or above; SAT math score of 630 or above; or MATH 141 with a minimum grade of C-. GT-MA1

**MATH 197. Special Topics. (1-6 Credits)****MATH 200. Discrete Mathematics. (3 Credits)**

A study of the discrete mathematics necessary for computer science. Topics include logic, set theory, Boolean algebra, functions and relations, graphs, propositional and predicate calculus, proofs, mathematical induction, recurrence relations, combinatorics and discrete probability. Computer science applications are emphasized. Prerequisites: MATH 151 and CS 191 with minimum grades of "C-".

**MATH 209. Mathematics for Elementary School Teachers I. (3 Credits)**

First of two courses designed for prospective elementary teachers. Emphasizes the real number system, arithmetic operations, and algebra. Explorations focus on representing, analyzing, generalizing, formalizing, and communicating patterns and structures. Content is presented using problem solving and exploration. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above.

**MATH 210. Mathematics for Elementary School Teachers II. (3 Credits)**

Second of two courses designed for prospective elementary teachers. Emphasizes probability, data analysis, and geometry. Explorations focus on representations of data and two and three-dimensional shapes, their properties, measurements, constructions, and transformations. Prerequisite: MATH 209 with a minimum grade of C-.

**MATH 213. Probability and Statistics. (3 Credits)**

A course in the use of statistical techniques to draw knowledge from data. Topics include exploratory data analysis, descriptive statistics, t-procedures, ANOVA, chi squared procedures, regression, and non-parametric tests. Statistical software is used extensively to analyze real data sets. Prerequisite: ACT math score of 27 or above; or SAT math score of 630 or above; or MATH 141 with a minimum grade of C-; or instructor permission.

**MATH 220. Introduction to Advanced Mathematics. (3 Credits)**

Students develop and use elementary logic and set theory to construct deductive proofs with relations, functions, and some algebraic structures. Topics include indexing, equivalence relation theory, and cardinality. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 221. Foundations of Mathematics for Teaching I. (3 Credits)**

First of three courses designed for prospective elementary school teachers. This course emphasizes the real number system and arithmetic operations. Explorations focus on mathematical structures and subsets of real numbers, via patterns, relationships, and properties. Content is presented using problem solving and exploration. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Advanced Algebra and Functions test score of 245 or above.

**MATH 222. Foundations of Mathematics for Teaching II. (3 Credits)**

Second of three courses designed for prospective elementary school teachers. This course emphasizes proportional relationships, algebra, probability, and data analysis. Explorations focus on representing, analyzing, generalizing patterns and the chances of future events. Content is presented using problem solving and exploration. Prerequisite: MATH 221 with a minimum grade of C-; or instructor permission. Co-requisite: MATH 140.

**MATH 232. Applied Calculus for the Managerial and Social Science. (3 Credits)**

An introduction to differential and integral calculus for students majoring in business, accounting or the social sciences. The calculus is presented using a variety of real-world business and economic applications, stressing marginality, elasticity, and accumulation. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; Math 140 with a minimum grade of "C-"; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above.

**MATH 251. Calculus II. (4 Credits)**

Topics include techniques of integration, area computations, improper integrals, infinite series and various convergence tests, power series, Taylor's Formula, polar coordinates, and parametric curves. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 252. Calculus III. (4 Credits)**

Topics include calculus of functions of several variables, differentiation and elementary integration, vectors in the plane and space. Prerequisite: MATH 251 with a minimum grade of C-.

**MATH 260. Applied Linear Algebra. (3 Credits)**

A course in the techniques and applications of linear algebra. The core topics include solving systems of linear equations, eigenvalues and eigenvectors, matrix decomposition, the pseudoinverse and least squares approximations, and the singular value decomposition. The theory is supplemented with extensive applications and computer programming. Prerequisite: MATH 141.

**MATH 266. Secondary Mathematics from an Advanced Perspective. (3 Credits)**

A course designed to help Secondary Licensure Emphasis majors understand the core mathematical content of high school mathematics courses before calculus. These concepts are treated from an advanced standpoint, emphasizing connections and extensions. Topics include number systems, polynomial and transcendental functions, analytic geometry, theory of equations, and measurement. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 275. Scientific Programming, Modeling, and Simulation. (3 Credits)**

Designed to develop programming skills appropriate for scientific and industrial applications. Topics may include numerical solution of differential equations, singular value decomposition, and Fourier analysis. Emphasis is placed on modeling, algorithm development and data visualization. Prerequisite: CIS 190 and MATH 151 with a minimum grade of C-.

**MATH 292. Independent Study. (1-6 Credits)****MATH 297. Special Topics. (1-6 Credits)**

**MATH 300. Introduction to Mathematical Modeling. (3 Credits)**  
Designed to teach the basic principles of mathematical modeling and applied mathematics. Techniques from calculus, statistics, and probability are utilized to model real-world problems. Analytic and numeric tools are used to implement the models, obtain predictions and investigate underlying mechanisms. Topics include dimensional analysis, curve fitting, simulations, differential and difference equations. Prerequisites: MATH 251 and MATH 213 with minimum grades of C-.

**MATH 313. Statistical Modeling and Simulation. (3 Credits)**

A study of statistical techniques used to model, simulate and understand complex data. The core topics include linear and nonlinear multivariate models, generalized additive models, tree-based models, and mixed effects models, as well as techniques for selection and regularization of models. Emphasis is placed on computational techniques appropriate to large data sets and data visualization. Prerequisites: MATH 213 or ECON 216; and MATH 260; and CS190.

**MATH 314. Applied Probability. (3 Credits)**

A study of the basic principles of probability theory and their applications. Topics include combinatorial analysis, conditional probabilities, discrete and continuous random variables, and measures of centrality and variance. Emphasis is placed on applications using probability distributions (including binomial, geometric, Poisson, uniform, exponential, and normal distributions) to assess and manage risk in the fields of finance, insurance, medicine, and quality control. Prerequisite: MATH 251 with a grade C- or better.

**MATH 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. MATH 317 and BIOL 317 cannot both be taken for credit. Prerequisite: MATH 213 and either MATH 151 or CS 190.

**MATH 323. Foundations of Mathematics for Teaching III. (3 Credits)**

Third of three courses designed for prospective elementary school teachers. This course emphasizes development of spatial reasoning in geometry and measurement. Explorations focus on representations of one-, two-, and three-dimensional shapes, their properties, measurements, constructions, and transformations. Content is presented using problem solving and exploration. Prerequisite: MATH 222 with a minimum grade of C-; or instructor permission.

**MATH 330. Topics in Geometry. (3 Credits)**

An introduction to modern geometries. Topics include synthetic, analytic, vector, and transformational approaches to geometry. Classification of geometries, axiomatics, and the application of geometry may also be included. Prerequisite: MATH 220 with a minimum grade of C-.

**MATH 354. Differential Equations. (3 Credits)**

A study of the theory and methods for solving ordinary differential equations. Prerequisite: MATH 251 with a minimum grade of C-.

**MATH 358. Introduction to Differential Equations and Linear Algebra. (4 Credits)**

An introduction to ordinary differential equations, systems of linear equations, matrices, determinants, vector spaces, linear transformations, and systems of linear differential equations. Only one of the following courses, MATH 358 or MATH 354, may be taken for credit. Prerequisite: MATH 251 with a minimum grade of "C-."

**MATH 360. Linear Algebra. (3 Credits)**

A study of systems of linear equations, matrix operations, vector spaces, properties of determinants, eigenvalues, eigenvectors, orthogonality and least-squares. Emphasis is placed on theoretical aspects and general vector space properties with proof. Prerequisite: MATH 260, MATH 220 with a minimum grade of "C-."

**MATH 366. Methods of Teaching Secondary Mathematics. (3 Credits)**

Secondary Licensure Emphasis majors learn to use the latest teaching techniques and technologies to prepare valid mathematics tests, to be able to effectively evaluate their students, to know the latest developments in secondary mathematics curriculum, and to become familiar with professional mathematics teaching organizations and their journals. Prerequisites: MATH 220 and MATH 266 with minimum grades of C-.

**MATH 370. History of Mathematics. (3 Credits)**

Acquaints the student with the historical development of mathematics. Includes an introduction to the proper methods and accepted formats of written, graphical, and oral communication in mathematics. Prerequisites: MATH 220 and MATH 251 with minimum grades of C-.

**MATH 375. Numerical Methods. (3 Credits)**

A study of techniques of computation for power-series calculation of functions; roots of equations; nonlinear simultaneous equations; matrices, determinants, and linear simultaneous equations; numerical integration; and differential equations. Prerequisites: MATH 251 and either CIS 275 or CIS 310 with minimum grades of C-.

**MATH 380. Introduction to Cryptography. (3 Credits)**

A presentation of the mathematical background to modern cryptography. Topics include symmetric and asymmetric cryptography, block ciphers, hashing, digital signatures, RSA and discrete-logarithm-based systems, and error correction. The course emphasizes rigorous mathematical formulations as well as programming algorithms. Prerequisite: MATH 151 or CS 191 with minimum grade of "C-".



**MATH 390. Introduction to Peer Tutoring in Mathematics. (1 Credit)**

Strategies for tutoring mathematics at the college level, with a focus on presenting mathematical concepts and procedures, reducing anxiety, and improving study skills. May be repeated for up to four credits. Graded Satisfactory/Unsatisfactory only. Prerequisite: MATH 151 with a minimum grade of "B-" and instructor permission.

**MATH 391. Seminar in Mathematics. (1 Credit)**

A selected topic from areas of mathematics not usually included in the regular curriculum. Student involvement through presentations is emphasized. May be taken under different topics for a total of two credits.

**MATH 392. Independent Study in Mathematics. (1-4 Credits)****MATH 397. Special Topics. (1-6 Credits)****MATH 414. Actuarial Mathematics. (3 Credits)**

A study of mathematical concepts useful in risk management, including multivariate probability and interest theory. Topics include the Central Limit Theorem, joint distributions, combinations of distributions, conditional and marginal probabilities, time value of money, annuities, and loans. Emphasis is placed on solving problems from the actuarial field, including applications to insurance and business. Prerequisites: MATH 252 with a minimum grade of "C-"; MATH 314 with a minimum grade of "C-".

**MATH 451. Analysis I. (3 Credits)**

An introduction to the theory of calculus. Topics include the usual topology of the reals, sequences, limits, continuity, differentiation, and Riemann integration. Prerequisites: MATH 220 and MATH 251 with minimum grades of C-.

**MATH 456. Introduction to Complex Analysis. (3 Credits)**

An introduction to the theory and applications of complex variables. Topics include analytic and elementary functions, integrals, series, residues, and conformal mapping. Prerequisites: MATH 220 and MATH 252 with minimum grades of C-.

**MATH 471. Abstract Algebra I. (3 Credits)**

An introduction to the theory of groups and rings. The fundamental group properties and concepts including cyclic groups, subgroups, direct products, symmetric groups, cosets, normal subgroups, and the group homomorphism theorems are discussed. Prerequisite: MATH 220 with a minimum grade of C-, and at least three upper-division mathematics credits.

**MATH 490. Workshop. (2 Credits)**

A study of a variety of mathematical topics generally dictated by student interest. The course may be taken for credit three times if the content of the workshop differs.

**MATH 492. Independent Study. (1-4 Credits)****MATH 495. Senior Seminar. (2 Credits)**

A capstone course for all mathematics majors. Each student selects an area of interest, researches the selected area, generates a reference list and research paper, and presents the paper to a seminar of faculty and students. Prerequisites: MATH 260 and either MATH 451 or MATH 471

**MATH 496. Senior Seminar Professional Experience. (1 Credit)**

Provides students an opportunity to prepare their Senior Seminar research for the mathematics community outside of Western. Graded Satisfactory/Unsatisfactory only. Prerequisite: Instructor permission. Co-requisite: MATH 495.

**MATH 497. Special Topics. (1-6 Credits)****MATH 499. Internship in Mathematics. (1-12 Credits)**

Students participate in supervised field experience with a cooperating firm in the mathematics field. The sponsoring faculty member provides evaluations after the field experience is complete. A formal paper is required of the student. Specific department requirements must be met to participate in this course. Prerequisite: 18 credits of Mathematics course work, including nine upper-division credits.

## Data Analytics Minor

The Data Analytics Minor consists of the following courses:

Code	Title	Credits
MATH 213	Probability and Statistics	3
or ECON 216	Statistics for Business and Economics	
CS 190	Computer Science I	3
ECON 202	Microeconomics	3
MATH 260	Applied Linear Algebra	3
MATH 313	Statistical Modeling and Simulation	3
ECON 316	Econometrics	3
CS 303	Machine Learning	3
Total Credits		21

## Mathematics Comprehensive Major: Actuarial Science Emphasis

### Program Requirements

A minimum of 59 credits is required, including the 25-credit Mathematics Core:

Code	Title	Credits
<b>Mathematics Core</b>		
CS 190	Computer Science I	3
MATH 151	Calculus I (GT-MA1)	4
MATH 220	Introduction to Advanced Mathematics	3
MATH 251	Calculus II	4
MATH 260	Applied Linear Algebra	3
MATH 451	Analysis I	3
MATH 471	Abstract Algebra I	3
MATH 495	Senior Seminar	2
Total Credits		25

And the following:

Code	Title	Credits
One of the following:		
BUAD 220	Spreadsheets and Analysis	3
CS 120	Professional Computer Skills	
And:		
BUAD 311	Business Analytics	3
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 316	Econometrics	3
ECON 361	Money, Banking, and Financial Markets	3
MATH 213	Probability and Statistics	3

MATH 252	Calculus III	4
MATH 313	Statistical Modeling and Simulation	3
MATH 314	Applied Probability	3
MATH 414	Actuarial Mathematics	3
<b>Total Credits</b>		<b>34</b>

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
MATH 151	Calculus I (GT-MA1)	4
MATH 260	Applied Linear Algebra	3
ECON 201	Macroecono (GT-SS1)	3
Gen Ed	Arts & Humanities	3
<b>Credits</b>		<b>14</b>

<b>Spring</b>		
MATH 251	Calculus II	4
CS 190	Computer Science I	3
MATH 213	Probability and Statistics	3
ECON 202	Microeconor	3
ENG 102	Academic Writing (GT-CO1)	3
<b>Credits</b>		<b>16</b>

<b>Year Two</b>		
<b>Fall</b>		
MATH 252	Calculus III	4
MATH 314	Applied Probability	3
ECON 316	Econometrics	3
Gen Ed	Natural Sciences w/lab	4
<b>Credits</b>		<b>14</b>

<b>Spring</b>		
MATH 414	Actuarial Mathematic:	3
MATH 313	Statistical Modeling and Simulation	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
<b>Credits</b>		<b>15</b>

<b>Year Three</b>		
<b>Fall</b>		
BUAD 220	Spreadsheet and Analysis	3

MATH 220	Introduction to Advanced Mathematics	3
ECON 361	Money, Banking, and Financial Markets	3
Gen Ed	Arts & Humanities	3
Elective	Elective	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
BUAD 311	Business Analytics	3
Gen Ed	Natural Sciences	4
Elective	Elective	3
Elective	Elective	1
Elective	Elective (upper division)	3
Elective	Elective (upper division)	3
<b>Credits</b>		<b>17</b>

<b>Year Four</b>		
<b>Fall</b>		
MATH 451	Analysis I	3
Gen Ed	Social Sciences	3
Elective	Elective	3
Elective	Elective (upper division)	3
Elective	Elective (upper division)	3
<b>Credits</b>		<b>15</b>

<b>Spring</b>		
MATH 471	Abstract Algebra I	3
MATH 495	Senior Seminar	2
Elective	Elective	3
Elective	Elective	3
Elective	Elective (upper division)	3
<b>Credits</b>		<b>14</b>

Total Credits 120

## Mathematics Comprehensive Major: Secondary Licensure Emphasis Program Requirements

This emphasis qualifies students for the State of Colorado License to teach Mathematics in junior high, middle school or high school. Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible. A minimum of 50 credits is required including the 25-credit Mathematics Core:

Code	Title	Credits
<b>Mathematics Core</b>		
CS 190	Computer Science I	3
MATH 151	Calculus I (GT-MA1)	4
MATH 220	Introduction to Advanced Mathematics	3
MATH 251	Calculus II	4
MATH 260	Applied Linear Algebra	3
MATH 451	Analysis I	3
MATH 471	Abstract Algebra I	3
MATH 495	Senior Seminar	2
Total Credits		25

And the courses listed below. In addition, the student must fulfill the requirements of the Secondary Licensure Program (see description under Education).

Code	Title	Credits
MATH 213	Probability and Statistics	3
MATH 252	Calculus III	4
MATH 266	Secondary Mathematics from an Advanced Perspective	3
MATH 330	Topics in Geometry	3
MATH 360	Linear Algebra	3
MATH 366	Methods of Teaching Secondary Mathematics	3
MATH 370	History of Mathematics	3
MATH 300 or MATH 313	Introduction to Mathematical Modeling Statistical Modeling and Simulation	3
Total Credits		25

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
MATH 151	Calculus I (GT-MA1)	4
MATH 260	Applied Linear Algebra	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
Gen Ed	Social Sciences	3
		Credits 14
<b>Spring</b>		
CS 190	Computer Science I	3
MATH 251	Calculus II	4
MATH 213	Probability and Statistics	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
MATH 252	Calculus III	4

MATH 220	Introduction to Advanced Mathematics	3
MATH 330	Topics in Geometry	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Arts & Humanities	3
		Credits 16

<b>Spring</b>		
MATH 360	Linear Algebra	3
MATH 313	Statistical Modeling and Simulation	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
Elective	Elective	3
		Credits 16

<b>Year Three</b>		
<b>Fall</b>		
MATH 266	Secondary Mathematics from an Advanced Perspective	3
MATH 451	Analysis I	3
MATH 370	History of Mathematics	3
EDUC 000	Education Gateway Course	0
Gen Ed	Natural Sciences w/lab	4
Elective	Elective	3
		Credits 16

<b>Spring</b>		
MATH 366	Methods of Teaching Secondary Mathematics	3
MATH 471	Abstract Algebra I	3
MATH 495	Senior Seminar	2
EDUC 340	Application of Pedagogy and Practice	3
Gen Ed	Arts & Humanities	3
Elective	Elective	1
		Credits 15

Year Four			
Fall			
EDUC 403	Instruction and Assessment in Content Area	3	
EDUC 404	Creating Positive Learning Environment	3	
EDUC 405	Data-driven Instructional Practices	3	
EDUC 406	Content Area Literacy	3	
EDUC 409	Secondary Student Teaching	3	
		Credits	15
Spring			
EDUC 407	Maximizing Learning through 21st Century Skills	3	
EDUC 420	Application of Classroom Strategies to Engage All Learners	3	
EDUC 424	Differentiation: Applying Learner-Centered Instruction	3	
EDUC 409	Secondary Student Teaching	3	
		Credits	12
		Total Credits	120

MATH 471	Abstract Algebra I	3
MATH 495	Senior Seminar	2
<b>Total Credits</b>		<b>25</b>

And at least 16 credits from the following:

Code	Title	Credits
CS 191	Computer Science II	3
MATH 213	Probability and Statistics	3
MATH 252	Calculus III	4
MATH 300	Introduction to Mathematical Modeling	3
MATH 313	Statistical Modeling and Simulation	3
MATH 314	Applied Probability	3
MATH 317	Genome Analysis (with laboratory)	3
MATH 330	Topics in Geometry	3
MATH 354	Differential Equations	3
MATH 360	Linear Algebra	3
MATH 370	History of Mathematics	3
MATH 397	Special Topics	1-6
MATH 414	Actuarial Mathematics	3
MATH 456	Introduction to Complex Analysis	3
MATH 497	Special Topics	1-6
<b>Total Credits</b>		<b>42-52</b>

Degree Plan for students who will be starting with MATH 140 (not Calculus ready):

Course	Title	Credits
Year One		
Fall		
HWTR 100	First Year Seminar	1
MATH 140	College Algebra (GT-MA1)	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Arts & Humanities	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
		Credits
		16
Spring		
CS 190	Computer Science I	3
MATH 141	Precalculus (GT-MA1)	4
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
Elective	Elective/Minor	3
		Credits
		16
Year Two		
Fall		
MATH 151	Calculus I (GT-MA1)	4

# Mathematics Major: Standard Program

## Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 41 credits is required, including the 25-credit Mathematics Core:

Code	Title	Credits
Mathematics Core		
CS 190	Computer Science I	3
MATH 151	Calculus I (GT-MA1)	4
MATH 220	Introduction to Advanced Mathematics	3
MATH 251	Calculus II	4
MATH 260	Applied Linear Algebra	3
MATH 451	Analysis I	3

MATH 260	Applied Linear Algebra	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
Elective	Elective/Minor	1
		<b>Credits</b> 15

**Spring**

MATH 251	Calculus II	4
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Elective	MATH Elective	3
Gen Ed	Natural Sciences w/lab	4
		<b>Credits</b> 14

**Year Three**

**Fall**

MATH 220	Introduction to Advanced Mathematics	3
Elective	MATH Elective	3
Gen Ed	Social Sciences	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
		<b>Credits</b> 15

**Spring**

Elective	MATH Elective (upper division)	3
Elective	MATH Elective (upper division)	3
Gen Ed	Arts & Humanities	3
Elective	Elective/Minor	3
Elective	Elective (upper division)/Minor	3
		<b>Credits</b> 15

**Year Four**

**Fall**

MATH 451	Analysis I	3
Elective	MATH Elective (upper division)	3
Elective	Elective (upper division)/Minor	3

Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
		<b>Credits</b> 15

**Spring**

MATH 495	Senior Seminar	2
MATH 471	Abstract Algebra I	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
		<b>Credits</b> 14
		<b>Total Credits</b> 120

Degree Plan for students who will be starting with MATH 151 (Calculus ready):

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
MATH 151	Calculus I (GT-MA1)	4
MATH 260	Applied Linear Algebra	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	Arts & Humanities	3
		<b>Credits</b> 14
<b>Spring</b>		
CS 190	Computer Science I	3
MATH 251	Calculus II	4
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
Elective	Elective/Minor	3
		<b>Credits</b> 16

**Year Two**

**Fall**

MATH 220	Introduction to Advanced Mathematics	3
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Gen Ed	Natural Sciences w/lab	4
Gen Ed	Social Sciences	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
		Credits 16
<b>Spring</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Elective	MATH Elective	3
Elective	MATH Elective (upper division)	3
Elective	Elective/Minor	3
Gen Ed	Natural Sciences w/lab	4
		Credits 16
<b>Year Three</b>		
<b>Fall</b>		
Elective	MATH Elective	3
Elective	MATH Elective (upper division)	3
Elective	Elective/Minor	3
Elective	Elective/Minor	3
Gen Ed	Social Sciences	3
		Credits 15
<b>Spring</b>		
MATH 471	Abstract Algebra I	3
Elective	MATH Elective (upper division)	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
Gen Ed	Arts & Humanities	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
MATH 451	Analysis I	3
Elective	MATH Elective (upper division)	3

Elective	Elective/Minor	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
		Credits 15
<b>Spring</b>		
MATH 495	Senior Seminar	2
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
Elective	Elective (upper division)/Minor	3
Elective	Elective/Minor	3
		Credits 14
		Total Credits 121

## Mathematics Minor

The Mathematics Minor requires a minimum of 18 credits:

Code	Title	Credits
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
MATH elective (300-level or above, excluding MATH 366 and MATH 390)		3
Select at least seven credits of the following:		7
MATH 213	Probability and Statistics	
MATH 220	Introduction to Advanced Mathematics	
MATH 252	Calculus III	
MATH 260	Applied Linear Algebra	
MATH 275	Scientific Programming, Modeling, and Simulation	
MATH 297	Special Topics	
any upper-division Mathematics course excluding MATH 366 and MATH 390		
<b>Total Credits</b>		<b>18</b>

## Music (MUS)

The discipline of music and music making requires the integration of technical skills, creativity, analytical thinking, and understanding. Students electing to study music work with faculty musicians in classes, ensembles, and private lessons to acquire basic musicianship skills, develop performance abilities, learn about music's role in past and present cultures, and gain the enthusiasm and tools needed for lifelong teaching and learning in the field of music. A degree in music within a liberal arts curriculum provides a broad background, allowing students to enter many careers and to pursue further study and graduate work



in many areas. Graduates of Western's Music Department are now involved in a variety of careers, including the recording industry, concert management, counseling, librarianship, music business, accompanying, coaching, church music, independent teaching, and performance. Many graduates have elected to take the additional music and education courses leading to licensure in Music Education and are pursuing careers in the public schools of Colorado and the nation, often pursuing graduate study in a variety of fields within the education profession.

The Music Department also provides opportunities for all members of the Western community to gain rewarding musical experience as participants in ensembles. Many courses are offered to all students of the University to provide an awareness of music and its importance to all cultures. Free concerts by faculty, students, and guests are performed for the University and the Gunnison community.

Three Comprehensive Program Emphases are available for students who wish to major in music: Music Emphasis, Music Education Emphasis, and Business Emphasis. All programs require study in all areas of music— theory, basic keyboard skills, history and literature, individual and group performance, conducting, and research methods. The Music Education Emphasis includes additional methods and techniques courses designed to qualify students for music-teacher licensure in Colorado. Additional Education courses for the K-12 licensure are administered by the Education Program.

The Music Minor consists of theory and history courses and electives chosen from the offerings of the Music Department.

Western Colorado University is an accredited institutional member of the National Association of Schools of Music.

- Music Comprehensive Major: Business Emphasis (p. 228)
- Music Comprehensive Major: K-12 Music Education Emphasis (p. 230)
- Music Comprehensive Major: K-12 Music Education Emphasis (with a 3+2 Master of Arts) (<https://catalog.western.edu/undergraduate/programs/music/music-comprehensive-k-12-music-education-3-2/>)
- Music Comprehensive Major: Music Emphasis (p. 234)
- Music Minor (p. 236)
- Music Technology Minor (p. 237)

## Capstone Course Requirement

The following course in the Music Major fulfills the Capstone Course Requirement: MUS 491 Seminar in Research.

## Music Courses

### **MUS 000. Concert and Convocation Attendance. (0 Credits)**

Designed to encourage concert and convocation attendance as a means of learning about music literature and style, performance practice, and topics of interest to musicians. Attending 75% of the posted events in each semester (as either listener or performer) qualifies as a 'Satisfactory' grade. Graded Satisfactory/Unsatisfactory only.

### **MUS 100. Fundamentals of Music (GT-AH1). (3 Credits)**

An introduction to music literacy and theory. Students acquire basic skills of reading, writing, and performing music and gain an understanding of scales, intervals, chords, and transposition. The course is open to students with little or no musical background. GT-AH1

### **MUS 101. Orchestra. (1 Credit)**

Open to all who play orchestral instruments and who wish to experience playing orchestral music. The course includes the study and performance of orchestral literature.

### **MUS 102. Symphonic Band. (1 Credit)**

Open to all who play band instruments. The course includes the study and performance of symphonic band literature. Membership is open to Music majors and non-Music majors by audition.

### **MUS 103. Pep Band. (0.5 Credits)**

Open to all who play band instruments, guitar, bass guitar, and piano. The course includes the study of popular music and performance at university athletic functions including football, basketball, and volleyball events.

### **MUS 104. Concert Choir. (1 Credit)**

Open to anyone with singing experience. The Western Concert Choir studies and performs choral masterworks from all historical periods of music. Membership is open to Music majors and non-Music majors by audition.

### **MUS 105. Opera. (1 Credit)**

Designed to provide experience in musical-dramatic activities. May be taken two times for credit. Prerequisite: admission by campus-wide audition.

### **MUS 120. Introduction to Music Education. (1 Credit)**

An introductory course for the music major interested in music education K-12. This course provides students with an overview of the concepts, methods and techniques used in music education. Students learn the historical, philosophical, and practical conventions, of all areas of music education, including elementary music, choir orchestra, and band. Students examine different aspects involved in teaching music in public schools, goals of various music programs, and existing curricula including sample lesson plans. Included is an introduction to the Colorado standards for music education K-12 and technology used in music education. Prerequisite to the 300-level music education methods classes.

### **MUS 121. Instrumental and Vocal Chamber Music. (0.5-1 Credits)**

Designed to give the student-musician rehearsal and performance experience in the area of ensemble and chamber music. Includes the Brass, Woodwind, Percussion, String, and Jazz Ensembles, as well as Chamber Singers, and additional small ensembles. Membership is open to Music majors and non-Music majors by audition. Credit is determined by the type of ensemble and amount of rehearsal time.

### **MUS 128. Theory of Music Laboratory I. (1 Credit)**

Development of musicianship skills related to MUS 129. Students will study, sight read, and perform rhythms, melodies in major and minor keys, intervals, scales, and diatonic chord progressions. Students will also learn to take melodic, harmonic, and rhythmic dictation. (Offered spring) Prerequisite: MUS 100 or the equivalent. Corequisite: MUS 129.

### **MUS 129. Theory of Music I. (3 Credits)**

A study of musical analysis, notation, and composition. This course concentrates on fundamentals such as major and minor scales, meter, rhythm, pitch intervals, key signatures, triads and inversions, chord building, harmonic progressions, figured bass interpretation, and voice leading. (Offered spring) Prerequisite: MUS 100 or the equivalent.

**MUS 130. Theory of Music Laboratory II. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 128 and MUS 129 and develop those areas of musicianship through voice performance and dictation. This course builds on knowledge of diatonic triads with the inclusion of inversions, 4-part harmonic contexts, and diatonic seventh chords. Sight singing exercises feature greater melodic leaps and syncopation. (Offered fall) Prerequisite: MUS 128 and MUS 129 with minimum grades of C. Corequisite: MUS 131.

**MUS 131. Theory of Music II. (3 Credits)**

A study of musical analysis, notation, and composition. This course builds on knowledge gained in MUS 128 and MUS 129 and introduces non-chord tones, diatonic seventh chords, small forms, and cadences. This course completes the comprehensive study of diatonic, common practice harmony. (Offered fall) Prerequisites: MUS 129 with minimum grade of C.

**MUS 140. Introduction to Music (GT-AH1). (3 Credits)**

A study of the elements of musical structure designed to form a basis for intelligent listening. Music is selected to illustrate representative styles of music from different historical periods and world cultures. Required of Music majors and minors during their freshman year. GT-AH1

**MUS 173. Piano class. (1 Credit)**

The first semester of a two-semester sequence in beginning piano designed for music majors and music minors who need the skills required to pass the piano proficiency exam. The sequence includes basic music reading at the piano, keyboard theory, and piano technique.

**MUS 174. Piano Class. (1 Credit)**

The second semester of a two-semester sequence in beginning piano designed for music majors and music minors who need skills required to pass the piano proficiency exam. Development of skills begun in MUS 173 prepares students for the piano proficiency as the final exam. Prerequisite: MUS 173 or assessment of equivalent skills.

**MUS 180. Piano. (1-2 Credits)**

Private instruction.

**MUS 181. Organ. (1-2 Credits)**

Private instruction. Prerequisite: at least four years of private piano study.

**MUS 182. Voice. (1-2 Credits)**

Private instruction.

**MUS 183. Violin. (1-2 Credits)**

Private instruction.

**MUS 184. Viola. (1-2 Credits)**

Private instruction.

**MUS 185. Cello. (1-2 Credits)**

Private instruction.

**MUS 186. Contra Bass. (1-2 Credits)**

Private instruction.

**MUS 187. Flute. (1-2 Credits)**

Private instruction.

**MUS 188. Oboe. (1-2 Credits)**

Private instruction.

**MUS 189. Clarinet. (1-2 Credits)**

Private instruction.

**MUS 190. Bassoon. (1-2 Credits)**

Private instruction.

**MUS 191. Saxophone. (1-2 Credits)**

Private instruction.

**MUS 192. Trumpet. (1-2 Credits)**

Private instruction.

**MUS 193. French Horn. (1-2 Credits)**

Private instruction.

**MUS 194. Trombone. (1-2 Credits)**

Private instruction.

**MUS 195. Baritone. (1-2 Credits)**

Private instruction.

**MUS 196. Tuba-Private Lessons. (1-2 Credits)**

Private instruction.

**MUS 197. Special Topics. (1-6 Credits)****MUS 198. Percussion. (1-2 Credits)**

Private instruction.

**MUS 212. Introduction to Music Technology. (1 Credit)**

Designed to acquaint students with music technology hardware (including MIDI-Musical Instrument Digital Interface) and a variety of software programs to enhance learning, teaching, and performing situations at all ages and levels. Students have the opportunity to work with available equipment. Offered in alternate years (Fall 2013). Prerequisite: MUS 100 or MUS 129 with a minimum grade of "C" or instructor permission.

**MUS 213. Woodwind Methods (with laboratory). (1 Credit)**

Designed to cover basic performing skills and teaching techniques for all woodwind instruments. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (spring 2010).

**MUS 214. Brass Methods (with laboratory). (1 Credit)**

Designed to cover basic performing skills and teaching techniques for all brass instruments. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (fall 2009).

**MUS 215. String Methods (with laboratory). (1 Credit)**

Instruction in violin, viola, violoncello and bass for the Music Education student. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (fall of even years).

**MUS 216. Percussion Methods (with laboratory). (1 Credit)**

An introduction to the basic percussion instruments with special attention given to standard and contemporary performance techniques and sound production. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (spring of odd years).

**MUS 217. Voice Methods. (1 Credit)**

A study of tone production, breathing as applied to singing, attack and release, muscular control, posture, and vocal health. Special exercises adapted to individual needs of pupils and simple English songs are sung in the class. Emphasis is on basic skills and techniques for use with young voices in the elementary, middle, and secondary schools. Offered in alternate years (spring 2014).

**MUS 240. Perspective in Music: Jazz History/Music Media/Women in Music/other selected topics. (3 Credits)**

A study of a specific perspective or repertoire of music and its relationship to other aspects of musical culture. Historical, sociological, and multicultural influences and implications, are also considered. The course may be taken two times (with different titles) for credit.

**MUS 245. History of Rock and Roll. (3 Credits)**

An introductory course emphasizing the history and development of Rock and Roll music. The growth and development of major historical periods of rock music and related styles will be explored through the study of historical, social, political and cultural influence. Music is selected to illustrate representative styles of music from different historical periods of Rock music and culture.

**MUS 250. Beginning Conducting: Choral and Instrumental. (2 Credits)**

A study of the basic techniques of conducting, score reading, beat patterns, rehearsal procedures, and style in the instrumental and vocal media. Emphasis is placed on physical exercises, coordination, and the development of fundamental baton techniques. Students conduct in class and observe rehearsal situations with the College ensembles. Offered in alternate even numbered years (fall term). Prerequisites: MUS 130 and MUS 131 with minimum grades of C.

**MUS 253. Theory of Music Laboratory III. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 130 and MUS 131 and develop those areas of musicianship through voice performance and dictation. Studies incorporate modulation using diatonic chords, modal mixture, chromaticism, and secondary dominants. Chromatic solfege is featured in melodic sight singing. (Offered Spring) Prerequisites: MUS 130 and MUS 131 with minimum grades of C. Corequisite: MUS 254.

**MUS 254. Theory of Music III. (3 Credits)**

A study of musical analysis, notation, and composition. This course builds on knowledge gained in MUS 130 and MUS 131 and introduces secondary dominants, modulation, chromaticism, extension of tertian harmony, and larger form structures. (Offered Spring) Prerequisites: MUS 130 and MUS 131 with minimum grades of C. Corequisite: MUS 253.

**MUS 255. Theory of Music Laboratory IV. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 253 and MUS 254 and develop those areas of musicianship through voice performance and dictation. This course focuses on compositional practices of the twentieth century and includes modal melodic dictation, rhythmic dictation and sight singing with changing meters, and atonal sight singing. (Offered Fall) Prerequisites: MUS 253 and MUS 254 with minimum grades of C. Corequisite: MUS 256.

**MUS 256. Theory of Music IV. (3 Credits)**

A study of musical analysis, notation, and composition. This course introduces styles and techniques associated with twentieth century composition. Studies include impressionism, set theory, serialism, post-1945 serialism, neotonality, minimalism, and transformational languages. (Offered Fall) Prerequisites: MUS 253 and MUS 254 with minimum grades of C. Corequisite: MUS 255.

**MUS 285. Pedagogy for the Applied Instrument or Voice. (2 Credits)**

The student becomes acquainted with the methods and materials to be used in the teaching of music students, in both private and class situations.

**MUS 290. Introduction to Improvisation. (1 Credit)**

An introduction to improvisation for singers and instrumentalists including improvisational experiences in a variety of styles (jazz, classical, and other), integration of music theory with improvisation, and methods of teaching improvisation. Required of majors in the Music Education Emphasis. Offered in alternate years (spring 2010). Prerequisites: MUS 130 and MUS 131 with a minimum grades of C, or instructor permission.

**MUS 292. Independent Study. (1-4 Credits)****MUS 297. Special Topics. (1-6 Credits)****MUS 301. Orchestra. (1 Credit)**

Open to all who play orchestral instruments and who wish to experience playing orchestral music. The course includes the study and performance of orchestral literature. Prerequisites: junior or senior standing; minimum of one semester of MUS 101; instructor permission.

**MUS 302. Symphonic Band. (0.5,1 Credits)**

Open to all who play band instruments. The course includes the study and performance of symphonic band literature. Membership is open to Music majors and non-Music majors by audition. Prerequisites: junior or senior standing; minimum of one semester of MUS 102; instructor permission.

**MUS 303. Pep Band. (0.5 Credits)**

Open to all who play band instruments, guitar, bass guitar, and piano. The course includes the study of popular music and performance at university athletic functions including football, basketball, and volleyball events. Prerequisites: junior or senior standing; minimum of one semester of 103; instructor permission.

**MUS 304. Concert Choir. (1 Credit)**

Open to anyone with singing experience. The Western Concert Choir studies and performs choral masterworks from all historical periods of music. Membership is open to Music majors and non-Music majors by audition. Prerequisites: junior or senior standing; minimum of one semester of MUS 104; instructor permission.

**MUS 305. Opera. (1 Credit)**

Designed to provide experience in musical-dramatic activities. May be taken two times for credit. Prerequisites: admission by campus-wide audition; junior or senior standing; minimum of one semester of MUS 105; instructor permission.

**MUS 306. Piano Ensemble. (1 Credit)**

Designed to acquaint the piano student with ensemble repertoire and performance traditions. Prerequisite: four credits of piano private study or equivalent performance background.

**MUS 311. Principles and Techniques of Composition. (3 Credits)**

A study of the basic principles of composition. Harmonic, contrapuntal, and formal structures of various stylistic periods are employed. Prerequisites: MUS 255 and MUS 256 with minimum grades of C.

**MUS 313. Music Production. (3 Credits)**

An introduction to current production software designed to give students experience utilizing digital audio recording techniques and electronic sequencers. Students utilize sequencing and sound design software to create electronic music, demonstrate signal flow analysis using real and virtual hardware, understand and demonstrate a variety of microphone-based recording techniques, and create projects using a digital audio workstation. Prerequisite: MUS 131 with a minimum grade of C.

**MUS 320. Scoring. (2 Credits)**

A study of techniques of arranging for instrumental and vocal ensembles. Prerequisite: MUS 256 with minimum grade of C.

**MUS 321. Instrumental and Vocal Chamber Music. (0.5-1 Credits)**

Designed to give the student-musician rehearsal and performance experience in the area of ensemble and chamber music. Includes the Brass, Woodwind, Percussion, String, and Jazz Ensembles, as well as Chamber Singers and additional small ensembles. Membership is open to Music Majors and non-Music Majors by audition. Credit is determined by the type of ensemble and amount of rehearsal time. Prerequisites: junior or senior standing; minimum of one semester of MUS 121; instructor permission.

**MUS 350. Advanced Conducting: Choral and Instrumental. (2 Credits)**

5A study of advanced techniques of conducting, score reading, musical style, materials, and repertoire in the instrumental and vocal media. Emphasis is placed on physical exercises and coordination of the mind and hands, as well as musical terms necessary for proper interpretation of musical scores. Students conduct in both class and laboratory situations with College ensembles. Offered in alternate years (spring 2015). Prerequisites: MUS 250 with minimum grade of C.

**MUS 352. History of Music I: Ancient to Baroque. (3 Credits)**

A study of the development of music from Ancient Greece to the Medieval, Renaissance, and Baroque eras. Emphasis is placed on acquaintance with the music literature of successive periods. Prerequisites: Music Major or Minor status; MUS 140.

**MUS 353. History of Music II: Classical to Modern. (3 Credits)**

A study of the development of music from the Classic and Romantic eras to the present. Emphasis is placed on acquaintance with the music literature of successive periods. Prerequisites: Music Major or Minor status; MUS 140.

**MUS 355. Counterpoint. (2 Credits)**

A study of contrapuntal techniques necessary to compose polyphonic music in two, three, four, or more parts. Prerequisites: MUS 255 and MUS 256 with minimum grades of C.

**MUS 360. Teaching General Music in Elementary Schools. (2 Credits)**

A study of the teaching of general music, working with children's voices, using instruments, and developing listening skills. Current approaches such as Dalcroze, Orff, Kodaly, and Suzuki are also addressed. Students survey elementary music texts and learn how to develop and plan a music program. Offered in alternate years (spring 2015). Prerequisites: MUS 120 and MUS 250 with a minimum grade of C.

**MUS 365. Methods and Philosophy of Teaching and Supervising Instrumental Music in the Public Schools: K-12. (2 Credits)**

A study of the supervision, organization, and administration of instrumental music in the public schools, K-12, providing background and experience with the philosophical, historical, and practical foundation of instrumental music in the public schools. Emphasis is placed upon contemporary methodology, all aspects of teaching and conducting activities in instrumental music, comprehensive musicianship through performance, and preparation for student teaching. Offered in alternate years (fall 2014). Prerequisites: MUS 250 with a minimum grade of C.

**MUS 370. Methods and Philosophy of Teaching and Supervising Vocal Music in the Public Schools: K-12. (2 Credits)**

An intensive study of materials and methods for teaching vocal and general music in the elementary and secondary school, plus objectives, organization, administration, curriculum content, guidance for student teachers, and background in contemporary trends in music education for all age levels, K-12. Offered in alternate years (spring 2015). Prerequisites: MUS 120 and 250 with a minimum grade of C.

**MUS 380. Piano. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 180; instructor permission.

**MUS 381. Organ. (1-2 Credits)**

Private instruction. Prerequisite: at least four years of piano study; junior or senior standing; minimum of one semester of MUS 181; instructor permission.

**MUS 382. Voice. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 182; instructor permission.

**MUS 383. Violin. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 183; instructor permission.

**MUS 384. Viola. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 184; instructor permission.

**MUS 385. Cello. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 185; instructor permission.

**MUS 386. Contra Bass. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 186; instructor permission.

**MUS 387. Flute. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 187; instructor permission.

**MUS 388. Oboe. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 188; instructor permission.

**MUS 389. Clarinet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 189; instructor permission.

**MUS 390. Bassoon. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 190; instructor permission.

**MUS 391. Saxophone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 191; instructor permission.

**MUS 392. Trumpet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 192; instructor permission.

**MUS 393. Trumpet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 193; instructor permission.

**MUS 394. Trombone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 194; instructor permission.

**MUS 395. Baritone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 195; instructor permission.

**MUS 396. Tuba. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 196; instructor permission.

**MUS 397. Special Topics. (1-6 Credits)****MUS 398. Percussion. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 198; instructor permission.

**MUS 400. Senior Recital / Senior Project. (0 Credits)**

Students demonstrate competency in an area of performance, research, composition, or music technology. Senior projects may include a research project, composition, music technology project, or non-credit internship. Graded Satisfactory/ Unsatisfactory only. Prerequisite: senior standing and consent of faculty advisor.

**MUS 424. Band Literature. (2 Credits)**

A study and analysis of the literature available to the concert band and the various types of large wind ensembles.



**MUS 426. Literature for the Applied Instrument or Voice. (2 Credits)**

An historical study of the standard repertoire for the applied instrument or voice.

**MUS 429. Diction for Singers. (2 Credits)**

A basic course in Italian, German, and French diction designed for voice students. Foreign language diction are studied in selected vocal repertoire.

**MUS 488. Composition. (3 Credits)**

Students write original compositions for solo or ensemble performing media.

**MUS 490. Workshop in Music. (1-6 Credits)**

A study of topics related to music study suitable for workshop format. Includes discussion, practice, and demonstration.

**MUS 491. Seminar in Research. (2 Credits)**

Senior students research and write papers in the area of music appropriate to their courses of study. Offered in alternate years (spring 2010).

**MUS 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits.

**MUS 497. Special Topics. (1-6 Credits)****MUS 499. Internship in Music. (1-12 Credits)**

An internship may be arranged in this course. Credit earned in this course may be applied to the major or minor with faculty approval. Consult advisor for details.

## Music Comprehensive Major: Business Emphasis

### Program Requirements

A minimum of 66 credits is required including the 28-credit Musicianship Core:

All Music majors require the 28-credit Musicianship Core, 14 or 21 credits from the Performance Curriculum (depending upon the emphasis), the six credits (or the equivalent) of foreign language (not required for the Music Education Emphasis), and Concert and Convocation Attendance Course (must be taken each semester of residence with a "Satisfactory" grade a minimum of six semesters). A minimum grade of "C" is required in all Music courses counted toward the major. To qualify for graduation all Music majors must meet performance requirements and piano proficiency.

Code	Title	Credits
<b>Musicianship Core</b>		
MUS 128	Theory of Music Laboratory I	1
MUS 129	Theory of Music I	3
MUS 130	Theory of Music Laboratory II	1
MUS 131	Theory of Music II	3
MUS 140	Introduction to Music (GT-AH1)	3
MUS 212	Introduction to Music Technology	1
MUS 253	Theory of Music Laboratory III	1
MUS 254	Theory of Music III	3
MUS 255	Theory of Music Laboratory IV	1
MUS 256	Theory of Music IV	3
MUS 352	History of Music I: Ancient to Baroque	3

MUS 353	History of Music II: Classical to Modern	3
MUS 491	Seminar in Research	2
Total Credits		28

14 credits in Musical Performance (seven credits from Major Performing Organizations or Small Ensembles and seven credits from Private Lessons), the one-credit MUS 212 Introduction to Music Technology Performance Requirement (MUS 400 Senior Recital / Senior Project, or MUS 499 Internship in Music), Piano Proficiency, the six-credit foreign language requirement, Concert and Convocation Attendance

The Performance Curriculum consists of courses in Conducting, Major Performing Organizations, Small Ensembles, and Private Lessons.

The specific major performing organization required is determined by major instrument or voice.

Code	Title	Credits
<b>Conducting</b>		
MUS 250	Beginning Conducting: Choral and Instrumental	2
<b>Major Performance Organizations</b>		
courses may be repeated		
MUS 101	Orchestra	1
MUS 102	Symphonic Band	1
MUS 104	Concert Choir	1
MUS 301	Orchestra	1
MUS 302	Symphonic Band	1
MUS 304	Concert Choir	1
<b>Small Ensembles</b>		
courses may be repeated		
MUS 121	Instrumental and Vocal Chamber Music	0.5-1
MUS 321	Instrumental and Vocal Chamber Music	1
MUS 105	Opera	1
MUS 305	Opera	1
<b>Private Lessons</b>		
courses may be repeated		
MUS 180	Piano	1-2
MUS 181	Organ	1-2
MUS 182	Voice	1-2
MUS 183	Violin	1-2
MUS 184	Viola	1-2
MUS 185	Cello	1-2
MUS 186	Contra Bass	1-2
MUS 187	Flute	1-2
MUS 188	Oboe	1-2
MUS 189	Clarinet	1-2
MUS 190	Bassoon	1-2
MUS 191	Saxophone	1-2
MUS 192	Trumpet	1-2
MUS 193	French Horn	1-2
MUS 194	Trombone	1-2
MUS 195	Baritone	1-2
MUS 196	Tuba-Private Lessons	1-2
MUS 197	Special Topics	1-2
MUS 198	Percussion	1-2

MUS 380	Piano	1-2
MUS 381	Organ	1-2
MUS 382	Voice	1-2
MUS 383	Violin	1-2
MUS 384	Viola	1-2
MUS 385	Cello	1-2
MUS 386	Contra Bass	1-2
MUS 387	Flute	1-2
MUS 388	Oboe	1-2
MUS 389	Clarinet	1-2
MUS 390	Bassoon	1-2
MUS 391	Saxophone	1-2
MUS 392	Trumpet	1-2
MUS 393	Trumpet	1-2
MUS 394	Trombone	1-2
MUS 395	Baritone	1-2
MUS 396	Tuba	1-2
MUS 398	Percussion	1-2

## Foreign Language

Six credits of foreign language are required in the Music Emphasis and Business Emphasis. This requirement may be fulfilled by passing the appropriate CLEP test if sufficient skill has been attained.

## Concert and Convocation Attendance

All Music majors must take MUS 000 Concert and Convocation Attendance each semester in residence. Six semesters of MUS 000 Concert and Convocation Attendance with a grade of "satisfactory" are required of all Music majors prior to graduation.

## Performance Requirements for Majors

In order to qualify for graduation, all Music majors must pass specific levels of performance as judged by a jury of Music faculty. All Music Education majors must also present a senior recital (MUS 400 Senior Recital / Senior Project). Majors in the Music Emphasis and the Business Emphasis may elect MUS 400 Senior Recital / Senior Project, or MUS 499 Internship in Music. Please contact the Music Department for exact requirements.

## Piano Proficiency

All students with a Music Major or Minor, with the exception of the Music Technology Minor, must pass the piano proficiency examination by the end of the required theory sequence. The two-semester sequence of MUS 173 Piano class and MUS 174 Piano Class may be taken for elective credits to prepare for the exam. The specific courses are not required courses and student assessed to have sufficient piano background may prepare for the exam independently. Please contact the Music Department for exact requirements.

And the following:

Code	Title	Credits
ACC 201	Introduction to Financial Accounting	3
BUAD 210	Legal Environment of Business	3
MUS 212	Introduction to Music Technology	3
BUAD 270	Principles of Marketing	3
BUAD 333	Organizational Behavior	3

CS 120	Professional Computer Skills	3
or BUAD 220	Spreadsheets and Analysis	
ECON 201	Macroeconomics (GT-SS1)	3
or ECON 202	Microeconomics	

Total Credits 21

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
	Credits	2
<b>Spring</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
	Credits	2

<b>Year Two</b>		
<b>Fall</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
Gen Ed	Arts & Humanities	3
	Credits	5

<b>Spring</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences w/lab	4
	Credits	9



**Year Three**

<b>Fall</b>			
MUS 301 or MUS 302 or MUS 304	Orchestra or Sympho Band or Concert Choir	0.5-1	
MUS 380-398	Private Lessons	1-2	
MUS 491	Seminar in Research	2	
Gen Ed	Natural Sciences w/lab	4	
		<b>Credits</b>	<b>7.5-9</b>

**Spring**

MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir	1	
MUS 380-398	Private Lessons	1-2	
Gen Ed	Social Sciences	3	
Elective	Elective (upper division)	3	
		<b>Credits</b>	<b>8-9</b>

**Year Four**

<b>Fall</b>			
MUS 301 or MUS 302 or MUS 304	Orchestra or Sympho Band or Concert Choir	0.5-1	
MUS 380-398	Private Lessons	1-2	
Gen Ed	Arts & Humanities	3	
Elective	Elective (upper division)	3	
		<b>Credits</b>	<b>7.5-9</b>

**Spring**

MUS 400	Senior Recital / Senior Project	0	
Elective	Elective (upper division)	3	
Gen Ed	Social Sciences	3	
		<b>Credits</b>	<b>6</b>
		<b>Total Credits</b>	<b>47-51</b>

# Music Comprehensive Major: K-12 Music Education Emphasis

## Program Requirements

This program prepares students for the State of Colorado License in Music Education. A minimum of 64 credits is required, including the 28-credit Musicianship Core:

All Music majors require the 28-credit Musicianship Core, 14 or 21 credits from the Performance Curriculum (depending upon the emphasis), the six credits (or the equivalent) of foreign language (not required for the Music Education Emphasis), and Concert and Convocation Attendance Course (must be taken each semester of residence with a "Satisfactory" grade a minimum of six semesters). A minimum grade of "C" is required in all Music courses counted toward the major. To qualify for graduation all Music majors must meet performance requirements and piano proficiency.

Code	Title	Credits
<b>Musicianship Core</b>		
MUS 128	Theory of Music Laboratory I	1
MUS 129	Theory of Music I	3
MUS 130	Theory of Music Laboratory II	1
MUS 131	Theory of Music II	3
MUS 140	Introduction to Music (GT-AH1)	3
MUS 212	Introduction to Music Technology	1
MUS 253	Theory of Music Laboratory III	1
MUS 254	Theory of Music III	3
MUS 255	Theory of Music Laboratory IV	1
MUS 256	Theory of Music IV	3
MUS 352	History of Music I: Ancient to Baroque	3
MUS 353	History of Music II: Classical to Modern	3
MUS 491	Seminar in Research	2
<b>Total Credits</b>		<b>28</b>

21 credits from the Performance Curriculum (seven credits in Major Performance Organizations, four credits in Small Ensembles, eight credits in Private Lessons, the two-credit MUS 250 Beginning Conducting: Choral and Instrumental, the one-credit MUS 212 Introduction to Music Technology; students must be registered for a major performing organization every semester in residence), Concert and Convocation Attendance, the Performance Requirement (MUS 400 Senior Recital / Senior Project), Piano Proficiency:

The Performance Curriculum consists of courses in Conducting, Major Performing Organizations, Small Ensembles, and Private Lessons.

The specific major performing organization required is determined by major instrument or voice.

Code	Title	Credits
<b>Conducting</b>		
MUS 250	Beginning Conducting: Choral and Instrumental	2
<b>Major Performance Organizations</b>		
courses may be repeated		
MUS 101	Orchestra	1
MUS 102	Symphonic Band	1

MUS 104	Concert Choir	1
MUS 301	Orchestra	1
MUS 302	Symphonic Band	1
MUS 304	Concert Choir	1

**Small Ensembles**

courses may be repeated

MUS 121	Instrumental and Vocal Chamber Music	0.5-1
MUS 321	Instrumental and Vocal Chamber Music	1
MUS 105	Opera	1
MUS 305	Opera	1

**Private Lessons**

courses may be repeated

MUS 180	Piano	1-2
MUS 181	Organ	1-2
MUS 182	Voice	1-2
MUS 183	Violin	1-2
MUS 184	Viola	1-2
MUS 185	Cello	1-2
MUS 186	Contra Bass	1-2
MUS 187	Flute	1-2
MUS 188	Oboe	1-2
MUS 189	Clarinet	1-2
MUS 190	Bassoon	1-2
MUS 191	Saxophone	1-2
MUS 192	Trumpet	1-2
MUS 193	French Horn	1-2
MUS 194	Trombone	1-2
MUS 195	Baritone	1-2
MUS 196	Tuba-Private Lessons	1-2
MUS 197	Special Topics	1-2
MUS 198	Percussion	1-2
MUS 380	Piano	1-2
MUS 381	Organ	1-2
MUS 382	Voice	1-2
MUS 383	Violin	1-2
MUS 384	Viola	1-2
MUS 385	Cello	1-2
MUS 386	Contra Bass	1-2
MUS 387	Flute	1-2
MUS 388	Oboe	1-2
MUS 389	Clarinet	1-2
MUS 390	Bassoon	1-2
MUS 391	Saxophone	1-2
MUS 392	Trumpet	1-2
MUS 393	Trumpet	1-2
MUS 394	Trombone	1-2
MUS 395	Baritone	1-2
MUS 396	Tuba	1-2
MUS 398	Percussion	1-2

**Foreign Language**

Six credits of foreign language are required in the Music Emphasis and Business Emphasis. This requirement may be fulfilled by passing the appropriate CLEP test if sufficient skill has been attained.

**Concert and Convocation Attendance**

All Music majors must take MUS 000 Concert and Convocation Attendance each semester in residence. Six semesters of MUS 000 Concert and Convocation Attendance with a grade of "satisfactory" are required of all Music majors prior to graduation.

**Performance Requirements for Majors**

In order to qualify for graduation, all Music majors must pass specific levels of performance as judged by a jury of Music faculty. All Music Education majors must also present a senior recital (MUS 400 Senior Recital / Senior Project). Majors in the Music Emphasis and the Business Emphasis may elect MUS 400 Senior Recital / Senior Project, or MUS 499 Internship in Music. Please contact the Music Department for exact requirements.

**Piano Proficiency**

All students with a Music Major or Minor, with the exception of the Music Technology Minor, must pass the piano proficiency examination by the end of the required theory sequence. The two-semester sequence of MUS 173 Piano class and MUS 174 Piano Class may be taken for elective credits to prepare for the exam. The specific courses are not required courses and student assessed to have sufficient piano background may prepare for the exam independently. Please contact the Music Department for exact requirements.

And the following:

Code	Title	Credits
MUS 120	Introduction to Music Education	1
MUS 212	Introduction to Music Technology	1
MUS 213	Woodwind Methods (with laboratory)	1
MUS 214	Brass Methods (with laboratory)	1
MUS 215	String Methods (with laboratory)	1
MUS 216	Percussion Methods (with laboratory)	1
MUS 217	Voice Methods	1
MUS 290	Introduction to Improvisation	1
MUS 350	Advanced Conducting: Choral and Instrumental	2
MUS 360	Teaching General Music in Elementary Schools	2
MUS 365	Methods and Philosophy of Teaching and Supervising Instrumental Music in the Public Schools: K-12	2
MUS 370	Methods and Philosophy of Teaching and Supervising Vocal Music in the Public Schools: K-12	2

Total Credits	16
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The student must also fulfill the requirements of the K-12 Music Licensure Program (see description under Education) to qualify for the Colorado License in Music Education. Please contact the Chair of the Department of Music or the Director of the Teacher Education Program for exact required course work in Education.

Course	Title	Credits	Year Two		
<b>Year One</b>			<b>Fall</b>		
<b>Fall</b>			MUS 000	Concert and Convocation Attendance	0
MUS 000	Concert and Convocation Attendance	0	MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1	MUS 180-198	Private Lessons	1
MUS 180-198	Private Lessons	1	MUS 121	Instrumental and Vocal Chamber Music	0.5-1
MUS 121	Instrumental and Vocal Chamber Music	0.5-1	MUS 130	Theory of Music Laboratory II	1
HWTR 100	First Year Seminar	1	MUS 131	Theory of Music II	3
ENG 102	Academic Writing (GT-CO1)	3	COM 202	Academic Writing and Inquiry (GT-CO2)	3
MUS 100	Fundamentals of Music (GT-AH1)	3	Gen Ed	Natural Sciences w/lab	4
MUS 173	Piano class	1		Credits	13.5-14
EDUC 000	Education Gateway Course	0	<b>Spring</b>		
Essential Skills	MATH	3	MUS 000	Concert and Convocation Attendance	0
	Credits	13.5-14	MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
<b>Spring</b>			MUS 180-198	Private Lessons	1
MUS 000	Concert and Convocation Attendance	0	MUS 121	Instrumental and Vocal Chamber Music	0.5-1
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1	MUS 253	Theory of Music Laboratory III	1
MUS 180-198	Private Lessons	1	MUS 254	Theory of Music III	3
MUS 120	Introduction to Music Education	1	MUS 290	Introduction to Improvisation	1
MUS 121	Instrumental and Vocal Chamber Music	0.5-1	Gen Ed	Social Sciences	3
MUS 128	Theory of Music Laboratory I	1	Gen Ed	Arts & Humanities	3
MUS 129	Theory of Music I	3		Credits	13.5-14
MUS 140	Introduction to Music (GT-AH1)	3	MUS 174	Piano Class	1
MUS 174	Piano Class	1	Gen Ed	Social Sciences	3
Gen Ed	Social Sciences	3		Credits	14.5-15
	Credits	14.5-15			

**Year Three**

<b>Fall</b>			
MUS 000	Concert and Convocation Attendance		0
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir		0.5-1
MUS 380-398	Private Lessons		1
MUS 212	Introduction to Music Technology		1
MUS 215	String Methods (with laboratory)		1
MUS 250	Beginning Conducting: Choral and Instrumental		2
MUS 255	Theory of Music Laboratory IV		1
MUS 256	Theory of Music IV		3
MUS 360	Teaching General Music in Elementary Schools		2
MUS 365	Methods and Philosophy of Teaching and Supervising Instrumental Music in the Public Schools: K-12		2
			Credits 13.5-14

**Spring**

MUS 000	Concert and Convocation Attendance		0
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir		0.5-1
MUS 380-398	Private Lessons		1
MUS 350	Advanced Conducting: Choral and Instrumental		2

MUS 370	Methods and Philosophy of Teaching and Supervising Vocal Music in the Public Schools: K-12		2
MUS 216	Percussion Methods (with laboratory)		1
Gen Ed	Social Sciences		3
Gen Ed	Natural Sciences w/lab		4
			Credits 13.5-14

**Year Four**

<b>Fall</b>			
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir		0.5-1
MUS 380-398	Private Lessons		1
MUS 214	Brass Methods (with laboratory)		1
MUS 352	History of Music I: Ancient to Baroque		3
MUS 491	Seminar in Research		2
Gen Ed	Arts & Humanities		3
			Credits 10.5-11

**Spring**

MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir		0.5-1
MUS 380-398	Private Lessons		1
MUS 213	Woodwind Methods (with laboratory)		1
MUS 217	Voice Methods		1
MUS 353	History of Music II: Classical to Modern		3
MUS 400	Senior Recital / Senior Project		0

EDUC 340	Application of Pedagogy and Practice	3	
	Credits	9.5-10	
<b>Year Five</b>			
<b>Fall</b>			
EDUC 403	Instruction and Assessment in Content Area	3	
EDUC 404	Creating Positive Learning Environment	3	
EDUC 405	Data-driven Instructional Practices	3	
EDUC 406	Content Area Literacy	3	
EDUC 410	K-12 Student Teaching	3	
	Credits	15	
<b>Spring</b>			
EDUC 407	Maximizing Learning through 21st Century Skills	3	
EDUC 410	K-12 Student Teaching	3	
EDUC 420	Application of Classroom Strategies to Engage All Learners	3	
EDUC 424	Differentiating Instruction	3	
	Credits	12	
	Total Credits	129-133	

## Music Comprehensive Major: Music Emphasis

### Program Requirements

A minimum of 58 credits is required, including the 28-credit Musicianship Core:

All Music majors require the 28-credit Musicianship Core, 14 or 21 credits from the Performance Curriculum (depending upon the emphasis), the six credits (or the equivalent) of foreign language (not required for the Music Education Emphasis), and Concert and Convocation Attendance Course (must be taken each semester of residence with a "Satisfactory" grade a minimum of six semesters). A minimum grade of "C" is required in all Music courses counted toward the major. To qualify for graduation

all Music majors must meet performance requirements and piano proficiency.

Code	Title	Credits
<b>Musicianship Core</b>		
MUS 128	Theory of Music Laboratory I	1
MUS 129	Theory of Music I	3
MUS 130	Theory of Music Laboratory II	1
MUS 131	Theory of Music II	3
MUS 140	Introduction to Music (GT-AH1)	3
MUS 212	Introduction to Music Technology	1
MUS 253	Theory of Music Laboratory III	1
MUS 254	Theory of Music III	3
MUS 255	Theory of Music Laboratory IV	1
MUS 256	Theory of Music IV	3
MUS 352	History of Music I: Ancient to Baroque	3
MUS 353	History of Music II: Classical to Modern	3
MUS 491	Seminar in Research	2
Total Credits		28

21 credits from the Performance Curriculum (seven credits in Major Performance Organizations, four credits in Small Ensembles, eight credits in Private Lessons, the two-credit MUS 250 Beginning Conducting: Choral and Instrumental, the one-credit MUS 212 Introduction to Music Technology; students must be registered for a major performing organization every semester in residence), three credits of Music electives, Concert and Convocation Attendance, six credits of foreign language, Performance Requirement (MUS 400 Senior Recital / Senior Project, or MUS 499 Internship in Music), and Piano Proficiency.

The Performance Curriculum consists of courses in Conducting, Major Performing Organizations, Small Ensembles, and Private Lessons.

The specific major performing organization required is determined by major instrument or voice.

Code	Title	Credits
<b>Conducting</b>		
MUS 250	Beginning Conducting: Choral and Instrumental	2
<b>Major Performance Organizations</b>		
courses may be repeated		
MUS 101	Orchestra	1
MUS 102	Symphonic Band	1
MUS 104	Concert Choir	1
MUS 301	Orchestra	1
MUS 302	Symphonic Band	1
MUS 304	Concert Choir	1
<b>Small Ensembles</b>		
courses may be repeated		
MUS 121	Instrumental and Vocal Chamber Music	0.5-1
MUS 321	Instrumental and Vocal Chamber Music	1
MUS 105	Opera	1
MUS 305	Opera	1
<b>Private Lessons</b>		
courses may be repeated		
MUS 180	Piano	1-2

MUS 181	Organ	1-2
MUS 182	Voice	1-2
MUS 183	Violin	1-2
MUS 184	Viola	1-2
MUS 185	Cello	1-2
MUS 186	Contra Bass	1-2
MUS 187	Flute	1-2
MUS 188	Oboe	1-2
MUS 189	Clarinet	1-2
MUS 190	Bassoon	1-2
MUS 191	Saxophone	1-2
MUS 192	Trumpet	1-2
MUS 193	French Horn	1-2
MUS 194	Trombone	1-2
MUS 195	Baritone	1-2
MUS 196	Tuba-Private Lessons	1-2
MUS 197	Special Topics	1-2
MUS 198	Percussion	1-2
MUS 380	Piano	1-2
MUS 381	Organ	1-2
MUS 382	Voice	1-2
MUS 383	Violin	1-2
MUS 384	Viola	1-2
MUS 385	Cello	1-2
MUS 386	Contra Bass	1-2
MUS 387	Flute	1-2
MUS 388	Oboe	1-2
MUS 389	Clarinet	1-2
MUS 390	Bassoon	1-2
MUS 391	Saxophone	1-2
MUS 392	Trumpet	1-2
MUS 393	Trumpet	1-2
MUS 394	Trombone	1-2
MUS 395	Baritone	1-2
MUS 396	Tuba	1-2
MUS 398	Percussion	1-2

**Foreign Language**

Six credits of foreign language are required in the Music Emphasis and Business Emphasis. This requirement may be fulfilled by passing the appropriate CLEP test if sufficient skill has been attained.

**Concert and Convocation Attendance**

All Music majors must take MUS 000 Concert and Convocation Attendance each semester in residence. Six semesters of MUS 000 Concert and Convocation Attendance with a grade of "satisfactory" are required of all Music majors prior to graduation.

**Performance Requirements for Majors**

In order to qualify for graduation, all Music majors must pass specific levels of performance as judged by a jury of Music faculty. All Music Education majors must also present a senior recital (MUS 400 Senior Recital / Senior Project). Majors in the Music Emphasis and the Business Emphasis may elect MUS 400 Senior Recital / Senior Project, or MUS 499

Internship in Music. Please contact the Music Department for exact requirements.

**Piano Proficiency**

All students with a Music Major or Minor, with the exception of the Music Technology Minor, must pass the piano proficiency examination by the end of the required theory sequence. The two-semester sequence of MUS 173 Piano class and MUS 174 Piano Class may be taken for elective credits to prepare for the exam. The specific courses are not required courses and student assessed to have sufficient piano background may prepare for the exam independently. Please contact the Music Department for exact requirements.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
MUS 121	Instrumental and Vocal Chamber Music	0.5-1
		Credits 2.5-3
<b>Spring</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
MUS 121	Instrumental and Vocal Chamber Music	0.5-1
Gen Ed	Social Sciences	3
		Credits 5.5-6
<b>Year Two</b>		
<b>Fall</b>		
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1
MUS 180-198	Private Lessons	1
MUS 121	Instrumental and Vocal Chamber Music	0.5-1
Gen Ed	Natural Sciences	3
		Credits 5.5-6



Spring			
MUS 101 or MUS 102 or MUS 104	Orchestra or Symphonic Band or Concert Choir	1	
MUS 180-198	Private Lessons	1	
MUS 121	Instrumental and Vocal Chamber Music	0.5-1	
Gen Ed	Social Sciences	3	
Gen Ed	Natural Sciences w/lab	4	
Gen Ed	Arts & Humanities	3	
		Credits	12.5-13

Year Three			
Fall			
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir	0.5-1	
MUS 380-398	Private Lessons	1-2	
MUS 321	Instrumental and Vocal Chamber Music	0.5-1	
MUS 491	Seminar in Research	2	
Gen Ed	Arts & Humanities	3	
Elective	Elective (upper division)	3	
		Credits	10-12

Spring			
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir	0.5-1	
MUS 380-398	Private Lessons	1-2	
MUS 321	Instrumental and Vocal Chamber Music	0.5-1	
Gen Ed	Social Sciences	3	
Gen Ed	Natural Sciences w/lab	4	
Elective	Elective (upper division)	3	
		Credits	12-14

Year Four			
Fall			
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir	1	
MUS 380-398	Private Lessons	1-2	
MUS 321	Instrumental and Vocal Chamber Music	0.5-1	
MUS 250	Beginning Conducting: Choral and Instrumental	2	
Elective	MUS Elective	3	
Elective	Elective (upper division)	3	
		Credits	10.5-12

Spring			
MUS 301 or MUS 302 or MUS 304	Orchestra or Symphonic Band or Concert Choir	1	
MUS 380-398	Private Lessons	1-2	
MUS 321	Instrumental and Vocal Chamber Music	0.5-1	
MUS 400	Senior Recital / Senior Project	0	
Elective	Elective (upper division)	3	
		Credits	5.5-7
		Total	64-73
		Credits	

## Music Minor

A minimum of 19 credits is required, including at least three hours of upper-division credit from private lessons or performing organizations. The Piano Proficiency is required of Music Minors. A minimum grade of "C" is required in all music courses counted toward the Music Minor.

Required courses:

Code	Title	Credits
MUS 128	Theory of Music Laboratory I	1
MUS 129	Theory of Music I	3
MUS 130	Theory of Music Laboratory II	1
MUS 131	Theory of Music II	3
MUS 140	Introduction to Music (GT-AH1)	3
Private Lessons		4

Major Performing Organizations or Small Ensembles	4
Total Credits	19

## Music Technology Minor

Designed to expose students to recording practices, electronic music composition, and other topics occurring at the intersection of music and technology. A minimum of 19 credits is required. A minimum grade of “C” is required in all courses counted toward the Music Technology Minor.

Required courses:

Code	Title	Credits
MUS 129	Theory of Music I	3
MUS 131	Theory of Music II	3
MUS 212	Introduction to Music Technology	1
MUS 313	Music Production	3
Select at least nine credits of the following:		9
PHYS 115	Physics of Music	
CS 140	Game Programming for Beginners	
CS 190	Computer Science I	
CS 191	Computer Science II	
CS 380	The Internet of Things	
Total Credits		19

## Philosophy (PHIL)

The Philosophy Minor provides students with an understanding of the history of philosophy, an exploration of diverse worldviews, and the tools to examine the complex, unexamined assumptions underlying contemporary society. The Philosophy Minor emphasizes development of logical and analytical skills, affording students the intellectual ability to theorize, articulate, and support sophisticated philosophical perspectives.

- Philosophy Minor (p. 238)

## Philosophy Courses

### PHIL 100. Critical Thinking. (3 Credits)

Develops students' capacity for critical, independent thought. Teaches students to analyze, critique, and respond to a wide variety of arguments, both formal and informal, in various media. Introduces students to the basics of logic and to techniques for identifying logical fallacies and invalid evidence. Encourages the practice of civil, reasoned debate.

### PHIL 101. Introduction to Philosophy (GT-AH3). (3 Credits)

An introduction to the central philosophical questions that have historically spanned and conceptually founded Western civilization. The course surveys key thinkers, philosophical movements, and academic fields of the discipline. Questions regarding the meaning of existence, the freedom of the self, the nature of a just society, and the workings of human knowledge expose students to the pursuits of metaphysics, ontology, epistemology, philosophy of science, moral and political philosophy, and ethics. GT-AH3

### PHIL 135. Introduction to Ethics. (3 Credits)

Introduces students to the study of ethics by surveying key ethical theories, by teaching basic principles of moral reasoning and evaluation, and by identifying and examining contemporary moral problems. Emphasizes practical ethics—the application of ethical theories and principles to real-life personal, professional, and public moral dilemmas.

### PHIL 197. Special Topics. (1-6 Credits)

### PHIL 200. Symbolic Logic. (3 Credits)

Introduces students to the systematic study of the form of arguments, including inductive reasoning, syllogistic logic, sentential logic, the logic of quantification, and modal logic. Teaches the basic conventions of propositional notation and acquaints students with the concerns of metalogic and philosophy of logic.

### PHIL 201. Epistemology. (3 Credits)

An introduction to historical and contemporary approaches to epistemology, philosophical methodology, systems of classification, and methods of validation. Emphasis is placed on critical inquiry into the complex relationships among ways of knowing (such as empiricism, rationalism, idealism, and materialism), while focusing on the real-world implications of epistemology itself. Prerequisite: PHIL 101

### PHIL 297. Special Topics. (1-6 Credits)

### PHIL 315. Eastern Philosophy. (3 Credits)

An introduction to the central philosophical questions which have conceptually founded Eastern philosophy. This course surveys primary texts, intellectual movements, and cultural traditions that inform and influence Eastern philosophy while investigating the theoretical spaces that exist between philosophical assumptions of the East and West. Prerequisite: PHIL 101

### PHIL 325. Women and Gender in Philosophy. (3 Credits)

A discussion of the significance of women and gender in the development of philosophy. This course questions how the philosophical canon has appropriated, incorporated, and sometimes erased women's contributions. Drawing upon a variety of discourses in and outside of philosophy itself (including feminist and queer theory), students will assess how the philosophical endeavor changes in light of previously overlooked and currently influential gender studies work. Students will use gender and sexuality as a framework that enriches and interrogates philosophical fields ranging from cultural theory to epistemology. Prerequisite: PHIL 101

### PHIL 335. Advanced Ethics. (3 Credits)

An examination of influential moral philosophers and contrasting theories concerning how one ought to live, from ancient Greek and Eastern philosophers to contemporary thinkers. Central questions of the course explore the good life, critique ideologies that limit ethical options, and imagine how to expand individual choices in cultivating a just society. The course concludes with student applications of ethical theories to current global issues. Prerequisite: PHIL 101.

### PHIL 345. Philosophy of Religion. (3 Credits)

An exploration of the significance of faith in our human worldview. Through a comparative approach to major world religions, students investigate the underlying assumptions behind the ways of knowing God and participating in the divine, and how those assumptions diversely manifest themselves culturally, etaphorically, and psychologically. Prerequisite: PHIL 101.

### PHIL 355. Philosophy of Science. (3 Credits)

An exploration of the ongoing relationship between philosophy and science, and an examination of how philosophical movements have informed some of the major shifts in scientific paradigms throughout history. The course concludes with an examination of how scientific revolutions potentially de-center humans, and reorient the relationship between the self and the world. Prerequisite: PHIL 101.

### PHIL 397. Special Topics. (1-6 Credits)

**PHIL 401. Reality and Representation. (3 Credits)**

This course analyzes, and provides students the opportunity to more deeply investigate, the philosophical foundations of spoken and written representation through a broad survey of theoretical readings in aesthetics, authorship, interpretation, realism, and subjectivity. Examining a diverse range of classic and contemporary thinkers in philosophy and cultural studies, the course explores the ways representation frames the experiences of being in the world, and asks such questions as: How do ideas become the words we speak?; Do the words we speak mean the same when written?; and What makes the narrative possible? The answers to these questions have broad philosophical, political, and cultural implications. Prerequisite: Phil 201 or PHIL 335; or ENG 371.

**PHIL 492. Independent Study. (1-6 Credits)****PHIL 497. Special Topics. (1-6 Credits)**

## Philosophy Minor

A minimum of 18 credits is required, including the following:

Code	Title	Credits
PHIL 101	Introduction to Philosophy (GT-AH3)	3
PHIL 201	Epistemology	3
PHIL 335	Advanced Ethics	3
Select two of the following:		6
PHIL 315	Eastern Philosophy	
PHIL 325	Women and Gender in Philosophy	
PHIL 345	Philosophy of Religion	
PHIL 355	Philosophy of Science	
PHIL 401	Reality and Representation	
Select one of the following:		3
ART 424	Modern Art History, Aesthetics, Theory, and Criticism	
ECON 350	History of Economic Thought	
ENG 371	Literary Theory and Criticism	
ENVS 410	Environmental Ethics	
PHIL 100	Critical Thinking	
PHIL 135	Introduction to Ethics	
PHIL 200	Symbolic Logic	
POLS 309	Political Theory I- Ancient to Early Modern	
POLS 310	Political Theory II-Modern and Contemporary	
SOC 380	Social Inequalities	
Total Credits		18

## Physics (PHYS)

Physicists are concerned with understanding the fundamental laws of Nature. The pursuit of that understanding leads to many practical applications. Physics is a rewarding area of study because it provides both a basis for understanding the natural world and modern technology, and satisfies one's intellectual curiosity. The fundamental character of physics makes it a discipline that is central to the liberal arts. The Physics curriculum at Western provides opportunities for students to take course work that supports other scientific and technical disciplines, to complete an academic major or minor, or to prepare for physics and engineering programs at other institutions.

The courses listed for each of the following emphases are the minimum requirements. Higher-level supporting courses may be appropriate for

students pursuing certain careers. Students should consult with their advisors for proper course selections. All majors require a Capstone Course.

- Applied Physics/Pre-Engineering Major: Comprehensive Program (<https://catalog.western.edu/undergraduate/programs/physics/applied-physics-pre-engineering/>)
- Physics Minor (p. 239)

## Capstone Course Requirement

The following course in the Applied Physics/Pre-Engineering Major fulfill the capstone course requirement: PHYS 495.

## Physics Courses

**PHYS 110. Introductory Astronomy (GT-SC2). (3 Credits)**

An overview of the historical development of astronomy and the basic physical principles that are relevant to it. The overall structure of the Universe is studied and its various components examined. Includes limited observational activities. Prerequisite: completion of the general education essential skills mathematics requirement. GT-SC2

**PHYS 115. Physics of Music. (3 Credits)**

A practical introduction to the physics of sound, with emphasis on music. Students investigate the properties of sounds produced by musical instruments. Topics include periodic functions, waves, resonance, overtones, frequency spectra, digital sound production and basic acoustic principles. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; MATH 099 or university-level math requirement with a minimum grade of "C-"; or Accuplacer Advanced Algebra and Functions test score of 245 or above.

**PHYS 120. Meteorology (GT-SC2). (3 Credits)**

A summary of the structure of the Earth's atmosphere, worldwide weather disturbances, weather forecasting, and snow avalanches. This course may not be taken for credit toward the Physics Minor. GT-SC2

**PHYS 125. Energy and the Environment (GT-SC2). (3 Credits)**

A practical study of energy generation and its environmental impact, including the physics of energy fundamentals, fossil fuel use, alternative energy uses, and energy conservation. Primarily for non-science majors, this course will qualitatively detail basic physical principles behind the use of energy, including mechanics, electricity and magnetism, and thermodynamics. This course is designed to provide the student with a physicist's perspective on energy use and environmental issues. Prerequisite: completion of the general education essential skills mathematics requirement. GT-SC2

**PHYS 140. Introductory Physics (with laboratory) (GT-SC1). (4 Credits)**

A semi-quantitative introduction to the fundamental concepts of physical science, particularly the laws of physics as they relate to the structure of matter. Laboratory experiences play an important role in the investigations. This course may not be taken for credit toward the Physics Minor. Additional course fee applies. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; MATH 099; Accuplacer Advanced Algebra and Functions test score of 245 or above. GT-SC1

**PHYS 170. Principles of Physics I (with laboratory) (GT-SC1). (4 Credits)**

A quantitative lecture and laboratory introduction to the basic principles of physics. Topics covered include the motions of particles, forces in nature, field concepts, energy, conservation laws, and many-particle systems. A mathematical proficiency at the level of university algebra is recommended. Additional course fee applies. Prerequisites: MATH 141. GT-SC1

**PHYS 171. Principles of Physics II (with laboratory) (GT-SC1). (4 Credits)**

A continuation of PHYS 170 dealing with electromagnetism, light, thermodynamics, and the atomic structure of matter. Additional course fee applies. Prerequisite: PHYS 170. GT-SC1

**PHYS 197. Special Topics. (1-6 Credits)****PHYS 200. General Physics I (with laboratory) (GT-SC1). (4 Credits)**

A quantitative lecture and laboratory introduction to the basic principles of physics, using the concepts of calculus as a tool. Topics covered include the motions of particles, forces in nature, field concepts, energy, conservation laws, many-particle systems, and thermodynamics. A student may not receive credit for both PHYS 170 and PHYS 200. Additional course fee applies. Prerequisite or Corequisite: MATH 151. GT-SC1

**PHYS 201. General Physics II (with laboratory) (GT-SC1). (4 Credits)**

A continuation of PHYS 200 dealing with electromagnetism, light, and the atomic structure of matter. A student cannot receive credit for both PHYS 171 and 201. Additional course fee applies. Prerequisite: PHYS 200 (require minimum grade of C- or higher). GT-SC1

**PHYS 250. Statics. (3 Credits)**

An investigation of systems in static equilibrium. Topics covered include force systems, 2d and 3d equilibrium, structural analysis, internal forces, friction, distributed forces and virtual work. Prerequisites: PHYS 171 or PHYS 201; MATH 251.

**PHYS 251. Dynamics. (3 Credits)**

An investigation of the kinematics and kinetics of particles and rigid bodies as well as modes of vibration and time response. Topics covered include coordinate systems, work-energy relations, momentum, relative motion and vibrations. Prerequisite: PHYS 250.

**PHYS 297. Special Topics. (1-6 Credits)****PHYS 320. Modern Physics. (3 Credits)**

An introduction to the special theory of relativity, quantum physics, atomic physics, and sub-atomic physics. Prerequisites: PHYS 171 or PHYS 201; prerequisite or co-requisite: MATH 251.

**PHYS 330. Classical Mechanics. (3 Credits)**

A treatment of basic mathematical methods including vector analysis, coordinate systems and transformations, particle dynamics, energy, and gravitation. Prerequisites: PHYS 171 or PHYS 201; MATH 251.

**PHYS 335. Fluid Mechanics. (3 Credits)**

Examines fundamentals of fluid flow with application to engineering problems. Topics covered include fluid statics and kinematics, Bernoulli equations, laminar and turbulent viscous boundary layers, laminar and turbulent pipe flow, and conservation equations for mass, momentum and energy. Prerequisites: MATH 251 and PHYS 250.

**PHYS 350. Electricity and Magnetism I. (3 Credits)**

A study of electrostatic fields and potentials, the electrical properties of matter, magnetic phenomena and the magnetic properties of matter. Prerequisites: PHYS 171 or PHYS 201; MATH 252.

**PHYS 351. Electricity and Magnetism II. (3 Credits)**

A continuation of PHYS 350 treating direct and alternating currents, electromagnetic induction, Maxwell's equations, and electromagnetic radiation. Prerequisite: PHYS 350.

**PHYS 397. Special Topics. (1-6 Credits)****PHYS 452. Quantum Mechanics. (3 Credits)**

An introduction to the mathematical formalism of quantum mechanics and its application to various types of natural systems, such as multi-electron atoms, molecules, and solids. Prerequisites: PHYS 171 or PHYS 201; corequisite: MATH 252.

**PHYS 462. Astrophysics. (3 Credits)**

A study of selected topics in astrophysics as they relate to the core areas of physics: mechanics, electromagnetism, quantum physics, and thermodynamics. Topics covered may include stellar formation and life cycles, galactic dynamics and dark matter, planetary systems, multiple star systems, interstellar medium, cosmology, and the nature of light. Prerequisites: PHYS 171 or PHYS 201; MATH 252.

**PHYS 495. Physics Capstone. (1 Credit)**

A senior research and thesis course. The course is designed as the last opportunity to develop skills required before students enter the work force, graduate school or the next step in a chosen vocation. Students shall choose individualized research projects in consultation with an instructor that utilize experimental analysis, experimental investigation and/or computational simulation. Students will communicate their results through written work and a presentation. Prerequisites: PHYS 320.

**PHYS 497. Special Topics. (1-6 Credits)**

## Physics Minor

The Physics Minor consists of a minimum of 29 credits:

Code	Title	Credits
MATH 151	Calculus I (GT-MA1)	4
MATH 251	Calculus II	4
MATH 252	Calculus III	4
PHYS 320	Modern Physics	3
Select one of the following:		8
PHYS 170 & PHYS 171	Principles of Physics I (with laboratory) (GT-SC1) and Principles of Physics II (with laboratory) (GT-SC1)	
PHYS 200 & PHYS 201	General Physics I (with laboratory) (GT-SC1) and General Physics II (with laboratory) (GT-SC1)	
6 credits of the following:		6
PHYS 250	Statics	
PHYS 251	Dynamics	
Or Physics courses number 300 or above		
Total Credits		29

## Politics and Government (POLS)

The Politics and Government curriculum presents different and often conflicting points of view on a variety of important political ideas in the Western political tradition (for example: democracy, freedom, equality, development, and power). Study of how different individuals have looked at these ideas, as well as how such ideas have been practiced in the contexts of real institutions and political controversies, enlarges the mind, develops the tools necessary for effective citizenship, and serves to cultivate critical reasoning. Students are encouraged to find

ways to address problems, such as the loss of biodiversity, disparities between neighboring communities and personal responsibility, global gender and social inequalities, foreign policy decision making and international security, and the relationship between private and public life in a democracy. As political scientists we seek to understand the causes of wars, social injustices, economic disparities, and uneven technological growth for the purpose of alleviating suffering and providing sustainable solutions. Students study these questions through an engagement with historical texts as well as case studies and ongoing contemporary debates.

The faculty is committed to teaching students how to effect social change through active citizenship –whether in local, state, national or international communities. By learning from different people and situations in internships and service learning, Western students are prepared for graduate or professional school or to better understand and prepare for careers in business, journalism, government service, or public life. Such internships have ranged from working in local law offices or offices at the state capitol to interning in United States Senate offices in Washington, D.C. The Politics and Government Program offers a standard major, a global studies emphasis, a pre-law emphasis, a secondary licensure emphasis, an Environmental Management Emphasis (with a 3+2 Master in Environmental Management), a standard minor, and a pre-law minor.

- Environmental Management Emphasis (with a 3+2 Master in Environmental Management) (p. 242)
- Politics and Government Comprehensive Major: Global Studies Emphasis (p. 244)
- Politics and Government Comprehensive Major: Pre-Law Emphasis (p. 246)
- Politics and Government Comprehensive Major: Secondary Licensure Emphasis (p. 247)
- Politics and Government Comprehensive Major: Secondary Licensure Emphasis (with a 3+2 Master of Arts in Education) (<https://catalog.western.edu/undergraduate/programs/politics-government/politics-government-comprehensive-secondary-licensure-3-2/>)
- Politics and Government Major: Standard Program (p. 249)
- Politics and Government Minor (p. 250)
- Politics and Government Pre-Law Minor (p. 250)

## Capstone Course Requirement

The following courses in the Politics and Government Major fulfill the capstone course requirement: POLS 485 Studies in Political Theory; POLS 486 Studies in American Politics; POLS 487 Studies in International Relations; POLS 488 Studies in Comparative Politics.

## Politics and Government Courses

### **POLS 117. Introduction to Political Ideas (GT-SS1). (3 Credits)**

An introduction to political analysis through a study of important political concepts and theories, as well as their historical development. Students study the ideas and practices of the public and philosophical development of concepts such as citizenship, democracy, equality, justice, liberty, or power. GT-SS1

### **POLS 180. Introduction to American Politics (GT-SS1). (3 Credits)**

Introduces institutions and processes of American politics, including themes such as constitutionalism, representation, participation, political development, political economy, civil liberties and rights, public policy, and the ideas and values of American democracy. GT-SS1

### **POLS 197. Special Topics. (1-6 Credits)**

#### **POLS 250. Politics of the Environment. (3 Credits)**

A survey of key issues of national and international environmental politics, the course introduces students to the historical foundations and ongoing debates concerning the environment. A specific political lens informs our discussions while students analyze theoretical, cultural and political domains of various political systems and the ways in which they have gained importance on the international scene. Some of the main issues discussed in class involve a survey of international environmental treaties, government responses to environmental disasters and crises, environmental justice movements, environmental causes of war and displacement, democratic participation as a tool for environmental change, indigenous modalities of treating the environment, and the politics of environmental agreements and developments in the United States. Students learn to examine the connections between the environment and politics in a critical, engaged and broadly-informed way. Prerequisite: POLS 117

#### **POLS 255. Introduction to Comparative Politics (GT-SS1). (3 Credits)**

An introduction to the challenges and problems encountered in the study of comparative politics. Students examine various issues of local and national governance through a comparative lens. By looking at similar political phenomena in several contexts, students explore the question of why some countries have successfully developed their political, economic and social systems while others are lagging behind. Some of the issues examined in the class deal with women's rights, poverty, underdevelopment, the environment, and democracy. Prerequisite: ENG 102 with a grade of C- or above. GT-SS1

#### **POLS 260. Introduction to World Politics (GT-SS1). (3 Credits)**

An introduction to some of the more important concepts and approaches to understanding world politics. Students examine the politics between different countries and seek to answer questions about the promise and peril of the global future. Questions contemplated include: What are the sources of political conflict and how can they be minimized? Under what conditions will nation states cooperate with each other to accomplish common goals? Should tyranny and human rights violations justify humanitarian intervention? Prerequisite: ENG 102 with a grade of C- or above. GT-SS1

#### **POLS 282. Issues in State and Local Government. (3 Credits)**

Using the foundations of American Federalism, the class examines policy issues at the state and local levels. With a comparative perspective and, at the same time, with particular attention paid to Colorado, some of the themes examined in states and localities include: budgets and economic policy, education, energy, and environmental Policy. Prerequisite: recommended POLS 180.

#### **POLS 297. Special Topics. (1-6 Credits)**

#### **POLS 300. Constitutional Law I. (3 Credits)**

A study of the historical development of the United States Constitution and Supreme Court through the most important Supreme Court decisions. The course focuses on the areas of jurisdiction of the courts, development of the common law, the separation of powers, federalism, and the inter-state commerce power. Prerequisite: POLS 180.

#### **POLS 301. Constitutional Law II. (3 Credits)**

A continuation of POLS 300. An examination of the constitutional protections of individual liberties as defined by the Supreme Court. Students study the historical development of the Supreme Court's point of view in such areas as freedom of speech, subversion and disloyalty, religious freedom, church-state separation, and equal protection of the law. Prerequisite: POLS 180 recommended.



**POLS 309. Political Theory I- Ancient to Early Modern. (3 Credits)**

A survey of the historical development of western political theories from their origins in ancient Greece to the development of early modern political theories such as liberalism and republicanism. Students study thinkers such as Sophocles, Plato, Aristotle, William Shakespeare, Niccolo Machiavelli, John Locke, and Jean-Jacques Rousseau. Prerequisite: POLS 117 recommended.

**POLS 310. Political Theory II-Modern and Contemporary. (3 Credits)**

A survey of the historical development of modern and contemporary political theories since the French Revolution. Issues investigated might include the rise of liberal democracy and its critics, the impact of the industrial revolution on modern politics, and how technological change and environmental limitations have affected contemporary political thought. Students study thinkers such as Mary Wollstonecraft, John Stuart Mill, Karl Marx, Friedrich Nietzsche, Hannah Arendt, and Michel Foucault. POLS 117 recommended

**POLS 331. The Politics of the Presidency. (3 Credits)**

After more than two centuries of change and development, the presidency stands not only as the nation's preeminent public office but also its most problematic. This course examines the design and creation of the office, the impact various officeholders have made on shaping future expectations, and the problems of contemporary leadership. Prerequisite: POLS 180 recommended.

**POLS 340. Politics of Social Movements. (3 Credits)**

A study of social movements, past and present, in both domestic and international contexts. Students examine theories on why social movements develop, spread, and decline, while considering the factors that lead to their successes and failures. Through an examination of transnational movements, students consider the roles of social networks and participatory democracy in a globalized world. Prerequisite: ENG 102.

**POLS 350. Human Rights. (3 Credits)**

An engagement with the history and current developments in international human rights practices, offering a justification and critique of universal human rights through the lens of various schools of thought, discussing pre and post-WWII developments with attention to specific cases, and examining the relationship between culture, globalization and human rights violations in the 21st century. Prerequisite: ENG 102.

**POLS 355. The Global South. (3 Credits)**

A historical and case specific engagement with the Global South with a focus on global political and economic processes such as colonialism and post-colonialism, development, foreign aid, humanitarian intervention, and neoliberal globalization. Notion of an epistemology of the Global South is addressed: How do we know/study the Global South? What are the political implications of the knowledge production about the Global South? Prerequisites: Junior standing or instructor permission.

**POLS 360. American Foreign Policy. (3 Credits)**

Not since the Roman Empire has any nation had as much economic, cultural and military power as the United States does today. Yet, as has become all too evident through the problems of terrorism, environmental degradation and the proliferation of weapons of mass destruction, that power is not enough to solve many global issues. This course examines the way in which U.S. foreign policy is made and the variety of ongoing and emerging foreign policy problems the U.S. faces in the context of their evolution. Prerequisites: POLS 255 and/or POLS 260 recommended.

**POLS 370. Political Economy. (3 Credits)**

A study of economic systems that focuses on the structure and uses of economic power and the relationship between economic and political power. Students think about questions such as: What is capitalism? What varieties of capitalism exist around the world? How has capitalism changed over time? Ultimately, students consider the relationship between capitalism, freedom, and democracy. Prerequisite: ENG 102.

**POLS 376. American Political Thought. (3 Credits)**

A study of American political thought from the colonial period to the present day through a survey of key thinkers and social movements. Students gain an appreciation for dominant views and key controversies within American political thought, as well how the ideas of challengers, such as Abolitionism, Populism, Progressivism, the Labor Movement, the Women's movement, the New Deal, and the Civil Rights Movement, have reshaped the accepted order. Prerequisite: POLS 117 or POLS 180.

**POLS 380. The United Nations. (3 Credits)**

A study of the United Nations, focusing on the relationship between the UN, the proliferation of human rights regimes and international human development. Students think about the importance of creating international norms, working toward a sustainable world peace, political efficacy, and human rights in the world. A Model UN simulation is part of the course requirements. Prerequisite: ENG 102.

**POLS 390. Mock Trial. (3 Credits)**

Students explore a hypothetical criminal or civil case prepared by the American Mock Trial Association. Students study case materials, including affidavits and evidence, learn rules of evidence, and prepare for trial. After dividing into roles of prosecuting attorneys, defense attorneys, and witnesses, students plan strategies, rehearse witnesses, draft direct and cross examinations, and construct opening and closing statements. Students develop skills related to law, practiced and improvisational public speaking, teamwork, and argumentation. Co-requisite or Prerequisite: COM 202. Course may be repeated twice for credit.

**POLS 392. Independent Study. (1-4 Credits)****POLS 397. Special Topics. (1-6 Credits)****POLS 485. Studies in Political Theory. (3 Credits)**

Senior seminar in political theory with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 486. Studies in American Politics. (3 Credits)**

Senior seminar in American politics with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 487. Studies in International Relations. (3 Credits)**

Senior seminar in International Relations with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 488. Studies in Comparative Politics. (3 Credits)**

Senior seminar in Comparative politics with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 492. Independent Study. (1-3 Credits)****POLS 499. Internship in Politics and Government. (1-12 Credits)**

Credit earned in an internship may be applied to the Major or Minor with advisor approval.



## Environmental Management Emphasis (with a 3+2 Master in Environmental Management)

The Environmental Management emphasis allows students to complete the B.A. in Politics and Government (POLS) and the Master in Environmental Management (MEM) at Western in five years. To remain qualified for the 3+2, upon earning 66 credits each student must have:

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. Upon meeting the requirements above, and after Junior Year (reaching 91 credits in this plan—see "MAJOR MAP" at [western.edu/3\\_2](http://western.edu/3_2) ([http://western.edu/3\\_2/](http://western.edu/3_2/))) holding to the same GPA and general performance standards outlined above, the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Upon completion of the final 29 credits of the Western B.A. in Year Four of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still have completed the POLS undergraduate emphasis in Environmental Management and have earned the 120 credits necessary for a Western undergraduate degree.

A minimum of 68 credits is required.

Code	Title	Credits
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 250	Politics of the Environment	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 260	Introduction to World Politics (GT-SS1)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS 310	Political Theory II-Modern and Contemporary	3
POLS 499	Internship in Politics and Government	3
Select five of the following:		15
POLS 282	Issues in State and Local Government	
POLS 300	Constitutional Law I	
POLS 301	Constitutional Law II	
POLS 331	The Politics of the Presidency	
POLS 340	Politics of Social Movements	
POLS 350	Human Rights	
POLS 355	The Global South	

POLS 360	American Foreign Policy	
POLS 370	Political Economy	
POLS 376	American Political Thought	
POLS 380	The United Nations	
Select one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
SOC 211	Quantitative Research Methods	
Select one of the following:		3
POLS 485	Studies in Political Theory:	
POLS 486	Studies in American Politics:	
POLS 487	Studies in International Relations:	
POLS 488	Studies in Comparative Politics:	
<b>Core MEM Courses</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
Select one of the following from the MEM Emphases:		3
Sustainable and Resilient Communities Emphasis:		
ENVS 616	Environmental Organization Development and Management	
Global Sustainability Emphasis:		
ENVS 617	Global Sustainability	
Integrative and Public Land Management Emphasis:		
ENVS 618	Public Lands Management	
Total Credits		68

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.S. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

## Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

# Major Map and Sample Sequence Major: B.A. in Politics and Government & Master in Environmental Management (3+2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
Gen Ed	General Education Courses (Area I and II)	9
HWTR 100	First Year Seminar	1
		Credits 16
<b>Spring</b>		
POLS 260	Introduction to World Politics (GT-SS1)	3
BIOL 130 & BIOL 135	Environmental Biology (GT-SC2) and Environmental Biology Laboratory (GT-SC1)	4
Elective	POLS Elective	3
Gen Ed	Other General Education Courses (Area I and II)	6
		Credits 16
<b>Year Two</b>		
<b>Fall</b>		
POLS 250	Politics of the Environment	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
Gen Ed	Natural Sciences w/lab	4
		Credits 13

<b>Spring</b>		
POLS 310	Political Theory II- Modern and Contempora	3
Elective	POLS Elective	3
STATS	ECON or MATH or SOC STATS	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Summer</b>		
POLS 499	Internship in Politics and Government 1	3
		Credits 3
<b>Year Three</b>		
<b>Fall</b>		
Elective	POLS Elective	3
Elective	ENVS Elective (ENVS 350, ENVS 360, ENVS 370)	3
Elective	Elective	6
Gen Ed	General Education Courses	3
		Credits 15
<b>Spring</b>		
Elective	POLS Elective	3
Elective	Elective	9
Gen Ed	General Education Courses	3
		Credits 15
<b>Summer</b>		
ENVS 601	Introduction to Environment Managemen	5
		Credits 5
<b>Year Four</b>		
<b>Fall</b>		
ENVS 605	Science of Environment Managemen	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environment Managemen	3
Elective	POLS Elective	3
		Credits 12

<b>Spring</b>		
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 616 or ENVS 618	Environmental Organization Development and Management or Public Lands Management	3
Capstone	POLS Capstone	
		Credits 9
<b>Summer</b>		
ENVS 690	MEM Project Development	5
		Credits 5

<b>Year Five</b>		
<b>Fall</b>		
ENVS 620 or ENVS 625	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Manager	3
ENVS 620 or ENVS 625	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management	3
ENVS 694	Master's Project and Portfolio	3
		Credits 9

<b>Spring</b>		
ENVS 620 or ENVS 625	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Manager	3
ENVS 694	Master's Project and Portfolio	3
ENVS 694	Master's Project and Portfolio	3
		Credits 9
		Total 142
		Credits

<sup>1</sup> 66 credit mark completed. Submit 3+2 application materials by July 1.

# Politics and Government Comprehensive Major: Global Studies Emphasis

## Program Requirements

A minimum of 54 credits is required including the following:

Code	Title	Credits
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 260	Introduction to World Politics (GT-SS1)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS 310	Political Theory II-Modern and Contemporary	3
Select six of the following:		18
POLS 250	Politics of the Environment	
POLS 340	Politics of Social Movements	
POLS 350	Human Rights	
POLS 355	The Global South	
POLS 360	American Foreign Policy	
POLS 370	Political Economy	
POLS 380	The United Nations	
POLS 499	Internship in Politics and Government	
Select two of the following:		6
ECON 201	Macroeconomics (GT-SS1)	
ECON 202	Microeconomics	
ECON 303	International Economics and Globalization	
Select two of the following:		6
HIST 254	A History of Africa (GT-HI1)	
HIST 260	Latin American History (GT-HI1)	

Or another 300 or 400-level History course on an international thematic

Select one of the following: 3

- GEOG 110 World Regional Geography (GT-SS2)
- GEOG 120 Introduction to Human Geography (GT-SS2)
- GEOG 351 Geography of Latin America and the Caribbean

Select one of the following capstone courses: 3

- POLS 485 Studies in Political Theory:
- POLS 486 Studies in American Politics:
- POLS 487 Studies in International Relations:
- POLS 488 Studies in Comparative Politics:

Total Credits 54

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
ENG 102	Academic Writing (GT-CO1)	3
Gen Ed	General Education Courses	6
HWTR 100	First Year Seminar	1
		Credits 16
<b>Spring</b>		
POLS 260	Introduction to World Politics (GT-SS1)	3
ECON	Global Studies ECON Elective (1 of 2)	3
POLS	Global Studies POLS Elective (1 of 5)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
GEOG	GEOG Elective (1 of 1)	3

HIST	Global Studies HIST Elective (1 of 2)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Spring</b>		
POLS	Global Studies POLS Elective (2 of 5)	3
ECON	Global Studies ECON Elective (2 of 2)	3
HIST	Global Studies HIST Elective (2 of 2)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
HIST	Global Studies HIST Elective (2 of 2)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS	Global Studies POLS Elective (3 of 5)	3
Gen Ed	General Education Courses	3
		Electives 3
		Credits 15
<b>Spring</b>		
POLS 310	Political Theory II- Modern and Contempora	3
POLS	Global Studies POLS Elective (4 of 5) (CAN be Model UN)	3
Gen Ed	General Education Courses	3
		Electives 6
		Credits 15

Year Four		
<b>Fall</b>		
POLS	Global Studies	3
	POLS	
	Elective (5 of 5)	
Elective	Electives	12
	Credits	15
<b>Spring</b>		
POLS	POLS Capstone	3
Elective	Electives	12
	Credits	15
	Total Credits	121

# Politics and Government Comprehensive Major: Pre-Law Emphasis

## Program Requirements

A minimum of 60 credits is required including the following:

Code	Title	Credits
BUAD 210	Legal Environment of Business	3
BUAD 315	Business Law	3
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 300	Constitutional Law I	3
POLS 301	Constitutional Law II	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS 310	Political Theory II-Modern and Contemporary	3
POLS 390	Mock Trial (Mock Trial)	3
Select one of the following:		3
POLS 255	Introduction to Comparative Politics (GT-SS1)	
POLS 260	Introduction to World Politics (GT-SS1)	
POLS 282	Issues in State and Local Government	
Select four of the following:		12
BUAD 240	Strategic Negotiations	
BUAD 342	Environmental Law	
BUAD 410	Water Law	
POLS 331	The Politics of the Presidency	
POLS 340	Politics of Social Movements	
POLS 350	Human Rights	
POLS 360	American Foreign Policy	
POLS 370	Political Economy	
POLS 376	American Political Thought	
POLS 390	Mock Trial (Mock Trial)	
Select five of the following courses in at least three disciplines:		15
ACC 201	Introduction to Financial Accounting	
ACC 350	Income Tax	
COM 371	Small Group and Conflict Management	
COM 372	Issues Management	
ECON 201	Macroeconomics (GT-SS1)	

ECON 202	Microeconomics	
ECON 476	American Economic Development	
ENG 237	Women and Literature	
ENG 238	Literary Culture of the American West	
ENG 255	Ancient World Literature (GT-AH2)	
ENG 331	Literature and Ethnicity: Studies in:	
HIST 333	American Revolution and the Early Republic	
HIST 336	U.S. Civil War and Reconstruction	
HIST 340	Emergence of the Modern U.S.	
HIST 343	Depression and World War II	
HIST 346	Recent American History	
PHIL 101	Introduction to Philosophy (GT-AH3)	
PHIL 200	Symbolic Logic	
PHIL 201	Epistemology	
PHIL 335	Advanced Ethics	
PSY 368	Psychopathology	
SOC 259	Introduction to Criminal Justice	
SOC 349	Law Enforcement	
SOC 367	Corrections	
Select one of the following capstone courses:		3
POLS 485	Studies in Political Theory:	
POLS 486	Studies in American Politics:	
POLS 487	Studies in International Relations:	
POLS 488	Studies in Comparative Politics:	

**Total Credits 60**

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
POLS 117	Introduction to Political Ideas (GT-SS1) (also Gen Ed)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
Gen Ed	General Education Courses	9
HWTR 100	First Year Seminar	1
	Credits	16
<b>Spring</b>		
POLS 260	Introduction to World Politics (GT-SS1)	3
BUAD 210	Legal Environment of Business	3
POLS	Pre-Law Elective (1 of 5)	3
Gen Ed	General Education Courses	6
	Credits	15

<b>Year Two</b>		
<b>Fall</b>		
POLS 300	Constitutional Law I	3
POLS 309	Political Theory I- Ancient to Early Modern	3
BUAD/POLS	BUAD/POLS Elective (1 of 4)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Spring</b>		
POLS 301	Constitution Law II	3
POLS 310	Political Theory II- Modern and Contemporary	3
BUAD/POLS	BUAD/POLS Elective (2 of 4)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
POLS 390	Mock Trial	3
BUAD/POLS	BUAD/POLS Elective (3 of 4)	3
POLS	Pre-Law Electives (2 of 5)	3
Gen Ed	General Education Courses	3
Elective	Electives	3
		Credits 15
<b>Spring</b>		
BUAD 315	Business Law	3
BUAD/POLS	BUAD/POLS Elective (4 of 4)	3
POLS	Pre-Law Elective (3 of 5)	3
Gen Ed	General Education Courses	3
Elective	Electives	3
		Credits 15
<b>Year Four</b>		
<b>Fall</b>		
POLS 390	Mock Trial	3
POLS	Pre-Law Elective (4 of 5)	3

Elective	Electives	9
		Credits 15
<b>Spring</b>		
POLS	POLS Capstone	3
POLS	Pre-Law Elective (5 of 5)	3
Elective	Electives	9
		Credits 15
		Total 121
		Credits

## Politics and Government Comprehensive Major: Secondary Licensure Emphasis Program Requirements

This emphasis qualifies students for State of Colorado Licensure in Social Science Education. Students interested in pursuing this comprehensive program should consult with the Teacher Education Program advisor in addition to the advisor in their major as soon as possible. A minimum of 72 credits is required. In addition, students must fulfill the Secondary Licensure Option described under Education. The following courses are required:

Code	Title	Credits
ECON 201	Macroeconomics (GT-SS1)	3
ECON 202	Microeconomics	3
ECON 303	International Economics and Globalization	3
ECON 476	American Economic Development	3
GEOG 110	World Regional Geography (GT-SS2)	3
GEOG 120	Introduction to Human Geography (GT-SS2)	3
GEOG 250	Geography of North America (GT-SS2)	3
GEOL 101	Physical Geology (GT-SC2)	3
HIST 101	World History to 1500 (GT-HI1)	3
HIST 102	World History Since 1500 (GT-HI1)	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3
HIST 327	Colorado History	3
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 282	Issues in State and Local Government	3
POLS 300	Constitutional Law I	3
POLS 301	Constitutional Law II	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS 310	Political Theory II-Modern and Contemporary	3
POLS 376	American Political Thought	3
One of the following:		3
POLS 260	Introduction to World Politics (GT-SS1)	
POLS 360	American Foreign Policy	
Select one of the following capstone courses:		3
POLS 485	Studies in Political Theory:	
POLS 486	Studies in American Politics:	



POLS 487	Studies in International Relations:
POLS 488	Studies in Comparative Politics:
<hr/>	
Total Credits	72

## Capstone Course Requirement

The following courses in the Politics and Government Major fulfill the capstone course requirement: POLS 485 STUDIES IN POLITICAL THEORY; POLS 486 Course POLS 486 Not Found; POLS 487 STUDIES IN INTL RELATIONS;; POLS 488 Course POLS 488 Not Found.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
HIST 101	World History to 1500 (GT-HI1)	3
Gen Ed	General Education Courses	3
		Credits 16
<b>Spring</b>		
POLS 260	Introduction to World Politics (GT-SS1)	3
ECON 201	Macroeconomics (GT-SS1)	3
HIST 102	World History Since 1500 (GT-HI1)	3
GEOL 101	Physical Geology (GT-SC2)	3
Gen Ed	General Education Courses	3
		Credits 15

<b>Year Two</b>		
<b>Fall</b>		
POLS 282	Issues in State and Local Government	3
ECON 202	Microeconomics	3
GEOG 110	World Regional Geography (GT-SS2)	3
HIST 126	U.S. History to 1865 (GT-HI1)	3
Gen Ed	General Education Courses	3
		Credits 15
<b>Spring</b>		
POLS 301	Constitution Law II	3
ECON 303	International Economics and Globalization	3
GEOG 250	Geography of North America (GT-SS2)	3
HIST 127	U.S. History Since 1865 (GT-HI1)	3
Gen Ed	General Education Courses	3
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
POLS 300	Constitution Law I	3
HIST 327	Colorado History	3
GEOG 120	Introduction to Human Geography (GT-SS2)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
Gen Ed	General Education Courses	3
		Credits 15
<b>Spring</b>		
ECON 476	American Economic Development	3
POLS 310	Political Theory II- Modern and Contemporary	3
POLS	POLS Capstone	3
Gen Ed	General Education Courses	3

Elective	Electives	3
	Credits	15
	Total Credits	91

# Politics and Government Major: Standard Program

## Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 36 credits is required including the following:

Code	Title	Credits
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 260	Introduction to World Politics (GT-SS1)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
POLS 310	Political Theory II-Modern and Contemporary	3
Select five of the following:		15
POLS 250	Politics of the Environment	
POLS 282	Issues in State and Local Government	
POLS 300	Constitutional Law I	
POLS 301	Constitutional Law II	
POLS 331	The Politics of the Presidency	
POLS 340	Politics of Social Movements	
POLS 350	Human Rights	
POLS 355	The Global South	
POLS 360	American Foreign Policy	
POLS 370	Political Economy	
POLS 376	American Political Thought	
POLS 380	The United Nations	
POLS 499	Internship in Politics and Government	
Select one of the following capstone courses:		3
POLS 485	Studies in Political Theory:	
POLS 486	Studies in American Politics:	
POLS 487	Studies in International Relations:	
POLS 488	Studies in Comparative Politics:	
<b>Total Credits</b>		<b>36</b>

A statistics course may be used to meet the POLS elective requirement.

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
POLS 117	Introduction to Political Ideas (GT-SS1) (also Gen Ed)	3
POLS 180	Introduction to American Politics (GT-SS1)	3

Gen Ed	General Education Courses	9
HWTR 100	First Year Seminar	1
		Credits 16
<b>Spring</b>		
POLS 260	Introduction to World Politics (GT-SS1)	3
MINOR	Minor Course (1 of 7)	3
POLS	POLS Elective (1 of 5)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 309	Political Theory I- Ancient to Early Modern	3
MINOR	Minor course (2 of 7)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Spring</b>		
POLS 310	Political Theory II- Modern and Contemporary	3
POLS	POLS Elective (2 of 5)	3
STATS	Minor Course (3 of 7)	3
Gen Ed	General Education Courses	6
		Credits 15
<b>Year Three</b>		
<b>Fall</b>		
POLS	POLS Elective (3 of 5)	3
MINOR	Minor Course (4 of 7)	3
Elective	Electives	3
Gen Ed	General Education Courses	6
		Credits 15

Spring		
POLS	POLS Elective (4 of 5)	3
MINOR	Minor Course (5 of 7)	3
Elective	Electives	6
Gen Ed	General Education Courses	3
		Credits
		15
Year Four		
Fall		
POLS	POLS Elective (5 of 5)	3
MINOR	Minor Course (6 of 7)	3
Elective	Electives	9
		Credits
		15
Spring		
POLS	POLS Capstone	3
MINOR	Minor Course (7 of 7)	3
Elective	Electives	9
		Credits
		15
		Total Credits
		121

## Politics and Government Minor

A minimum of 18 credits is required including a three-credit, upper-division Politics and Government elective chosen in consultation with an advisor and the following:

Code	Title	Credits
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3
POLS 255	Introduction to Comparative Politics (GT-SS1)	3
POLS 260	Introduction to World Politics (GT-SS1)	3
One of the following:		3
POLS 309	Political Theory I- Ancient to Early Modern	
POLS 310	Political Theory II-Modern and Contemporary	
Total Credits		15

## Politics and Government Pre-Law Minor

### Program Requirements

A minimum of 21 credits is required including a three-credit elective chosen from the courses listed for the Politics and Government major: Pre-Law Emphasis chosen in consultation with an advisor and the following:

Code	Title	Credits
POLS 117	Introduction to Political Ideas (GT-SS1)	3
POLS 180	Introduction to American Politics (GT-SS1)	3

POLS 300	Constitutional Law I	3
POLS 301	Constitutional Law II	3
BUAD 210	Legal Environment of Business	3
BUAD 315	Business Law	3
three-credit elective chosen from the courses listed for the Politics and Government major: Pre-Law Emphasis chosen in consultation with an advisor		3
Total Credits		21

## Psychology (PSY)

Psychology is the scientific study of individual human and animal behavior. A student of psychology can expect to investigate the following topics: psychopathology, social influences, perception, cognition, neuroscience, human development, personality, and health. The study of psychology also involves learning how psychologists work, including the areas of experimental methods, statistical analysis, and clinical psychology. From the basic courses to the more advanced, students achieve a greater understanding of themselves and others that will serve them well in their relationships and in any careers they may pursue.

In addition to the basic skills in writing, critical thinking, and use of technology expected of all Western students, Psychology majors have the opportunity to be involved in laboratory work. As students advance in their experience and knowledge, they can become involved in individual projects under faculty supervision. There are also internship opportunities available outside the classroom with programs for at-risk children, in domestic victim advocacy, in substance abuse prevention, and in other social service agencies statewide and nationally.

As many careers in psychology require a graduate degree, the Psychology Major at Western not only contributes to a solid liberal education, but also provides excellent preparation for graduate study. Students interested in careers in applied psychology are encouraged to pursue the Clinical, Counseling and School Psychology Emphasis. The Experimental Psychology Emphasis provides students with a broad background in the biological bases of behavior and offers preparation for graduate studies in experimental psychology or the neurosciences. The General Psychology Emphasis allows Psychology majors the freedom to choose courses that meet individual needs and interests.

- Environmental Emphasis (with a 3+2 Master in Environmental Management) (p. 252)
- Psychology Minor (p. 254)
- Psychology Standard Major: Clinical, Counseling, and School Psychology Emphasis (p. 254)
- Psychology Standard Major: Experimental Emphasis (p. 255)
- Psychology Standard Major: General Psychology Emphasis (p. 255)

## Capstone Course Requirement

The following courses in the Psychology Major fulfill the capstone course requirement: PSY 498 Capstone Seminar in Psychology, or PSY 499 Capstone Internship in Psychology (with a minimum grade of "C").

## Psychology Courses

### PSY 100. General Psychology (GT-SS3). (3 Credits)

An introduction to psychology including research methodology, biological bases of behavior, human development, sensation, perception, intelligence, cognition, language, states of consciousness, learning, memory, motivation, emotion, personality, abnormal behavior and stress and health. GT-SS3

### PSY 192. Independent Study. (1-6 Credits)

### PSY 197. Special Topics. (1-6 Credits)

### PSY 200. Statistics and Data Analysis. (3 Credits)

An introduction to statistical procedures often encountered in the analysis of data from behavioral science research. Statistical methods covered include measures of central tendency and variability, correlation, regression, t-tests and analysis of variance. Prerequisites: PSY 100; MATH 113 or MATH 140 with a minimum grade of C-, or instructor permission.

### PSY 210. History of Psychology. (3 Credits)

Introduces psychology majors to the philosophical underpinnings and historical context underlying the development of the discipline. Prerequisite: PSY 100.

### PSY 258. Introduction to Personality. (3 Credits)

An examination of the fundamental theories of personality including the psychoanalytic, trait, behavioral, social-learning, humanist and existential perspectives.

### PSY 270. Development Psychology. (3 Credits)

A critical look at the change and continuity that occurs throughout the life span, emphasizing the interrelationships among physical, cognitive and psychosocial realms of human development. Current research findings are emphasized.

### PSY 292. Independent Study. (1-4 Credits)

### PSY 297. Special Topics. (1-6 Credits)

### PSY 301. Research Methods. (3 Credits)

An examination of experimental and non-experimental research methods, the design of research studies, measurement issues, research ethics, research reporting and advanced topics in data analysis using computer statistical software. Students design and conduct their own study and present the results following APA approved format. Prerequisite: PSY 200.

### PSY 308. Environmental Psychology. (3 Credits)

Research in the field of environmental psychology is intended to answer questions about the influence of environment on the human experience, what personal factors affect an individual's unique experience of a certain setting, how human behaviors affect the environment, and how to increase pro-environmental behaviors. Students read current scientific literature in the field and engage in problem solving for current issues that can be informed by the study of the human-environment psychological interaction. Prerequisites: PSY 100 or ENVS 100.

### PSY 324. Forensic Psychology. (3 Credits)

An overview of the different tasks performed by forensic psychologists, including assessment, civil commitment, jury selection, eyewitness testimony, behavioral profiling, provision of clinical services to incarcerated individuals, and custody evaluations. Prerequisites: PSY 100 or instructor permission.

### PSY 335. Learning and Behavior. (4 Credits)

An exploration of the relationship between behaviors and their consequences through the application of basic behavioral principles. Topics include classical conditioning, instrumental conditioning, stimulus control, aversive control, and the biological constraints on learning. Students conduct their own experiments to apply the behavioral principles discussed throughout the course. Additional course fee applies. Prerequisite: PSY 200 or instructor permission.

### PSY 338. Cognitive Psychology. (3 Credits)

A theoretical and empirical investigation into the processes and outcomes of thinking. Topics such as memory and forgetting, problem solving and creativity, cognitive dissonance and consistency, defensive repression, language, optimism, and attribution are studied in relation to current scientific research findings. Prerequisites: PSY 100 and minimum sophomore standing or instructor permission.

### PSY 345. Biological Psychology (with laboratory). (4 Credits)

An investigation of the physiological basis of human behavior. Topics include functional neuroanatomy, neurophysiology and the activity of the nervous system in relation to behaviors such as sexual behavior, drug effects, emotion, and memory. Additional course fee applies. Prerequisite: PSY 200.

### PSY 361. Industrial and Applied Psychology. (3 Credits)

A course designed to show how psychology is directly related to the student's career and the student's life as a job applicant, employee, manager, and consumer. Topics covered include worker morale, leadership, work climate, communication networks, and productivity.

### PSY 368. Psychopathology. (3 Credits)

A systematic study of the etiology, symptoms, assessment, and treatment of major forms of psychopathology. An interdisciplinary approach is employed as a basis for understanding mental disorders and mental illness. Prerequisites: PSY 100, PSY 258, or PSY 270.

### PSY 369. Health Psychology. (3 Credits)

An overview of the emerging, multidisciplinary field of health psychology, which synthesizes research from clinical psychology, behavioral medicine and alternative therapies. Psychological aspects of prevention, health promotion and wellness are addressed. Content is both theory and application-based.

### PSY 380. Evolutionary Psychology. (3 Credits)

Evolutionary psychology examines mental and psychological traits such as memory, perception, attraction, or aggression, as adaptations or functions of the natural selection process. Topics addressed include the nature and nurture conflict, relationships between the two sexes, group cooperation, crime, and racism. Prerequisite: PSY100

### PSY 392. INDEPENDENT STUDY. (1-6 Credits)

### PSY 397. Special Topics. (1-6 Credits)

### PSY 399. Internship in Psychology. (1-9 Credits)

An opportunity for psychology majors to obtain field experience through direct, supervised contact with professionals in psychology and related areas. Graded Satisfactory/Unsatisfactory only. Prerequisite: completion of a minimum of 18 credits in psychology, including six credits at Western.

### PSY 410. Multicultural Psychology. (3 Credits)

An exploration of current issues in diversity and cultural psychology including the translation of psychological science across different cultures, and how people with identities along many dimensions of human diversity experience the world uniquely. Intersectionality is a major theme. The content of the course will focus on current events and scientific literature. Prerequisite: PSY 100.

**PSY 437. Behavioral Pharmacology. (3 Credits)**

Considers the relationship between our sensation of the physical world and our internal perceptions through the lens of behavioral pharmacology. Attention is given to the exploration of altered perceptions produced by drugs. Prerequisites: PSY 100 and PSY 200.

**PSY 457. Social Psychology. (3 Credits)**

A discussion of theories and research findings concerning the individual in social situations with an emphasis on their applications to current social issues. Included are such topics as interpersonal attraction, persuasion, altruism, morality, aggression, and intra-group relations.

**PSY 460. Psychological Testing. (3 Credits)**

An introduction to the general methodology and theory of psychological testing. Students have the opportunity to take, score, administer and interpret several common assessment instruments. Ethics and limitations of testing are emphasized. Prerequisite: PSY 100, PSY 258, or PSY 270.

**PSY 475. Clinical Psychology. (3 Credits)**

An introduction to the profession of clinical/counseling psychology through the presentation and analysis of different theoretical orientations and their respective techniques. Students have in-class opportunities to practice basic skills. Professional ethics in the delivery of mental health services are addressed. Prerequisites: PSY 100, PSY 258, or PSY 270.

**PSY 491. Topical Seminar in Psychology. (1-3 Credits)**

A seminar involving advanced reading, discussion, and research. Different areas of study are selected as student and faculty interests dictate. A goal of this course is to stimulate critical thinking and analysis.

**PSY 492. Independent Study. (1-4 Credits)**

An opportunity for detailed study and research for advanced students. Topics and course requirements are determined in consultation with the sponsoring faculty member.

**PSY 497. Special Topics. (1-6 Credits)****PSY 498. Capstone Seminar in Psychology. (3 Credits)**

This capstone course is required for all psychology majors, except those who opt to complete the capstone internship. It is intended to provide the opportunity for the synthesis of the ideas and concepts acquired during undergraduate education in psychology. The seminar includes a discussion of controversial issues and ethical considerations in both experimental and applied areas, the completion of a comprehensive literature review and a consideration of the future of the field. Prerequisites: completion of a minimum of 18 credits in psychology including PSY 210.

**PSY 499. Capstone Internship in Psychology. (3 Credits)**

An opportunity for psychology majors to gain field experience through direct, supervised contact with professionals in psychology and related fields. In addition to on-site responsibilities, students write a comprehensive paper integrating the field experience and psychological theory and later formally present the paper in an open forum. Prerequisites: completion of a minimum of 18 credits in psychology, including six credits at Western.

## Environmental Emphasis (with a 3+2 Master in Environmental Management)

The Environmental Management emphasis allows students to complete the B.A. in Psychology (PSY) and the Master in Environmental

Management (MEM) at Western in five years. To remain qualified for the 3+2, upon earning 67 credits each student must have:

- maintained a 3.00 cumulative GPA and a 3.00 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas/connections for the eventual Master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis and a minor to complete the PSY undergraduate degree. Or, if the student chooses to leave the 3+2 program before Year 4, they will also need to choose a new PSY emphasis and a minor to complete the PSY undergraduate degree. In addition to meeting the requirements above, and after Junior Year (96 credits in this plan) holding to the same GPA standards outlined above, the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Upon completion of the final 23 credits of the Western B.A. after Year Four of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still have completed the PSY undergraduate emphasis in Environmental Management and have earned the 120 credits necessary for a Western undergraduate degree.

A minimum of 67 credits is required.

Code	Title	Credits
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
PSY 100	General Psychology (GT-SS3)	3
PSY 200	Statistics and Data Analysis	3
PSY 301	Research Methods	3
PSY 308	Environmental Psychology	3
PSY 457	Social Psychology	3
PSY 499	Capstone Internship in Psychology	3
Psychology electives		8
Two of the following:		6
PSY 210	History of Psychology	
PSY 270	Development Psychology	
PSY 368	Psychopathology	
PSY 460	Psychological Testing	
PSY 475	Clinical Psychology	
One of the following:		3
PSY 258	Introduction to Personality	
PSY 361	Industrial and Applied Psychology	
PSY 369	Health Psychology	
Two of the following:		6-8
PSY 335	Learning and Behavior	

PSY 338	Cognitive Psychology
PSY 345	Biological Psychology (with laboratory)
PSY 380	Evolutionary Psychology
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Total Credits	44-46

Code	Title	Credits
<b>Core MEM Courses</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
One of the following from the MEM Emphases:		3
ENVS 616	Environmental Organization Development and Management	
ENVS 617	Global Sustainability	
ENVS 618	Public Lands Management	
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Total Credits		23

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

### Capstone Course Requirement

The following courses in the Psychology Major fulfill the capstone course requirement: PSY 498 Capstone Seminar in Psychology, or PSY 499 Capstone Internship in Psychology (with a minimum grade of "C").

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Major: B.A. in Psychology & Master in Environmental Management (3 + 2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
BIOL 130 & BIOL 135	Environmental Biology (GT-SC2) and Environmental Biology Laboratory (GT-SC1) (also Gen Ed, Liberal Arts: Area II)	4
ENVS 100	Introduction to Environment and Sustainability (GT-SS2) (also Gen Ed, Liberal Arts: Area I)	3
Gen Ed	General Education <sup>1</sup>	3
HWTR 100	First Year Seminar	1
PSY 100	General Psychology (GT-SS3) (also Gen Ed, Liberal Arts: Area I)	3
		<hr/>
		Credits 14
<b>Spring</b>		
Gen Ed	General Education <sup>1</sup>	3
PSY	PSY Elective (1 of 5)	3
PSY 210	History of Psychology	3
Gen Ed	General Education (Liberal Arts: Areas I and III)	6
		<hr/>
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
Gen Ed	General Education <sup>2</sup>	3
PHYS 125	Energy and the Environment (GT-SC2) (also Gen Ed, Liberal Arts: Area II)	3
PSY 200	Statistics and Data Analysis	3
PSY 270	Development Psychology	3



PSY	PSY Elective (2 of 5)	3
		Credits 15
<b>Spring</b>		
PSY 301	Research Methods	3
PSY 368	Psychopathology	3
PSY 338	Cognitive Psychology	3
Gen Ed	General Education (Liberal Arts: Area III)	6
		Credits 15
<b>Summer</b>		
PSY 308	Environmental Psychology	3
PSY 499 or ENVS 499	Capstone Internship in Psychology or Internship in Environmental Studies	3
66 credit mark completed. Submit 3+2 application materials by July 1.		Credits 6
<b>Year Three</b>		
<b>Fall</b>		
Elective	General Elective	3
Gen Ed	General Education	3
PSY 258	Introduction to Personality	3
PSY 457	Social Psychology	3
PSY	PSY Elective (3 of 5)	3
		Credits 15
<b>Spring</b>		
PSY	PSY Elective (4 & 5 of 5)	6
Elective	General Electives	6
Gen Ed	General Education (Liberal Arts: Area II)	3
		Credits 15
<b>Summer</b>		
ENVS 601	Introduction to Environmental Management	5
		Credits 5
<b>Year Four</b>		
<b>Fall</b>		
ENVS 605	Science of Environmental Management	3

ENVS 608	Environment Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
PSY	PSY Capstone <sup>3</sup>	3
		Credits 12
<b>Spring</b>		
Elective	Elective	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 616 or ENVS 617 or ENVS 618	Environmental Organization Development and Management or Global Sustainability or Public Lands Management	3
		Credits 12
		Total Credits 124

- <sup>1</sup> Essential Skills: MATH 113 Statistical Thinking (GT-MA1) or ENG 102 Academic Writing (GT-CO1)
- <sup>2</sup> Essential Skills: COM 202 Academic Writing and Inquiry (GT-CO2)
- <sup>3</sup> PSY 498 Capstone Seminar in Psychology (only if ENVS 499 Internship in Environmental Studies was taken during summer before Year Three)

## Psychology Minor

The Psychology Minor consists of a minimum of 18 credits:

Code	Title	Credits
PSY 100	General Psychology (GT-SS3)	3
Psychology electives		15
Total Credits		18

## Psychology Standard Major: Clinical, Counseling, and School Psychology Emphasis

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 40 credits is required:

Code	Title	Credits
PSY 100	General Psychology (GT-SS3)	3
PSY 200	Statistics and Data Analysis	3
PSY 210	History of Psychology	3
PSY 270	Development Psychology	3
PSY 301	Research Methods	3
PSY 345	Biological Psychology (with laboratory)	4
PSY 368	Psychopathology	3
PSY 457	Social Psychology	3
PSY 460	Psychological Testing	3
PSY 475	Clinical Psychology	3
Select one of the following:		3-4
PSY 335	Learning and Behavior	
PSY 338	Cognitive Psychology	
PSY 380	Evolutionary Psychology	
PSY 437	Behavioral Pharmacology	
Select one of the following:		3
PSY 258	Introduction to Personality	
PSY 324	Forensic Psychology	
PSY 361	Industrial and Applied Psychology	
PSY 369	Health Psychology	
Select one of the following capstone courses:		3
PSY 498	Capstone Seminar in Psychology	
PSY 499	Capstone Internship in Psychology	
Total Credits		40-41

## Capstone Course Requirement

The following courses in the Psychology Major fulfill the capstone course requirement: PSY 498 Capstone Seminar in Psychology, or PSY 499 Capstone Internship in Psychology (with a minimum grade of "C").

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Psychology Standard Major: Experimental Emphasis

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 40 credits is required:

Code	Title	Credits
PSY 100	General Psychology (GT-SS3)	3
PSY 200	Statistics and Data Analysis	3
PSY 210	History of Psychology	3

PSY 301	Research Methods	3
PSY 345	Biological Psychology (with laboratory)	4
Psychology Electives		9
Select four of the following:		12-13
PSY 335	Learning and Behavior	
PSY 338	Cognitive Psychology	
PSY 361	Industrial and Applied Psychology	
PSY 369	Health Psychology	
PSY 380	Evolutionary Psychology	
PSY 437	Behavioral Pharmacology	
PSY 457	Social Psychology	
Select one of the following capstone courses:		3
PSY 492	Independent Study	
PSY 498	Capstone Seminar in Psychology	
PSY 499	Capstone Internship in Psychology	
Total Credits		40-41

### Capstone Course Requirement

The following courses in the Psychology Major fulfill the capstone course requirement: PSY 498 Capstone Seminar in Psychology, or PSY 499 Capstone Internship in Psychology (with a minimum grade of "C").

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Psychology Standard Major: General Psychology Emphasis

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 38 credits is required:

Code	Title	Credits
PSY 100	General Psychology (GT-SS3)	3
PSY 200	Statistics and Data Analysis	3
PSY 210	History of Psychology	3
Psychology electives		8-9
Select two of the following:		6
PSY 270	Development Psychology	
PSY 368	Psychopathology	
PSY 460	Psychological Testing	
PSY 475	Clinical Psychology	
Select two of the following:		6
PSY 258	Introduction to Personality	
PSY 324	Forensic Psychology	

PSY 361	Industrial and Applied Psychology	
PSY 369	Health Psychology	
PSY 457	Social Psychology	
Select two of the following:		6-8
PSY 301	Research Methods	
PSY 335	Learning and Behavior	
PSY 338	Cognitive Psychology	
PSY 345	Biological Psychology (with laboratory)	
PSY 380	Evolutionary Psychology	
PSY 437	Behavioral Pharmacology	
Select one of the following capstone courses:		3
PSY 498	Capstone Seminar in Psychology	
PSY 499	Capstone Internship in Psychology	
<b>Total Credits</b>		<b>38-41</b>

### Capstone Course Requirement

The following courses in the Psychology Major fulfill the capstone course requirement: PSY 498 Capstone Seminar in Psychology, or PSY 499 Capstone Internship in Psychology (with a minimum grade of "C").

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
PSY 100	General Psychology (GT-SS3)	3
ENG 102	Academic Writing (GT-CO1)	3
MATH 140	College Algebra (GT-MA1)	3
ART 105	Introduction to Art (GT-AH1)	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
<b>Credits</b>		<b>15</b>
<b>Spring</b>		
PSY 200	Statistics and Data Analysis	3
PSY 210	History of Psychology	3

COM 202	Academic Writing and Inquiry (GT-CO2)	3
ANTH 107	Introduction to General Anthropology (GT-SS3)	3
BIOL 130	Environmental Biology (GT-SC2)	3
BIOL 135	Environment Biology Laboratory (GT-SC1)	1
<b>Credits</b>		<b>16</b>

#### Year Two

<b>Fall</b>		
PSY 270	Developmental Psychology	3
PSY 258	Introduction to Personality	3
COM 151	Introduction to Mass Media (GT-AH2)	3
Elective	Minor	3
Elective	Minor	3
<b>Credits</b>		<b>15</b>

#### Spring

PSY 368	Psychopathology	3
PSY 301	Research Methods	3
ANTH 218	Physical Anthropology (with laboratory)	4
ENG 205	Introduction to Creative Writing	3
Elective	Minor	3
<b>Credits</b>		<b>16</b>

#### Year Three

<b>Fall</b>		
PSY 369	Health Psychology	3
PSY 345	Biological Psychology (with laboratory)	4
Elective	Elective	3
Elective	Elective	3
Elective	Minor	3
<b>Credits</b>		<b>16</b>
<b>Spring</b>		
PSY 361	Industrial and Applied Psychology	3
PSY 338	Cognitive Psychology	3
Elective	Elective	3
Elective	Elective	3
Elective	Minor	3
<b>Credits</b>		<b>15</b>

**Year Four**

Fall		
PSY 457	Social Psychology	3
PSY 380	Evolutionary Psychology	3
Elective	Elective	3
Elective	Elective	3
Elective	Minor	3
		Credits 15
Spring		
PSY 437	Behavioral Pharmacology	3
PSY 498	Capstone Seminar in Psychology	3
Elective	Elective	3
Elective	Elective	3
		Credits 12
		Total 120
		Credits

## Recreation and Outdoor Education (ROE)

The field of ROE is dedicated to creating opportunities for people to live healthy, engaged, and happy lives. The ROE program at Western Colorado University is a professional preparation program for individuals seeking a career in recreation, outdoor leadership, or outdoor environmental education. This entails providing opportunities and requisite support for students to cultivate knowledge and develop practical skills in the following areas: leadership and facilitation, pedagogy, written and oral communication, environmental stewardship, philosophy and ethics, critical and creative thinking, program planning and execution, problem solving and resourcefulness, serving different populations, and the ability to manage risk. High value is placed on experiential education, as well as field-based learning through participation in backcountry inter-semester expeditions (generally in January, May, August, and spring break). Excellence in professional preparation is achieved through an interdisciplinary approach, including public and private partnerships, close proximity to recreation facilities and access to extensive public lands.

In addition to the traditional competencies expected of all liberal arts students, those majoring in ROE learn how the overall quality of life can be enhanced by the integration of appropriate leisure and educational activities. Students who graduate from the program gain confidence and leadership skills that can be applied in a variety of professional fields. Examples of options include employment with outdoor and environmental education centers, specialty outdoor training schools, municipal parks and recreation departments, social services, land management agencies, recreation and student services in higher education, and commercial guiding operations. Many students pursue graduate degrees, after garnering industry experience, allowing for more professional opportunities.

To participate in and graduate from the program, students must maintain a GPA of 2.5 or higher for all courses required of the ROE major. Students whose GPA drops below a 2.5 must repeat the applicable course(s) to raise the major GPA prior to taking additional ROE courses, or obtain permission from the instructor and Program Coordinator to repeat the course(s) while pursuing further coursework.

- Environmental Management Emphasis (with a 3+2 Master in Environmental Management) (p. 259)
- Recreation and Outdoor Education Comprehensive Major: Outdoor Environmental Education Emphasis (p. 262)
- Recreation and Outdoor Education Comprehensive Major: Outdoor Leadership Emphasis (p. 263)
- Recreation and Outdoor Education Comprehensive Major: Recreation Emphasis (p. 265)
- Recreation and Outdoor Education Minor (p. 267)

## Capstone Course Requirement

The following courses in the Recreation and Outdoor Education Major fulfill the capstone course requirements: ROE 499 Internship in Recreation and Outdoor Education.

## Recreation and Outdoor Education Courses

### ROE 182. Introduction to Recreation and Outdoor Education. (3 Credits)

An introduction to the history, philosophy, founders, and principles of recreation and outdoor education, the agencies providing programs, and an investigation of professional employment opportunities in recreation.

### ROE 189. Principles of Outdoor Education. (1-20 Credits)

An exploration of the theory and practice of outdoor education, with emphases on group dynamics, risk management, leadership, Leave No Trace, technical skills, and teaching, which are applied in a backcountry setting. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisite: Instructor permission.

### ROE 197. Special Topics. (1-12 Credits)

### ROE 230. Interpretation of Natural and Cultural History. (3 Credits)

A study of the principles, philosophies, and practices of interpretation, as well as active approaches to describing, relating, displaying, and revealing resources to a variety of audiences, primarily through observation and involvement in a variety of interpretation programs. Prerequisites: BIOL 130, BIOL 150, BIOL 151 or GEOL 101.

### ROE 235. Foundations of Teaching Environmental Education. (3 Credits)

A survey of environmental education examples from land management agencies, nature centers, and educational organizations. Students are guided to create their own curriculum employing environmental content. Field trips required.

### ROE 240. Alternative Programming. (3 Credits)

Course participants gain insight into alternative programming for special populations. Students explore case studies, specialized equipment, and profiles of special populations. Guest speakers and site visits will help students understand the intricacies of alternative programming and requisite career qualifications. Field trips required.

### ROE 283. Leadership and Facilitation. (1-20 Credits)

A study of recreation and outdoor education leadership, including leading activities, managerial leadership, and the art of facilitation. Emphasis is placed upon appropriate theories and techniques for varying populations.

**ROE 293. Outdoor Pursuits Education- Water Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, facilitation, rescue techniques, white water rafting, stand-up paddle boarding, and kayaking, as well as a focus on environmental education. This backcountry block course is offered in summer only, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 295. Outdoor Pursuits Education- Snow Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, teaching, traveling in avalanche terrain, backcountry skiing, and winter camping. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 296. Outdoor Pursuits Education- Land Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, teaching, rock climbing, mountain biking, and backpacking. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 297. Special Topics. (0.5-12 Credits)****ROE 333. Recreation and Sport Marketing. (3 Credits)**

A survey of recreation and sport marketing topics: buyer behavior, segmentation, positioning, demand analysis, information and research, pricing, promotion, channels, 'product' policies, destinations, sponsorship, endorsement, merchandising, and fundraising. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 351. Inquiry into Sustainability. (3 Credits)**

An investigation of sustainability and the interconnectedness of environment, economics, and society. Students are provided opportunities to examine their thoughts and behaviors as they pertain to sustainability. The course examines theoretical and practical examples of sustainable businesses, communities, and other systems. Teaching, applied projects, field trips, and/or participation in conferences may be required. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 364. Entrepreneurship and Commercial Recreation. (3 Credits)**

An analysis of the types of commercial and private enterprises, along with the qualities of the entrepreneur specific to recreation businesses. The student is also exposed to small business management practices as they relate to commercial recreation. Case study analysis and field investigation methods are emphasized to provide the student the opportunity to learn through active participation. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 391. Experiential Education Theory and Pedagogy. (3 Credits)**

An introduction to the historical, theoretical, and pedagogical foundations of experiential education. Teaching opportunities in the classroom and/or in the outdoors allow students to hone facilitation styles and effectiveness. Course topics include the experiential learning cycle, reflective learning, feedback, edgework, communication techniques, and multiple intelligences. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 392. Independent Study. (1-6 Credits)****ROE 397. Special Topics. (0.5-18 Credits)****ROE 398. Program Planning (with laboratory). (3 Credits)**

Equips students with a variety of program-planning methodologies and skills. Emphasis is placed on the planning, organization, implementation, and evaluation of recreation programs. Theories are applied in an experiential setting. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 454. Human Development and Counseling for Outdoor Educators. (3 Credits)**

An investigation of human development theories enabling students to better understand their own motives in outdoor pursuits and allow them to more effectively program for, manage, and support a variety of client needs. Prerequisite: ROE 182; ROE 189; ROE 283; and one of the following: ROE 293, ROE 295, or ROE 296; and senior standing; or instructor permission.

**ROE 466. Facilities and Administration. (3 Credits)**

A study of management, clientele considerations, facilities, outdoor area planning, and operation. Also addressed are personnel, finance, architectural and environmental barriers, plus equipment as related to recreation areas and facilities. Field visits required. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 468. Leadership and Administration. (3 Credits)**

A focus on the implementation of recreation and outdoor education programs, including planning, management and leadership, administrative duties, risk management, and specialized populations. Practical projects are employed as a means to provide students authentic experience in the field. Field trip(s) may be required. Prerequisites: senior standing or instructor permission.

**ROE 474. Outward Bound School. (1 Credit)****ROE 475. National Outdoor Leadership. (1 Credit)****ROE 490. Recreation Philosophy and Ethics. (3 Credits)**

An exploration of recreation philosophy from Plato to Petzoldt and its implications to professionals in the field. Designed to prepare ROE majors for the ethical challenges and time use dilemmas of the 21st century. Prerequisites: senior standing; corequisite: ROE 491.

**ROE 491. Senior Seminar. (3 Credits)**

A small group of graduating seniors pursue a practical project necessitating professional levels of problem solving, research, written and oral prowess, critical thinking, and familiarity with core curriculum. Final projects are of high quality, so they can be used by professionals and decision-makers in the field. Prerequisites: senior standing. Corequisite 490.

**ROE 492. Independent Study. (1-4 Credits)**

A course open to qualified upper-division students who have specialized interests in a particular area of advanced study in recreation. Prerequisite: instructor permission.

**ROE 494. Research. (1-4 Credits)**

Provides students the opportunity to pursue research in the field of recreation.

**ROE 496. Field Experiences. (1-6 Credits)**

Provides students with directed field experiences in teaching, coaching, and laboratory settings. Guidelines for the field experiences are provided and agreed upon prior to registering for the course. Graded Satisfactory/Unsatisfactory only. Prerequisite: instructor permission.

**ROE 497. Special Topics. (1-6 Credits)**



**ROE 499. Internship in Recreation and Outdoor Education. (3-9 Credits)**

A course providing full-time concentration on a specific practical experience at an approved agency. It allows for comprehensive involvement in an agency program with faculty and on-site supervision. Prerequisites: senior standing and instructor permission.

## Environmental Management Emphasis (with a 3+2 Master in Environmental Management)

This Recreation and Outdoor Education comprehensive emphasis allows students to complete the B.A. in ROE with the Outdoor Education emphasis and the Master in Environmental Management (MEM) at Western in five years. In addition to requirements listed below, students must

1. become a certified Wilderness First Responder (WFR), and
2. complete at least 100 hours of certification-based or skill-based courses (not including WFR, Project Wet, Project Wild, or other certifications associated with required courses).

To remain qualified for the 3+2, upon earning 64 credits each student must have: maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree.

Having met the criteria above and upon completed 91 credits (see "Major Map" at [www.western.edu/3\\_2](http://www.western.edu/3_2) ([http://www.western.edu/3\\_2/](http://www.western.edu/3_2/))), the School of Graduate Studies will designate students "MEM candidates with provisional acceptance." Upon completion of the final 29 credits of the Western B.A. in Year 4 of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who choose to leave the MEM program before Year 5 of the 3+2 program will be required to complete the requirements of the Recreation, Outdoor Environmental Education, or Outdoor Leadership emphasis, making them eligible for an undergraduate degree

## Program Requirements

A minimum of 77 credits is required for the B.A. The following is required for the Comprehensive Program with Five-Year Master in Environmental Management, in addition to

1. becoming a certified Wilderness First Responder (WFR), and
2. completing at least 100 hours of certification-based or skill-based courses (not including WFR, Project Wet, Project Wild, or other certifications associated with required courses):

Code	Title	Credits
ROE 182	Introduction to Recreation and Outdoor Education	3
ROE 189	Principles of Outdoor Education	3
ROE 230	Interpretation of Natural and Cultural History	3
ROE 235	Foundations of Teaching Environmental Education	3
ROE 240	Alternative Programming	3
ROE 283	Leadership and Facilitation	3
ROE 351	Inquiry into Sustainability	3
ROE 398	Program Planning (with laboratory)	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
ROE 499	Internship in Recreation and Outdoor Education	6-9
<b>Required Supporting Courses</b>		
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3
Select two of the following:		6
ROE 293	Outdoor Pursuits Education- Water Based (with laboratory)	
ROE 295	Outdoor Pursuits Education- Snow Based (with laboratory)	
ROE 296	Outdoor Pursuits Education- Land Based (with laboratory)	
Select two of the following:		6
ENVS 360	Global Environmental Policy	
ROE 364	Entrepreneurship and Commercial Recreation	
ROE 391	Experiential Education Theory and Pedagogy	
ROE 454	Human Development and Counseling for Outdoor Educators	
ROE 466	Facilities and Administration	
ROE 468	Leadership and Administration	
Select one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 113	Statistical Thinking (GT-MA1)	
MATH 213	Probability and Statistics	
SOC 211	Quantitative Research Methods	
<b>Core MEM Courses</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
Select one of the following from the MEM Emphases:		3
Sustainable and Resilient Communities Emphasis:		
ENVS 616	Environmental Organization Development and Management	
Global Sustainability Emphasis:		
ENVS 617	Global Sustainability	



Integrative and Public Land Management Emphasis:	
ENVS 618	Public Lands Management
Total Credits	80-83

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

### Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

## Major Map and Sample Sequence Outdoor Education Emphasis with 3+2 Master in Environmental Management

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
ROE 189	Principles of Outdoor Education	3
ROE 182	Introduction to Recreation and Outdoor Education	3
Gen Ed <sup>1</sup>		3
Gen Ed	GE Natural Sciences	4
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-C01)	3
		Credits 17
<b>Spring</b>		
ROE 283	Leadership and Facilitation	3

ROE 295	Outdoor Pursuits Education-Snow Based (with laboratory) (spring break) <sup>2</sup>	3
ENVS 200	Writing the Environment	3
Gen Ed	GE Natural Sciences	4
Gen Ed	Gen Ed Courses (Area I)	3
		Credits 16
<b>Summer</b>		
ROE 293	Outdoor Pursuits Education-Water Based (with laboratory) <sup>2</sup>	3
ROE 320		1
		Credits 4
<b>Year Two</b>		
<b>Fall</b>		
ROE 351	Inquiry into Sustainability	3
ROE 235	Foundations of Teaching Environment Education	3
COM 202	Academic Writing and Inquiry (GT-C02)	3
ROE 398	Program Planning (with laboratory)	3
Gen Ed	Gen Ed Course (Area I)	3
ROE 296	Outdoor Pursuits Education-Land Based (with laboratory) (offered before the start of the regular semester) <sup>2</sup>	3
		Credits 18
<b>Spring</b>		
ROE 230	Interpretation of Natural and Cultural History	3
ROE/ENVS	Upper-Division from Menu <sup>3</sup>	3
ROE 240	Alternative Programmin	3

Gen Ed	Gen Ed Courses	3
STATS <sup>4</sup>		3
Credits		15
<b>Summer</b>		
64 credits completed: Submit 3+2 application materials by July 1		
Credits		0
<b>Year Three</b>		
<b>Fall</b>		
Elective or Math GE		3
Gen Ed Course		3
Elective		3
ROE/ENVS	Upper-Division from Menu 3	3
Credits		12
<b>Spring</b>		
Gen Ed		3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
Elective		3
Credits		12
<b>Summer</b>		
ENVS 601	Introduction to Environment Management	5
Credits		5
<b>Year Four</b>		
<b>Fall</b>		
ENVS 605	Science of Environment Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environment Management	3
ROE 499	Internship in Recreation and Outdoor Education	3
Credits		12
<b>Spring</b>		
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3

ENVS 616 or ENVS 617 or ENVS 618	Environmental Organization Development and Management or Global Sustainability or Public Lands Management	3
ROE 397	Special Topics	3
Credits		12
<b>Summer</b>		
ENVS 690	MEM Project Development	5
Credits		5
<b>Year Five</b>		
<b>Fall</b>		
ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management	3
ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management	3
ENVS 694	Master's Project and Portfolio	3
Credits		9

Spring		
ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Manager or Studies in Environmental Manager	3
ENVS 694	Master's Project and Portfolio	3
ENVS 694	Master's Project and Portfolio	3
	Credits	9
	Total Credits	146

- ENVS 100 Introduction to Environment and Sustainability (GT-SS2) recommended
- Choose two of the following: ROE 293 Outdoor Pursuits Education-Water Based (with laboratory), ROE 295 Outdoor Pursuits Education-Snow Based (with laboratory), ROE 296 Outdoor Pursuits Education-Land Based (with laboratory)
- Choose two of the following ROE/ENVS upper-division courses: ROE 364 Entrepreneurship and Commercial Recreation, ROE 391 Experiential Education Theory and Pedagogy, ROE 454 Human Development and Counseling for Outdoor Educators, ROE 466 Facilities and Administration, ROE 468 Leadership and Administration or ENVS 360 Global Environmental Policy (spring)
- ECON 216 Statistics for Business and Economics, MATH 113 Statistical Thinking (GT-MA1) or MATH 213 Probability and Statistics, or SOC 211 Quantitative Research Methods

## Recreation and Outdoor Education Comprehensive Major: Outdoor Environmental Education Emphasis Program Requirements

A minimum of 68 credits is required, including the 36-credit Recreation and Outdoor Education Core:

Code	Title	Credits
<b>Recreation and Outdoor Education Core</b>		
ROE 182	Introduction to Recreation and Outdoor Education	3
ROE 189	Principles of Outdoor Education	3
ROE 240	Alternative Programming	3
ROE 283	Leadership and Facilitation	3
ROE 351	Inquiry into Sustainability	3
ROE 398	Program Planning (with laboratory)	3

ROE 454	Human Development and Counseling for Outdoor Educators	3
ROE 468	Leadership and Administration	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
ROE 499	Internship in Recreation and Outdoor Education	6-9
Total Credits		36-39

## Medical Requirement

All Recreation and Outdoor Education majors must obtain a medical competency prior to graduation. Recreation emphasis majors must take ESS 276 Emergency Response or equivalent. Students with an emphasis in Outdoor Environmental Education, Outdoor Leadership, or Recreation and Outdoor Education Major: Comprehensive Program with Five-Year Master in Environmental Management must obtain certification as a Wilderness First Responder (WFR).

And the courses listed below. Additionally, students must become certified as a Wilderness First Responder (WFR).

Code	Title	Credits
ROE 230	Interpretation of Natural and Cultural History	3
ROE 235	Foundations of Teaching Environmental Education	3
ROE 391	Experiential Education Theory and Pedagogy	3
Required supporting courses:		
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
ENVS 200	Writing the Environment	3
Select two of the following:		6
ROE 293	Outdoor Pursuits Education- Water Based (with laboratory)	
ROE 295	Outdoor Pursuits Education- Snow Based (with laboratory)	
ROE 296	Outdoor Pursuits Education- Land Based (with laboratory)	
Select one of the following:		3
ENVS 360	Global Environmental Policy	
ROE 364	Entrepreneurship and Commercial Recreation	
ROE 466	Facilities and Administration	
Select eight credits of the following:		8
BIOL 151	Diversity and Patterns of Life (with laboratory)	
SCI 110	Habitable Planet (with laboratory)	
BIOL 130 & BIOL 135	Environmental Biology (GT-SC2) and Environmental Biology Laboratory (GT-SC1)	
GEOL 101 & GEOL 105	Physical Geology (GT-SC2) and Physical Geology Laboratory (GT-SC1)	
Total Credits		32

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
Essential Skill	MATH	3

ROE 182	Introduction to Recreation and Outdoor Education	3
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	3
<b>Spring</b>		
ROE 240	Alternative Programming	3
ROE 283	Leadership and Facilitation	1-20
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences w/lab	4
<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ROE 189	Principles of Outdoor Education	1-20
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences w/lab	4
<b>Spring</b>		
ROE 351	Inquiry into Sustainabilit	3
ENVS 200	Writing the Environment	3
ROE 230	Interpretatio of Natural and Cultural History	3
Gen Ed	Arts & Humanities	3
Gen Ed	Social Sciences	3
<b>Year Three</b>		
<b>Fall</b>		
ROE 398	Program Planning (with laboratory)	3
ROE 235	Foundations of Teaching Environmental Education	3

Elective	Elective (non-ROE)	3
<b>Spring</b>		
ROE 320		
ROE 391	Experiential Education Theory and Pedagogy	3
Elective	ROE Elective	3
Elective	ROE Elective	3
<b>Year Four</b>		
<b>Fall</b>		
ROE 454	Human Development and Counseling for Outdoor Educators	3
ROE 499	Internship in Recreation and Outdoor Education	3-9
<b>Spring</b>		
ROE 468	Leadership and Administrati	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
<b>Total</b>		<b>86-130</b>

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## Recreation and Outdoor Education Comprehensive Major: Outdoor Leadership Emphasis

### Program Requirements

A minimum of 57 credits is required, including the 36-credit Recreation and Outdoor Education Core:

Code	Title	Credits
<b>Recreation and Outdoor Education Core</b>		
ROE 182	Introduction to Recreation and Outdoor Education	3
ROE 189	Principles of Outdoor Education	3

ROE 240	Alternative Programming	3
ROE 283	Leadership and Facilitation	3
ROE 351	Inquiry into Sustainability	3
ROE 398	Program Planning (with laboratory)	3
ROE 454	Human Development and Counseling for Outdoor Educators	3
ROE 468	Leadership and Administration	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
ROE 499	Internship in Recreation and Outdoor Education	6-9
Total Credits		36-39

## Medical Requirement

All Recreation and Outdoor Education majors must obtain a medical competency prior to graduation. Recreation emphasis majors must take ESS 276 Emergency Response or equivalent. Students with an emphasis in Outdoor Environmental Education, Outdoor Leadership, or Recreation and Outdoor Education Major: Comprehensive Program with Five-Year Master in Environmental Management must obtain certification as a Wilderness First Responder (WFR).

And the following courses. Additionally, students must:

1. become a certified Wilderness First Responder (WFR), and
2. complete at least 100 hours of certification-based or skill-based courses (not including WFR, Project Wet, Project Wild, or other certifications associated with required courses).

Code	Title	Credits
ROE 293	Outdoor Pursuits Education- Water Based (with laboratory)	3
ROE 295	Outdoor Pursuits Education- Snow Based (with laboratory)	3
ROE 296	Outdoor Pursuits Education- Land Based (with laboratory)	3
ROE 391	Experiential Education Theory and Pedagogy	3
One of the following:		3
BIOL 130	Environmental Biology (GT-SC2)	
ENVS 100	Introduction to Environment and Sustainability (GT-SS2)	
One of the following:		3
ROE 230	Interpretation of Natural and Cultural History	
ROE 235	Foundations of Teaching Environmental Education	
One of the following:		3
ROE 333	Recreation and Sport Marketing	
ROE 364	Entrepreneurship and Commercial Recreation	
Total Credits		21

## Capstone Course Requirement

The following courses in the Recreation and Outdoor Education Major fulfill the capstone course requirements: ROE 499 Course ROE 499 Not Found.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division

courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
ROE 182	Introduction to Recreation and Outdoor Education	3
Essential Skills		
Gen Ed	MATH	3
Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences	
		Credits 13
<b>Spring</b>		
ROE 240	Alternative Programmin	3
ROE 283	Leadership and Facilitation	1-20
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
		Credits 13-32
<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ROE 189	Principles of Outdoor Education	1-20
Elective	ROE Elective (Nat/ Cult Hist/ Teaching Env Ed)	3
Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences	3
		Credits 13-32
<b>Spring</b>		
ROE 351	Inquiry into Sustainabilit	3

ROE 293	Outdoor Pursuits Education-Water Based (with laboratory)	1-20
ROE 295	Outdoor Pursuits Education-Snow Based (with laboratory)	1-20
Gen Ed	Arts & Humanities	3
		Credits 8-46

**Year Three**

<b>Fall</b>		
ROE 398	Program Planning (with laboratory)	3
Elective	ROE Elective (Rec&Sport Mktg or Ent/Com Rec)	3
Gen Ed	Arts & Humanities	3
		Credits 9

**Spring**

ROE 296	Outdoor Pursuits Education-Land Based (with laboratory)	1-20
ROE 320		3
ROE 391	Experiential Education Theory and Pedagogy	3
		Credits 7-26

**Year Four**

<b>Fall</b>		
ROE 454	Human Development and Counseling for Outdoor Educators	3
ROE 499	Internship in Recreation and Outdoor Education	3-9
		Credits 6-12

**Spring**

ROE 468	Leadership and Administrati	3
ROE 490	Recreation Philosophy and Ethics	3

ROE 491	Senior Seminar	3
		Credits 9
		Total 78-179
		Credits

Western is committed to doing our part to provide each student a clear path to graduation. This four#year degree plan is a sample map for fulfilling requirements in the major and General Education. The pathway that you take to your degree may differ somewhat from this illustration, depending on where you start and the detours and side trips you may take along the way. You are responsible for ensuring your overall, upper division, and major#specific credits as well as GPA requirements are fulfilled for graduation.

## Recreation and Outdoor Education Comprehensive Major: Recreation Emphasis

### Program Requirements

Recreation consists of 51 credits including the 36-credit Recreation and Outdoor Education Core:

Code	Title	Credits
<b>Recreation and Outdoor Education Core</b>		
ROE 182	Introduction to Recreation and Outdoor Education	3
ROE 189	Principles of Outdoor Education	3
ROE 240	Alternative Programming	3
ROE 283	Leadership and Facilitation	3
ROE 351	Inquiry into Sustainability	3
ROE 398	Program Planning (with laboratory)	3
ROE 454	Human Development and Counseling for Outdoor Educators	3
ROE 468	Leadership and Administration	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
ROE 499	Internship in Recreation and Outdoor Education	6-9
<b>Total Credits</b>		<b>36-39</b>

### Medical Requirement

All Recreation and Outdoor Education majors must obtain a medical competency prior to graduation. Recreation emphasis majors must take ESS 276 Emergency Response or equivalent. Students with an emphasis in Outdoor Environmental Education, Outdoor Leadership, or Recreation and Outdoor Education Major: Comprehensive Program with Five-Year Master in Environmental Management must obtain certification as a Wilderness First Responder (WFR).

First Aid/CPR Competency and the following courses:

Code	Title	Credits
ESS 282	Principles of Sport and Fitness Management	3
ESS 450	Risk Management in Physical Activity Settings	3
Select one of the following:		3
ROE 293	Outdoor Pursuits Education- Water Based (with laboratory)	



ROE 295	Outdoor Pursuits Education- Snow Based (with laboratory)	
ROE 296	Outdoor Pursuits Education- Land Based (with laboratory)	
One of the following:		3
ESS 382	Management of Sport and Fitness Facilities	
ROE 466	Facilities and Administration	
One of the following:		3
ROE 333	Recreation and Sport Marketing	
ROE 364	Entrepreneurship and Commercial Recreation	
Total Credits		15

### Capstone Course Requirement

The following courses in the Recreation and Outdoor Education Major fulfill the capstone course requirements: ROE 499 Course ROE 499 Not Found.

### Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
HWTR 100	First Year Seminar	1
ENG 102	Academic Writing (GT-CO1)	3
ROE 182	Introduction to Recreation and Outdoor Education	3
Essential Skills	MATH	3
Gen Ed	Natural Sciences	3
Gen Ed	Social Sciences	3
		Credits 16
<b>Spring</b>		
ROE 240	Alternative Programmin	3
ROE 283	Leadership and Facilitation	1-20
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
Gen Ed	Natural Sciences	3
		Credits 13-32

<b>Year Two</b>		
<b>Fall</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
ROE 189	Principles of Outdoor Education	1-20
ESS 282	Principles of Sport and Fitness Management	3
Gen Ed	Natural Sciences	3
		Credits 10-29
<b>Spring</b>		
ROE 351	Inquiry into Sustainability	3
ESS 276	Emergency Response	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 12

<b>Year Three</b>		
<b>Fall</b>		
ROE 398	Program Planning (with laboratory)	3
ESS 450	Risk Management in Physical Activity Settings	3
Elective	ROE Elective (Rec&Sport Mktg or Ent/Com Rec)	3
		Credits 9
<b>Spring</b>		
Elective	ROE Elective (Outdoor Pursuits)	3
Elective	Elective (Mgt Sport/Fit Facilities/ Facilities Mgt)	3
Gen Ed	Arts & Humanities	3
		Credits 9

<b>Year Four</b>		
<b>Fall</b>		
ROE 454	Human Development and Counseling for Outdoor Educators	3

ROE 499	Internship in Recreation and Outdoor Education	3-9
		Credits 6-12
<b>Spring</b>		
ROE 468	Leadership and Administration	3
ROE 490	Recreation Philosophy and Ethics	3
ROE 491	Senior Seminar	3
		Credits 9
		Total 84-128 Credits

Western is committed to doing our part to provide each student a clear path to graduation. This four-year degree plan is a sample map for fulfilling requirements in the major and General Education. The pathway that you take to your degree may differ somewhat from this illustration, depending on where you start and the detours and side trips you may take along the way. You are responsible for ensuring your overall, upper division, and major-specific credits as well as GPA requirements are fulfilled for graduation.

## Recreation and Outdoor Education Minor

The Recreation and Outdoor Education Minor requires a minimum of 18-credits. No more than six credits of skills courses (e.g., 293, 295, 296) may count toward the minor:

Code	Title	Credits
ROE 182	Introduction to Recreation and Outdoor Education	3
ROE 189	Principles of Outdoor Education	3
ROE 283	Leadership and Facilitation	3
ROE 351	Inquiry into Sustainability	3
Recreation and Outdoor Education electives		6
Total Credits		18

## Science (SCI)

The courses designated with the SCI prefix do not constitute a program or curriculum within themselves. Instead they are courses which support or complement programs across all of the science disciplines.

### Science Courses

#### SCI 110. Habitable Planet (with laboratory). (4 Credits)

An introduction to earth science and ecology. Topics include earth history, the fossil record, biogeochemical cycles, climate, energy flow, biodiversity, evolution, population growth and regulation. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies.

#### SCI 111. Nature of Science. (1 Credit)

An introduction to science as it relates to the individual, society, and the elementary school classroom. The process of science is examined, as well as the connection between science as it is done and science in textbooks. This course is designed for students seeking licensure as elementary teachers (grades K-6). Prerequisite or corequisite: SCI 110.

#### SCI 120. Living Planet (with laboratory). (4 Credits)

An introduction to human biology, chemistry and biochemistry. Topics explored include anatomy, physiology, nutrition, cell biology, genetics, inorganic chemistry, biochemistry, development, and the application of biological and biochemical principles to understanding disease. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies.

#### SCI 197. Special Topics. (1-6 Credits)

#### SCI 202. Scientific Writing. (3 Credits)

An introduction to the effective oral, written, and graphical communication in the sciences. Students address these skills by exploring current issues in science. Prerequisites: ENG 102 and minimum sophomore standing with a major in anthropology, biology, or chemistry.

#### SCI 210. Dynamic Planet (with laboratory). (4 Credits)

A foundation in physics, earth science, and space science. Topics explored include motion, force, energy, weather, plate tectonics, earthquakes, volcanoes, and the solar system. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies. Prerequisite: SCI 110 or SCI 120 and completion of the general education essential skills mathematics requirement.

#### SCI 292. Independent Study. (1-6 Credits)

#### SCI 297. Special Topics. (1-6 Credits)

#### SCI 390. Science Teaching Practicum. (1-2 Credits)

An opportunity for students in the sciences to participate in laboratory design, instruction and execution, and in field experiences. Specifically designed for recipients of awards, such as undergraduate assistantships and teaching assistantships, or for students pursuing degrees in science with an education emphasis. May be taken for a maximum of six credits. Graded Satisfactory/Unsatisfactory only.

#### SCI 397. Special Topics. (1-6 Credits)

#### SCI 400. Environmental Science Seminar. (1 Credit)

An examination of the environmental sciences through readings of primary literature, secondary literature and discussions of the environmental science discipline. The professional practices, procedures and standards of environmental science are discussed. Students will develop a professional portfolio of an environmental science project. Graded Satisfactory/Unsatisfactory only. Prerequisites: Instructor approval. This course is intended for students at the end of their Environmental Science minor

#### SCI 497. Special Topics. (1-6 Credits)

#### SCI 499. Internship in Science. (1-5 Credits)

An opportunity for students to gain experience through direct involvement with professionals in various fields of science.

## Sociology (SOC)

While all social sciences are interested in understanding human behavior, sociology is distinguished by its focus on understanding patterns of human behavior and emphasizing the social forces that shape and influence these patterns. Often, this perspective is surprising and can challenge assumptions of how the world works. The subject matter of

sociology is broad—anything about social life one is interested in can be (and likely has been) studied by sociologists. Ultimately, students of sociology develop an appreciation for ways in which social structures and culture shape the world they live in and thus shape their own lives.

This breadth of social life is reflected in the sociology curriculum. After taking SOC 101 Introduction to Sociology, which is a prerequisite for other sociology courses, students are free to pursue other areas of interest. Courses on social institutions (such as family, medicine, and the criminal justice system), social processes (such as the relationship between the self and society, social movements, and deviance), and social stratification (such as race, class and gender) represent the rich diversity of social life that sociologists are interested in understanding. These offerings are complemented by grounding in social theory and methodology. As a social science, sociological knowledge is based on empirical observation and analysis that is informed by and informs social theory.

The standard major provides a mix of seven core courses and six elective choices. Students with an interest in criminal justice can pursue a concentration in that area by taking an additional list of core courses in the criminal justice emphasis. Students who wish to pursue a minor take the introductory course and then choose five elective courses. SOC 101 Introduction to Sociology and SOC 168 Social Problems also fulfill Area I General Education requirements. Sociology majors are encouraged to take MATH 113 Statistical Thinking (GT-MA1), to fulfill the general education mathematics competency requirement.

In addition to classroom instruction, The Sociology Club and the International Honors Society in Sociology, Alpha Kappa Delta, are active on campus with social and intellectual activities. While sociology provides a useful perspective for any kind of employment, graduates typically find employment in social services, law enforcement, teaching, and research.

- Environmental Management Emphasis (with a 3+2 Master in Environmental Management) (p. 269)
- Sociology Major: Standard Program (p. 272)
- Sociology Minor (p. 275)
- Sociology Standard Major: Criminal Justice Emphasis (p. 275)

## Capstone Course Requirement

The following courses in the Sociology Major fulfill the capstone course requirement: SOC 498 Capstone, or SOC 399 Internship in Sociology (Criminal Justice Emphasis).

## Sociology Courses

### SOC 101. Introduction to Sociology. (3 Credits)

An introduction to the discipline of sociology with special emphasis on the unique perspective this science utilizes to examine the social world. Sociology is distinguished by its focus on understanding patterns of human behavior and emphasizing the social forces that shape and influence these patterns. Primary course focus is on culture, inequality, race and gender, and social institutions. This course serves as a 'gateway' course for all Sociology majors and minors, and must be passed with a minimum grade of 'C' to be used as a prerequisite. Prerequisite for all 200-, 300-, and 400-level Sociology courses.

### SOC 150. Environmental Sociology. (3 Credits)

The sociological perspective is utilized to examine a variety of issues addressing the human-environment interface. In particular, this course examines how social organization and culture both shape and are shaped by the natural environment. The course focuses on issues of sustainability, the rights of the natural world, and environmental justice.

### SOC 168. Social Problems. (3 Credits)

An introduction to the field of sociology through an analysis of social problems in the United States and in the world. Course focus is on topics such as drugs and alcohol abuse, crime and prisons, health and illness, hunger and poverty, resource depletion and pollution, and the effects of globalization.

### SOC 197. Special Topics. (1-6 Credits)

### SOC 211. Quantitative Research Methods. (3 Credits)

An introduction for students of the social sciences to the fundamentals of quantitative research analysis. Students design and administer surveys, code data, and analyze results. Students become familiar with descriptive statistics (frequency distributions, measures of central tendency, and dispersion), inferential statistics (sampling theory, hypothesis testing, normal binomial distributions, confidence intervals, and types of error), as well as techniques for computing correlation. Prerequisites: SOC 101 with a minimum grade of C; and MATH 113 or MATH 140.

### SOC 225. Self and Society. (3 Credits)

An examination of how the discipline of sociology approaches "micro-level" phenomenon. Emphasis is on the formation of the self, the socialization process, and the importance of language to social interaction. Beginning with the premise that social reality is a social construction which has been created through our interactions with others, the implications of this premise for the version of reality each of us experiences is explored. Prerequisite: SOC 101 with a minimum grade of "C."

### SOC 259. Introduction to Criminal Justice. (3 Credits)

An introduction to the history and contemporary issues of the criminal justice system (law enforcement, courts, and corrections) in the United States. Topics surveyed include the system's history, constitutional limitations, philosophical background, and the system's process. Prerequisite: SOC 101 with a minimum grade of C.

### SOC 285. Criminology. (3 Credits)

An introduction to the field of criminology with special emphasis on theories of crime, types of criminals, victimology, and the criminal justice system. Special topics examined include gangs, white collar crimes, property crimes, victimless crimes, and organized crime. Prerequisites: SOC 101 with a minimum grade of "C" and SOC 259 with a minimum grade of "C".

### SOC 297. Special Topics. (1-6 Credits)

### SOC 302. Sociological Theory. (3 Credits)

A formal introduction to classical sociological theories relevant to the discipline. Students learn about the history of the discipline, identify major sociological theorists and their theories, learn how these theories can be applied to various historical and contemporary social issues, and discover the relationship between theory, research, ideology and everyday life. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 303. Contemporary Sociological Theory. (3 Credits)**

A formal introduction to sociological theories developed since World War II. Students are able to identify and describe recent sociological theories and apply theory to contemporary social phenomena as well as their individual experiences. Students recognize the relationship between theory, ideology, and daily life. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 310. Qualitative Research Methods. (3 Credits)**

An examination of qualitative approaches to understanding social life. In particular, the course covers selecting a topic suitable for qualitative investigation, participant observation 220 Sociology and in depth interviewing techniques, the ethics and politics associated with doing qualitative research, writing up field notes, formulating topics, reviewing the literature around the topic, the analysis of field notes, and the writing of research reports. Prerequisite: ENG 102 with a grade of "C-" or above; SOC 101 with a minimum grade of "C."

**SOC 320. The Family. (3 Credits)**

An analysis of the family as a social group and institution. Students consider the ways in which the family is influenced by demographic changes and by the changes in other social institutions, such as the economy, education, the state and religion. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 322. Medical Sociology. (3 Credits)**

An examination of the United States Health Care System and comparison of various components of this system with that of others. The allopathic (Western) medical model is also examined. The course emphasizes the mortality and morbidity trends and patterns which exist in the U.S., the problems facing our health care system (high costs, unequal access), and alternative models of health and disease. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 323. Cultural Studies. (3 Credits)**

A foundation in the sociology of culture as well as extensive analysis of selected regional, national and/or global (sub) cultures and their environments. Issues covered include the social organization of culture, institutions and narratives, material and non-material culture, and cultural identity and the self. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 340. Social Movements. (3 Credits)**

An introduction to the study of social movements with two goals in mind. First, is to expose students to the beliefs, practices, and consequences of a number of important historical, and contemporary movements. Second, the course familiarizes students with the theoretical perspectives, conceptual issues, focal questions, and empirical research that animate the study of social movements. This includes such issues as movement emergence, movement participation, mobilization dynamics, movement strategies and tactics, and movement outcomes. Prerequisite: SOC 101 or ENVS 100 with a minimum grade of C.

**SOC 349. Law Enforcement. (3 Credits)**

An examination of issues affecting American law enforcement. Students are exposed to the historical underpinnings of the American policing experience, police operations and applications at the local, state, federal, and international levels, law enforcement subculture, police structure and organization, ethics, selection and training, and career opportunities. Prerequisite: SOC 259 with a minimum grade of C.

**SOC 350. Deviance. (3 Credits)**

Students examine various forms of nonconformity-criminal and otherwise. To do so, they study the major theoretical perspectives addressing deviance and its control. Students explore how ordinary rituals, agents of social control, and ideology interact to maintain the existing social order. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 351. Juvenile Delinquency. (3 Credits)**

Biological, psychological, and sociological factors in juvenile delinquency are examined, as are modern trends in prevention and treatment. The course also addresses the procedural and substantive aspects of the juvenile justice system. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 355. Drugs and Society. (3 Credits)**

An examination of trends and patterns in American drug use, drug classificationschemes, the relationship between drugs and crime, and drug education and prevention strategies. The use of hallucinogenic plants in other cultures is also explored. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 367. Corrections. (3 Credits)**

An in-depth look at corrections in the United States. Topics include history of corrections, jails, prisons, community corrections, offenders and inmates, women in corrections, juvenile corrections, correctional officers and treatment professionals, and special inmate populations. Prerequisites: SOC 101, SOC 259 and SOC 285 all with a minimum grade of "C."

**SOC 380. Social Inequalities. (3 Credits)**

An examination of major theories and concepts associated with social inequality as well as the causes and consequence of social inequality. The historical and contemporary aspects of social inequality in the United States are explored. Forms of resistance to social inequality are also considered. Prerequisite: SOC 101 with a minimum grade of "C".

**SOC 392. Independent Study. (1-6 Credits)****SOC 397. Special Topics. (1-6 Credits)****SOC 399. Internship in Sociology. (1-6 Credits)**

Sociology internships provide Sociology majors of junior and senior status with opportunities to work on sites off campus in the areas of law enforcement and social services. The experience must meet standards set by the College and by the sociology faculty. Up to three hours of internship credit may be counted toward the major. Graded Satisfactory/Unsatisfactory only.

**SOC 492. Independent Study. (1-6 Credits)**

Independent studies are available to seniors as a Capstone option. Enrollment is contingent upon developing a proposal with a faculty sponsor and requires a variable credit form. Prerequisite: minimum GPA of 3.50 in Sociology courses or instructor permission.

**SOC 497. Special Topics. (1-6 Credits)****SOC 498. Capstone. (3 Credits)**

Provides Sociology majors with a culminating activity for the senior year. Students summarize and integrate their coursework, apply their emerging sociological perspective to real world events, and prepare for future careers, jobs, and/or graduate work. Prerequisites: SOC 101 and SOC 310 with minimum grades of C, and one of the following: SOC 211, PSY 200, ECON 216, or MATH 213 with minimum grade of C; senior standing, or instructor permission.

## Environmental Management Emphasis (with a 3+2 Master in Environmental Management)

The Environmental Management emphasis allows students to complete the B.A. in Sociology (SOC) and the Master in Environmental Management (MEM) at Western in five years. To remain qualified for

the 3+2, after 66 credits each student must have: maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;

- maintained a 3.0 cumulative GPA and a 3.25 GPA within the major;
- earned a B or above in two social science, two natural science (one with lab), and one statistics course;
- fulfilled the 3-credit Internship requirement with a B or above and positive letter from the project sponsor;
- provided three letters of recommendation, at least one of which is to be a professional reference and at least one of which is to be an academic reference from the student's major at Western;
- written a Statement of Purpose to the MEM program, detailing early career ambitions and ideas and connections for the eventual master's Project.

At this point, if any aspect of a student's performance is found to be insufficient, the MEM Director may reject a 3+2 student from the MEM program, in which case the student will need to find a new emphasis or minor in order to complete the undergraduate degree. Upon meeting the requirements above, and after Junior Year (reaching 91 credits in this plan—see the Degree Plan tab) holding to the same GPA and general performance standards outlined above, the School of Graduate Studies will designate students as "MEM candidates with provisional acceptance." Upon completion of the final 29 credits of the Western B.A. in Year Four of this plan, the School of Graduate Studies will designate students as "MEM degree seeking students." Students who have completed all other requirements of the 3+2 program and all Western undergraduate requirements, yet choose to leave the MEM program before Year 5, will still have completed the SOC undergraduate emphasis in Environmental Management and have earned the 120 credits necessary for a Western undergraduate degree.

## Program Requirements

A minimum of 68 credits is required.

Code	Title	Credits
SOC 101	Introduction to Sociology	3
SOC 225	Self and Society	3
SOC 302	Sociological Theory	3
SOC 310	Qualitative Research Methods	3
SOC 380	Social Inequalities	3
SOC 399	Internship in Sociology	3
SOC 498	Capstone	3
Select six of the following:		18
GEOG 340	Introduction to Geographic Information Systems	
PSY 368	Psychopathology	
SOC 168	Social Problems	
SOC 303	Contemporary Sociological Theory	
SOC 320	The Family	
SOC 322	Medical Sociology	
SOC 323	Cultural Studies	
SOC 349	Law Enforcement	
SOC 350	Deviance	
SOC 351	Juvenile Delinquency	
SOC 355	Drugs and Society	
SOC 367	Corrections	
SOC 397	Special Topics	

SOC 492	Independent Study	
Select one of the following:		3
ECON 216	Statistics for Business and Economics	
MATH 213	Probability and Statistics	
PSY 200	Statistics and Data Analysis	
SOC 211	Quantitative Research Methods	
One of the following:		3
SOC 150	Environmental Sociology	
SOC 340	Social Movements	
<b>Core MEM Courses</b>		
ENVS 601	Introduction to Environmental Management	5
ENVS 605	Science of Environmental Management	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environmental Management	3
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
Select one of the following from the MEM Emphases:		3
Sustainable and Resilient Communities Emphasis:		
ENVS 616	Environmental Organization Development and Management	
Global Sustainability Emphasis:		
ENVS 617	Global Sustainability	
Integrative and Public Land Management Emphasis:		
ENVS 618	Public Lands Management	
Total Credits		68

Upon successful completion of the prescribed courses listed above, University defined General Education, and elective requirements totaling 120 credits (with 40 at the 300-level or higher), students are eligible for their B.A. conferral. Students electing to complete MEM must follow the balance of their declared emphasis curriculum.

For a full description of the required Graduate coursework, please see the appropriate MEM program in the Western Graduate Catalog (<https://catalog.western.edu/graduate/programs/environmental-management/>).

### Capstone Course Requirement

The following courses in the Business Administration Major fulfill the capstone course requirement: BUAD 491 STRATEGIC MANAGEMENT.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).



# Major Map and Sample Sequence

## Major: B.A. in Sociology & Master in Environmental Management (3+2)

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
SOC 101	Introduction to Sociology	3
Gen Ed	General Ed. Courses (Area I and II)	12
HWTR 100	First Year Seminar	1
		<b>Credits 16</b>
<b>Spring</b>		
SOC 225	Self and Society	3
BIOL 130 & BIOL 135	Environment Biology (GT-SC2) and Environment Biology Laboratory (GT-SC1)	4
SOC	SOC Elective (first two of six)	6
Gen Ed	General Ed. Courses	3
		<b>Credits 16</b>
<b>Year Two</b>		
<b>Fall</b>		
SOC 150 or SOC 340	Environment Sociology or Social Moveme	3
SOC	SOC Elective (third and fourth of six)	6
Gen Ed	Other Natural Science Gen Ed with Lab	4
		<b>Credits 13</b>
<b>Spring</b>		
SOC 310	Qualitative Research Methods	3
SOC	SOC Elective (fifth of six)	3
STATS <sup>1</sup>		3
Gen Ed	General Ed. Courses	6
		<b>Credits 15</b>

<b>Summer</b>		
SOC 399	Internship in Sociology (final SOC elective)	3
66 credit mark complete at this point. Students must submit 3+2 application materials by July 1.		
		<b>Credits 3</b>
<b>Year Three</b>		
<b>Fall</b>		
SOC 380	Social Inequalities	3
Electives		3
Gen Ed	Gen Ed. Courses	6
Electives		3
		<b>Credits 15</b>
<b>Spring</b>		
Gen Ed	Gen Ed. Courses	6
Electives		6
		<b>Credits 12</b>
<b>Summer</b>		
ENVS 601	Introduction to Environment Managemen	5
		<b>Credits 5</b>
<b>Year Four</b>		
<b>Fall</b>		
ENVS 605	Science of Environment Managemen	3
ENVS 608	Environmental Politics and Policy	3
ENVS 611	Integrative Skill in Environment Managemen	3
Electives		3
		<b>Credits 12</b>
<b>Spring</b>		
ENVS 612	Quantitative in Environmental Management	3
ENVS 615	Science of Climate Mitigation and Adaptation	3
ENVS 616 or ENVS 617 or ENVS 618	Environmental Organization Development and Management or Global Sustainability or Public Lands Management	3
SOC 498	Capstone	3
		<b>Credits 12</b>



<b>Summer</b>		
ENVS 690	MEM Project Development	5
		Credits 5

**Year Five**  
**Fall**

ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities: or Studies in Integrative and Public Land Manager or Studies in Environn Manager	3
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ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities or Studies in Integrative and Public Land Management or Studies in Environmental Management	3
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ENVS 694	Master's Project and Portfolio	3
		Credits 9

**Spring**

ENVS 620 or ENVS 625 or ENVS 623	Studies in Sustainable and Resilient Communities: or Studies in Integrative and Public Land Manager or Studies in Environn Manager	3
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ENVS 694	Master's Project and Portfolio	3
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ENVS 694	Master's Project and Portfolio	3
		Credits 9
		Total Credits 142

<sup>1</sup> SOC 211 Quantitative Research Methods, ECON 216 Statistics for Business and Economics, PSY 200 Statistics and Data Analysis, OR MATH 213 Probability and Statistics

## Sociology Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 39 credits is required including:

Code	Title	Credits
SOC 101	Introduction to Sociology	3
SOC 225	Self and Society	3
SOC 302	Sociological Theory	3
SOC 310	Qualitative Research Methods	3
SOC 380	Social Inequalities	3
SOC 498	Capstone	3
One of the following:		3

PSY 200	Statistics and Data Analysis	
SOC 211	Quantitative Research Methods	

Select six of the following: 14-24

GEOG 340	Introduction to Geographic Information Systems	
PSY 368	Psychopathology	
SOC 150	Environmental Sociology	
SOC 168	Social Problems	
SOC 259	Introduction to Criminal Justice	
SOC 285	Criminology	
SOC 303	Contemporary Sociological Theory	
SOC 320	The Family	
SOC 322	Medical Sociology	
SOC 323	Cultural Studies	
SOC 340	Social Movements	
SOC 349	Law Enforcement	
SOC 350	Deviance	
SOC 351	Juvenile Delinquency	
SOC 355	Drugs and Society	
SOC 367	Corrections	
SOC 397	Special Topics	
SOC 399	Internship in Sociology	
SOC 492	Independent Study	

Total Credits 35-45

### Capstone Course Requirement

The following courses in the Sociology Major fulfill the capstone course requirement: SOC 498 CAPSTONE or SOC 492 Independent Study ,

or SOC 399 Internship in Sociology (Criminal Justice Emphasis) with instructor approval.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
SOC 101	Introduction to Sociology	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		<b>Credits</b> 13
<b>Spring</b>		
SOC 225	Self and Society	3
MATH 113	Statistical Thinking (GT-MA1)	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		<b>Credits</b> 15
<b>Year Two</b>		
<b>Fall</b>		
SOC 211	Quantitative Research Methods	3
Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences w/lab	4
MINOR	Minor of Interest	3

SOC 168  
 or SOC 259  
 or SOC 320  
 or SOC 323  
 or SOC 340  
 or SOC 350  
 or SOC 351  
 or SOC 355  
 or SOC 397  
 or GEOG 340

Social Problems (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or The Family or Cultural Studies or Social Movements or Deviance or Juvenile Delinquency or Drugs and Society or Special Topics or Introduction to Geographic Information Systems

Credits 16

**Spring**

Gen Ed	Natural Sciences w/lab	4
Gen Ed	Arts & Humanities	3
MINOR	Minor of Interest	3
SOC 150 or SOC 259 or SOC 285 or SOC 322 or SOC 397 or GEOG 340	Environment Sociology (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or Criminology or Medical Sociology or Special Topics or Introduction to Geographical Information Systems	6

Credits 16

<b>Year Three</b>		
<b>Fall</b>		
<b>Minor should be declared by the beginning of third year.</b>		
SOC 302	Sociological Theory	3
SOC 380	Social Inequalities	3
MINOR	Minor Course	3
SOC 168 or SOC 259 or SOC 320 or SOC 323 or SOC 340 or SOC 350 or SOC 351 or SOC 355 or SOC 397 or GEOG 340	Social Problems (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or The Family or Cultural Studies or Social Moveme or Deviance or Juvenile Deliquen or Drugs and Society or Special Topics or Introduct to Geograp Informat Systems	6
		Credits 15
<b>Spring</b>		
SOC 310	Qualitative Research Methods	3
MINOR	Minor Course	3
Elective	Elective	6

SOC 150 or SOC 259 or SOC 285 or SOC 322 or SOC 397 or GEOG 340	Environmental Sociology (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or Criminology or Medical Sociology or Special Topics or Introduction to Geographic Information Systems	3
		Credits 15

<b>Year Four</b>		
<b>Fall</b>		
MINOR	Minor Course	3
Elective	Elective	9
SOC 168 or SOC 259 or SOC 320 or SOC 323 or SOC 340 or SOC 350 or SOC 351 or SOC 355 or SOC 397 or GEOG 340	Social Problems (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or The Family or Cultural Studies or Social Movements or Deviance or Juvenile Delinquency or Drugs and Society or Special Topics or Introduction to Geographic Information Systems	3
		Credits 15
<b>Spring</b>		
SOC 498	Capstone	3
MINOR	Minor Course	3

Elective	Elective	9
	Credits	15
	Total Credits	120

## Sociology Minor

A minimum of 18 credits is required:

Code	Title	Credits
SOC 101	Introduction to Sociology	3
Sociology electives		15
Total Credits		18

## Sociology Standard Major: Criminal Justice Emphasis

### Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 42 credits is required including:

Code	Title	Credits
POLS 301	Constitutional Law II	3
SOC 101	Introduction to Sociology	3
SOC 225	Self and Society	3
SOC 259	Introduction to Criminal Justice	3
SOC 285	Criminology	3
SOC 302	Sociological Theory	3
SOC 310	Qualitative Research Methods	3
SOC 349	Law Enforcement	3
SOC 367	Corrections	3
SOC 380	Social Inequalities	3
SOC 498	Capstone	3

One of the following: 3

PSY 200 Statistics and Data Analysis

SOC 211 Quantitative Research Methods

Select at least two of the following: 6-12

GEOG 340 Introduction to Geographic Information Systems

PSY 368 Psychopathology

SOC 150 Environmental Sociology

SOC 168 Social Problems

SOC 303 Contemporary Sociological Theory

SOC 320 The Family

SOC 322 Medical Sociology

SOC 323 Cultural Studies

SOC 340 Social Movements

SOC 350 Deviance

SOC 351 Juvenile Delinquency

SOC 355 Drugs and Society

SOC 397 Special Topics

SOC 399 Internship in Sociology

SOC 492	Independent Study	
Total Credits		42-48

## Capstone Course Requirement

The following courses in the Sociology Major fulfill the capstone course requirement: SOC 498 CAPSTONE, or SOC 399 Internship in Sociology.

## Graduation Requirements

Undergraduate programs require a minimum of 120 semester credits for graduation. Of those 120 credits, 40 credits must be in upper-division courses (those marked 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major program being pursued.

Students are expected to review all graduation requirements, which can be found in the Western Undergraduate Catalog: Graduation Requirements (p. 287).

Course	Title	Credits
<b>Year One</b>		
<b>Fall</b>		
SOC 101	Introduction to Sociology	3
ENG 102	Academic Writing (GT-CO1)	3
HWTR 100	First Year Seminar	1
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 13
<b>Spring</b>		
SOC 225 or SOC 259	Self and Society or Introduction to Criminal Justice	3
MATH 113	Statistical Thinking (GT-MA1)	3
COM 202	Academic Writing and Inquiry (GT-CO2)	3
Gen Ed	Social Sciences	3
Gen Ed	Arts & Humanities	3
		Credits 15
<b>Year Two</b>		
<b>Fall</b>		
SOC 211	Quantitative Research Methods	3
SOC 259 or SOC 225	Introduction to Criminal Justice or Self and Society	3

Gen Ed	Social Sciences	3
Gen Ed	Natural Sciences w/lab	4
MINOR	Minor of Interest	3
		Credits 16
<b>Spring</b>		
SOC 285	Criminology	3
Gen Ed	Natural Sciences w/lab	4
Gen Ed	Arts & Humanities	3
MINOR	Minor of Interest	3
SOC 150 or SOC 259 or SOC 285 or SOC 322 or SOC 397 or GEOG 340	Environmental Sociology (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or Criminology or Medical Sociology or Special Topics or Introduction to Geographic Information Systems	3
		Credits 16
<b>Year Three</b>		
<b>Fall</b>		
Minor should be declared by the beginning of third year.		
SOC 302	Sociological Theory	3
SOC 349	Law Enforcement	3
SOC 380	Social Inequalities	3
MINOR: Minor Course		3

SOC 168 or SOC 259 or SOC 320 or SOC 323 or SOC 340 or SOC 350 or SOC 351 or SOC 355 or SOC 397 or GEOG 340	Social Problems (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or The Family or Cultural Studies or Social Moveme or Deviance or Juvenile Deliquen or Drugs and Society or Special Topics or Introduction to Geograp Informat Systems	3
		Credits 15
<b>Spring</b>		
SOC 310	Qualitative Research Methods	3
SOC 367	Corrections	3
MINOR	Minor Course	3
Elective	Elective	6
SOC 150 or SOC 259 or SOC 285 or SOC 322 or SOC 397 or GEOG 340	Environment Sociology or Introduction to Criminal Justice or Criminolo or Medical Sociolog or Special Topics or Introduction to Geograp Informat Systems	3
		Credits 18
<b>Year Four</b>		
<b>Fall</b>		
MINOR	Minor Course	3
Elective	Elective	9

SOC 168 or SOC 259 or SOC 320 or SOC 323 or SOC 340 or SOC 350 or SOC 351 or SOC 355 or SOC 397 or GEOG 340	Social Problems (SOC ELECTIVE - prereqs may apply) or Introduction to Criminal Justice or The Family or Cultural Studies or Social Moveme or Deviance or Juvenile Deliquen or Drugs and Society or Special Topics or Introduction to Geograph Informat Systems	3
Credits		15
<b>Spring</b>		
POLS 301	Constitution Law II	3
SOC 498	Capstone	3
MINOR	Minor Course	3
Elective	Elective	9
Credits		18
Total Credits		126

- Spanish Major: Standard Program (p. 278)
- Spanish Minor (p. 279)
- Spanish K-12 Licensure Emphasis: Comprehensive Program (<https://catalog.western.edu/undergraduate/programs/spanish/spanish-k-12-licensure-emphasis-comprehansive-program/>)
- Spanish K-12 Licensure Emphasis: Comprehensive Program (with a 3+2 Master of Arts) (<https://catalog.western.edu/undergraduate/programs/spanish/spanish-k-12-licensure-emphasis-comprehansive-program-3-2/>)

## Capstone Course Requirement

The following course in the Spanish Major fulfills the capstone course requirement: SPAN 494 Capstone Experience.

## Spanish Courses

### SPAN 101. Elementary Spanish I. (3 Credits)

An introduction to essentials of the Spanish language: comprehension, speaking, reading, and writing. Reserved for students with less than two years of high school Spanish, or a WebCAPE score of 269 or lower.

### SPAN 102. Elementary Spanish II. (3 Credits)

A continuation of SPAN 101. Prerequisite: SPAN 101, or a WebCAPE score of 270-345.

### SPAN 197. Special Topics. (1-6 Credits)

### SPAN 201. Intermediate Spanish I. (3 Credits)

A continuation of SPAN 102. A grammar review and extensive practice in conversation, reading, and writing. Prerequisite: SPAN 102, or WebCAPE score of 346-426.

### SPAN 202. Intermediate Spanish II. (3 Credits)

A continuation of SPAN 201. Further practice and development of speaking, reading, and writing skills. Prerequisite: SPAN 201, or WebCAPE score of 427-508.

### SPAN 270. Spanish Conversation and Composition. (3 Credits)

A course to develop oral proficiency and writing skills in Spanish. Focuses on structure and vocabulary, emphasizing both speaking and listening, as well as basic writing skills within the Spanish language. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

### SPAN 292. Independent Study in Spanish. (1-4 Credits)

### SPAN 297. Special Topics. (1-6 Credits)

### SPAN 321. Spanish for Business. (3 Credits)

A course to develop oral proficiency and writing skills in Spanish as applied to business settings and global marketplace. Marketing and other business-related terminology will also be covered. Conducted in Spanish. Prerequisites: SPAN 202 or WebCAPE score of 509 or higher, or instructor permission.

### SPAN 324. Spanish for Medical and Social Services. (3 Credits)

A course to develop oral proficiency and writing skills in Spanish as applied to medical and social services settings. Conducted in Spanish. Prerequisites: SPAN 202 or WebCAPE score of 509 or higher, or instructor permission.

### SPAN 341. Latin American Civilization and Culture. (3 Credits)

An introduction to the general trends of Latin American civilization, culture and the national character, as expressed in everyday life in the various countries of Latin America. Includes pre-Columbian history to the present. Conducted in Spanish. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

## Spanish (SPAN)

Western's Spanish Program allows its majors to study the language, literature, and culture of Spain and Spanish-speaking countries. Graduates of the Spanish Program are expected to have an understanding of and proficiency in speaking, reading, writing, and listening to Spanish; to be acquainted with the phonology of modern Spanish dialects and to explore the sound system; to be able to read, discuss, critique, and appreciate the literary value of Hispanic literature; and to be familiar with and appreciate Hispanic civilization and culture.

The Standard Major prepares students for positions with the federal government or major corporations concerned with international business. They are also prepared for a variety of other positions, such as court interpreters, hotel managers in resort areas, and teachers.

The Secondary Licensure Emphasis qualifies students for the State of Colorado Licensure in Spanish Education.



**SPAN 350. Introduction to Hispanic Linguistics. (3 Credits)**

A study of the Spanish language and its main components. Topics may include phonology, phonetics, morphology, syntax, semantics, sociolinguistics, and Spanish in the U.S. Conducted in Spanish. Prerequisite: SPAN 202 or WebCAPE score of 509 or higher.

**SPAN 366. Methods of Teaching a Foreign Language. (3 Credits)**

An introduction to past and current methods of teaching a foreign language, as well as to develop an understanding of proficiency and a synthesis of sound language-teaching practices. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 370. Advanced Spanish Conversation and Composition. (3 Credits)**

A course designed to give students the opportunity to develop their oral proficiency through discussion and presentations. In addition, consideration is given to composition, using tasks that reflect the type of academic work generally asked of Spanish majors and minors: analysis and classification, argumentation, definition, exposition, comparison and contrast, and cause and effect. Prerequisite: SPAN 270.

**SPAN 385. Introduction to Hispanic Literature. (3 Credits)**

Students read authentic Hispanic literature concentrating on details such as style, point of view, theme, and symbolism rather than simply reading for comprehension. Students read works by authors from Spain and Latin America with emphasis on works from major literary movements and styles. Conducted in Spanish. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

**SPAN 392. Directed Study in Spanish. (1-4 Credits)**

A course of individual research and study about topics in Spanish. Prerequisite: six credits of Spanish beyond SPAN 102.

**SPAN 397. Special Topics. (1-6 Credits)****SPAN 462. Hispanic Literature. (3 Credits)**

An advanced literary analysis course with readings from Spanish literature from pre-Columbian times to the early 19th century. Genres may include poetry, narrative, essay and drama in Spanish. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 464. Hispanic Literature Through Film. (3 Credits)**

The study of Hispanic literature and culture as represented through film. Topics may include contemporary Spanish-speaking filmmakers, critical thinking, interpretation, speaking, and higher level writing skills. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 466. U.S. Latino Literature. (3 Credits)**

A study of literature written by Hispanics living in the United States and literature written in Spanish-speaking countries that revolve around Hispanics living in the U.S., immigration issues, and associated topics. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 468. Hispanic Literature, Contemporary Authors. (3 Credits)**

A study of important twentieth century texts from Spain and Latin America. Readings may include contemporary short stories, novels, and poetry. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 480. Spanish Phonetics and Pronunciation. (3 Credits)**

A study of the correct, and incorrect, native patterns of Spanish pronunciation. Topics may include articulatory phonetics, phonology, phonetic analysis, and phonetic transcription. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 481. Syntax and Morphology of Spanish. (3 Credits)**

A study of the structures of words (morphology) and their customary arrangement in phrases and sentences (syntax) of the Spanish language. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 482. Spanish in the U.S.. (3 Credits)**

A course where the students develop critical and linguistic awareness about the relationship between language, individual, and society, in the context of the use of Spanish in the U.S. Conducted in Spanish. Prerequisites: SPAN 350.

**SPAN 490. Workshop Abroad. (1-8 Credits)**

A series of workshops to study various aspects of contemporary issues in Hispanic cultures abroad. Prerequisite: SPAN 255 or equivalent.

**SPAN 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits. Prerequisite: 15 credits of Spanish.

**SPAN 494. Capstone Experience. (3 Credits)**

An integrative capstone experience for seniors majoring in Spanish. Students will discuss, research, and write about their options after graduation. This course is offered yearly. Prerequisite: Senior standing.

**SPAN 497. Special Topics. (1-6 Credits)**

## Spanish Major: Standard Program Program Requirements

All standard majors require a minor in a second discipline or a second major.

A minimum of 36 credits is required, including the 15-credit Spanish Core

Code	Title	Credits
<b>Spanish Core</b>		
SPAN 201	Intermediate Spanish I	3
SPAN 202	Intermediate Spanish II	3
SPAN 270	Spanish Conversation and Composition	3
SPAN 350	Introduction to Hispanic Linguistics	3
SPAN 385	Introduction to Hispanic Literature	3
Total Credits		15

A maximum of nine credits earned from independent study and/or foreign travel may be applied to the major. Students who desire foreign language credit for foreign study and/ or exchange programs must have prior approval from the Department of Communication Arts, Languages, and Literature. Spanish credit for foreign study will be granted only to students who participate in formal study abroad programs sponsored by institutions accredited in the United States.

And the following:

Code	Title	Credits
SPAN 341	Latin American Civilization and Culture	3
SPAN 370	Advanced Spanish Conversation and Composition	3
SPAN 494	Capstone Experience	3
Two of the following Literature Classes:		6
SPAN 462	Hispanic Literature	
SPAN 464	Hispanic Literature Through Film	
SPAN 466	U.S. Latino Literature	
SPAN 468	Hispanic Literature, Contemporary Authors	
Two of the following Linguistics Classes:		6
SPAN 366	Methods of Teaching a Foreign Language	
SPAN 480	Spanish Phonetics and Pronunciation	
SPAN 481	Syntax and Morphology of Spanish	

SPAN 482	Spanish in the U.S.	
Total Credits		21

## Spanish Minor

A minimum of 18 credits beyond SPAN 101 Elementary Spanish I, and SPAN 102 Elementary Spanish II, including the 15-credit Spanish Core and:

Code	Title	Credits
Select one of the following:		
SPAN 321	Spanish for Business	3
SPAN 324	Spanish for Medical and Social Services	
SPAN 341	Latin American Civilization and Culture	
SPAN 366	Methods of Teaching a Foreign Language	
SPAN 370	Advanced Spanish Conversation and Composition	
SPAN 462	Hispanic Literature	
SPAN 464	Hispanic Literature Through Film	
SPAN 466	U.S. Latino Literature	
SPAN 468	Hispanic Literature, Contemporary Authors	
SPAN 480	Spanish Phonetics and Pronunciation	
SPAN 481	Syntax and Morphology of Spanish	
SPAN 482	Spanish in the U.S.	
Total Credits		3

## Spanish K-12 Licensure Emphasis: Comprehensive Program

### Program Requirements

A minimum of 36 credits is required including the 15-credit Spanish Core.

Code	Title	Credits
<b>Spanish Core</b>		
SPAN 201	Intermediate Spanish I	3
SPAN 202	Intermediate Spanish II	3
SPAN 270	Spanish Conversation and Composition	3
SPAN 350	Introduction to Hispanic Linguistics	3
SPAN 385	Introduction to Hispanic Literature	3
Total Credits		15

A maximum of nine credits earned from independent study and/or foreign travel may be applied to the major. Students who desire foreign language credit for foreign study and/ or exchange programs must have prior approval from the Department of Communication Arts, Languages, and Literature. Spanish credit for foreign study will be granted only to students who participate in formal study abroad programs sponsored by institutions accredited in the United States.

And the following. In addition, students must fulfill the K-12 Licensure (p. 139) requirements described under Education.

Code	Title	Credits
SPAN 341	Latin American Civilization and Culture	3
SPAN 366	Methods of Teaching a Foreign Language	3
SPAN 370	Advanced Spanish Conversation and Composition	3
SPAN 494	Capstone Experience	3

Two of the following Linguistics Classes:		6
SPAN 480	Spanish Phonetics and Pronunciation	
SPAN 481	Syntax and Morphology of Spanish	
SPAN 482	Spanish in the U.S.	
One of the following Literature Classes:		3
SPAN 462	Hispanic Literature	
SPAN 464	Hispanic Literature Through Film	
SPAN 466	U.S. Latino Literature	
SPAN 468	Hispanic Literature, Contemporary Authors	
Total Credits		21

## Admissions Policies and Procedures

All applicants receive a holistic application review and the final admission decision is based on the student's potential for attaining a degree at Western. Applicants are evaluated on the basis of a variety of factors, including previous academic achievement, test scores, essay, letter of recommendation, rigor of academic history, leadership potential, diversity of experience, and the depth of participation in extracurricular activities.

Academic performance is not the sole criterion of admission to the university. Western Colorado University recognizes that academic preparation may take several forms and that students contribute to campus in a variety of ways.

## How to Apply

All students are encouraged to apply for admission online using The Common Application or at [www.western.edu/apply](http://www.western.edu/apply) (<https://www.western.edu/admissions-office/apply-now/>).

## Criteria for Admission of First-Time Freshmen

Unless otherwise indicated, all freshman applicants are required to submit the following documents in order to complete an application for admission. In some cases, additional information may be required before an admission decision can be rendered.

All correspondence about undergraduate admissions should be addressed to the

Office of Admissions  
Western Colorado University  
1 Western Way  
Gunnison, CO 81231

All credentials submitted to the Admissions Office become the property of Western Colorado University and will not be returned.

## Application for Admission

All students are encouraged to apply for admission online using The Common Application or at <https://www.western.edu/admissions-office/apply-now> (<https://www.western.edu/admissions-office/apply-now/>). There is a non-refundable application processing fee.

- 1. Official High School Transcripts-** All Freshmen applicants must have their high school submit official transcripts directly to the Admissions Office. Applicants from non-accredited high schools and homeschooled students are considered on a case-by-case basis. Applicants who are not U.S. citizens and have completed their schooling in countries other than the United States (excluding

U.S. overseas schools) should see the section on admission of international students.

2. **ACT or SAT Scores-** All Freshmen applicants should request that the Student Profile Reports be sent to Western Colorado University (profile codes: ACT-0536, SAT-4946). Western does not require the writing portion of either the ACT or SAT.
3. **Personal Essay-** Applicants are asked to write at least a 250 word essay. A student's essay will help the review committee better understand the applicant as a person through leadership potential, diversity of experience, the depth of participation in extracurricular activities and overall interest in attending Western.
4. **A Letter of Recommendation-** A letter from a teacher, school counselor, or other person who can attest to the applicant's personal and professional character and potential to succeed academically at Western.
5. **Completion of High School Classes-** The Admissions Office encourages freshman applicants to complete the following secondary school units by high school graduation:
  - a. four years of English,
  - b. four years of math, including Algebra I & II and Geometry
  - c. three years of natural science (two years lab-based),
  - d. three years of social science, and
  - e. two years of academic electives, including one year of foreign language.

## Fall 2019 Freshman Class Profile

### Middle 50% of Enrolled First-Time Freshmen

High School GPA: 3.05 - 3.86

ACT Composite: 20 - 26

SAT Composite: 1000 - 1200

## GED Applicants

Applicants who have not graduated from high school are considered for admission if they have successfully completed a GED program with an average score of 500 overall and a minimum score of 410 in each subject area. All GED applicants are required to submit their ACT or SAT scores, and can submit an essay and letter(s) of recommendation to support their application.

## Criteria for Admission of Transfer Students and Students Seeking an Additional Bachelor's Degree

Transfer applicants must submit official transcripts from all prior colleges and universities. Transfer applicants must have a combined grade-point average of at least 2.3 from all prior colleges or universities to be considered for admission. Transfer applicants must have completed at least the same level of high school course work required of freshmen applicants.

Test scores, recommendations, high school records, interviews, and other relevant information may be used in assessing the application for admission. Transfer applicants who have earned fewer than 24 semester credits are required to submit scores from either the ACT or the SAT, along with final high school transcripts.

Grades earned at other institutions are not included in the calculation of grade-point averages at Western.

## Admission of International Students

International students seeking admission must submit an application to the Office of Admission by October 1st for the Spring Semester, and May 1st for the Fall Semester of the term for which they apply. Students must also submit official high school and/or college transcripts in conjunction with their application. All documents in a language other than English must be accompanied by certified English translations of these documents. All official copies of academic transcripts and diplomas of secondary and post-secondary education must be submitted directly to the Western Office of Admissions by the institutions attended. These documents must be original copies with an official signature and bear the school's official seal, or a certified copy.

All academic credit documentation for work completed outside of the United States must submit transcripts to a NACES member credential evaluation service for a course by course evaluation. For a complete list of members, go to: <http://www.naces.org/>, or <http://www.aacrao.org>.

Applicants must be graduates of high school or secondary programs equivalent to similar programs in the United States. Applicants from countries where English is not a national language must have a minimum score of 550 on the paper version Test of English as a Foreign Language (TOEFL), an Internet-based Test (iBT) of 80, or a minimum score of 6.5 on the IELTS test.

For international students transferring to Western from another US College or University who have completed 24 semester credit hours or more, and have completed a college level English composition course with a 3.0 GPA or higher, a TOEFL or IELTS score is not required.

To be considered for merit based scholarships, applicants must submit either an ACT or SAT standardized test score directly from the administering organization. <http://www.actstudent.org>, or <http://sat.collegeboard.org/>.

Applicants must demonstrate that an adequate sum of money in U.S. currency is available to cover the costs of each year of anticipated study by completing and submitting Western's Affidavit of Support form. Refer to Western's web site for the form and current required amount. Bank statements showing financial solvency must also be provided directly from the Financial Institution where funds are held in conjunction with the Affidavit of Support form. Additionally, a photocopy of the applicant's passport, or, if the applicant is in the U.S., a photocopy of the visa and I-94 in which the applicant entered the country must be provided.

Documents will not be accepted if received via email or fax or in a language other than English. Western will not generate an F-1 visa until all required documents have been received and a student has been officially accepted to the University.

## Students Seeking an Additional Undergraduate Degree

Students seeking an additional undergraduate degree must meet all residency and major and/or minor requirements. This includes a minimum of 30 credits in residence at Western. Students are considered to have satisfied freshman and sophomore-level General Education requirements by virtue of the work completed for their first undergraduate degree.

## Non-Degree Admission

An applicant not wishing to pursue a degree at Western may be admitted as a non-degree student by completing the "Non-Degree Application Form" and submitting a written statement of his/her educational intentions. Western sets policies regarding the non-degree admissions process, criteria for acceptance, limitation of credit, and the courses available to non-degree students.

Should the student wish to pursue a degree in the future, a regular application form must be completed, and the admissions requirements in effect at that time must be met. A maximum of 12 credits taken as a non-degree student will apply toward a degree at Western. Exceptions may be considered on a case-by-case basis. For further information, contact the Admissions Office.

## Concurrent High School Student Enrollment

Qualified high school students, 9th-12th grade, may take courses at Western through the Concurrent Enrollment program, earning both high school and university credit. Western sets policies regarding the admissions process and criteria, limitation of credit, and courses available to Concurrent Enrolled students. Contact Extended Studies for more information.

## Deferral Policy for Offers of Admission

Any new student who is offered admission to Western Colorado University who would like to defer their enrollment must contact the Admissions Office. All deferring students will be required to complete a new admission application. Once the new application has been received, the Admissions Office will correspond with the student if additional information is required. The original admission decision will stand unless other negating circumstances occur, such as the student fails to graduate from high school or has unsatisfactory performance at a transfer institution.

## Readmission of Former Students

Students who leave Western and wish to return are required to apply for readmission. Upon readmission, a student will receive the same academic standing under which she/ he left. For example, a student who left the University in good standing will be readmitted in good standing; a student who left while on academic probation will be readmitted on academic probation.

Students who have attended other institutions during their absence from Western must also request that official transcripts be sent to Western Colorado University by all colleges or universities attended. Courses that have a letter grade of "C-" or better may be considered for transfer credit. Grades earned at other institutions are not included in the calculation of grade-point averages at Western. Contact the Office of the Registrar or navigate to [www.western.edu/reg/forms](http://www.western.edu/reg/forms) (<http://www.western.edu/reg/forms/>) to obtain a readmission application.

## Transfer Credit, AP Credit, CLEP, Other Credit

### Undergraduate Transfer Credit Policies and Procedures

College-level academic courses with grades of C- or better, completed at an institution accredited by a regional accrediting agency, are generally

accepted. Western accepts up to 90 credits, combined total, from accredited institutions, military credit, AP, IB, and CLEP exam.

- Western only applies grades earned through Western toward the calculation of GPA.
- Western will only grant upper division credit if the transfer course is taken at an upper division level, regardless of Western equivalency.
- No credit will be granted for remedial or vocational-technical courses; except for some military training or as part of an articulation agreement.
- Courses recommended by the American Council on Education may be considered for credit.
- Total combined credit permitted under CLEP, AP and other programs leading to credit by examination is limited to 40 semester credits, with a maximum of 18 semester credits allowed for CLEP.
- Continuing students must receive approval in advance for transfer credit.

Exceptions to evaluations of transfer credit by the Office of the Registrar may be requested by the appropriate academic department.

Credits accepted in transfer that are comparable to those offered at Western, or are State guaranteed transfer General Education courses (gtPathways), may apply toward satisfying requirements of the major and minor programs. Non-equivalent courses, or those excluded from acceptance toward any of Western's program requirements, may be accepted as electives.

Transfer credit accepted on a provisional basis from a college, which is a candidate for accreditation (as recommended in the American Association of Collegiate Registrars and Admissions Officers Transfer Credit Practices), can only be validated by the student completing 30 credits at Western with a 2.000 cumulative grade-point or better.

## Foreign Institutions

Credit will be considered for courses taken at foreign institutions that are formally recognized as an institution of higher education by a given country's Ministry of Education. The same general parameters apply for course content and grades as they do for U.S. credit consideration.

## Study Abroad

Credit earned from non-Western Study Abroad programs are treated as transfer credit.

## Credit for Advanced Placement

Western awards credit for Advanced Placement in all subject areas. A minimum score of 3 is required for credit to be granted for most AP tests (for some tests, a score of 4 is required). Scores must be submitted by the College Board directly to the Admissions Office.

## Credit for International Baccalaureate Program

Western recognizes the International Baccalaureate (IB) Program. Western grants credit based on performance on individual IB exams for students who have completed the IB diploma program as long as all scores are 4 or greater. Students who have not completed the diploma program may be awarded credits for individual IB certificate courses as long as the scores are 4 or greater. For further information on how IB certificates will be awarded credit, contact the Office of the Registrar. Official IB scores must be sent to the Admissions Office from the International Baccalaureate Organization.



## Credit for Military Service

Military service credit is evaluated when official copies of transcripts for military schools are received. Army, Navy, and Marine personnel submit a Joint Service Transcript (JST). Air Force personnel submit a Community College of the Air Force (CCAF) Transcript. Courses are evaluated according to the American Council on Education (ACE) Guidelines. A maximum of 25 semester hours of credit is counted toward a baccalaureate degree.

## Credit for Transfer from Two-Year Colorado Public Colleges

Articulation agreements and transfer guides have been developed with all of the Colorado two-year institutions. Transfer students from Colorado two-year programs who graduate with an Associate of Arts or Associate of Science degree will be considered to have satisfied Western's General Education Program.

## Credit for Transfer from Non-Traditional Programs

Western may accept credits for both military service training and non-traditional training as recommended by the American Council on Education. The maximum number accepted by Western toward a Bachelor's degree is 30 semester credits. Western will not grant credit for "life experience," that is, credit for experience gained from "work-related" activities, unless demonstrated through CLEP.

## Credit for College Level Examination Program (CLEP)

Western will award credit for both the general and subject CLEP exams for a maximum award of 18 semester credits for any combination of CLEP and challenge examinations. In awarding credit, Western generally follows the recommendations of the American Council on Education, who award on the basis of a scaled score of 50, with the exception of some foreign language exams. For a list of subjects and courses awarded CLEP credit, contact the Office of the Registrar. Scores must be submitted by the College Board directly to the Office of the Registrar.

## Credit for Challenge Examinations

Western will award course credit for prior learning to students who successfully test out of GT Pathways courses by receiving a score equivalent to a grade of "C-" on a course challenge exam. Challenge exams are created by discipline faculty for GT Pathways courses for which a CLEP exam is not available. A list of GT Pathways courses with challenge exams, as well as challenge exam policies, is available on the Office of the Registrar web page. Western allows a maximum of 18 credits for any combination of CLEP and challenge exams. Credits received through challenge exams will not count toward satisfying Western's residency requirement.

## Resolution of Transfer Disputes among Colorado Institutions

Students transferring from Colorado institutions may file an appeal of Western's evaluation of their transfer credits by adhering to the following procedure. The Office of the Registrar is responsible for the appeals process. The appeal must be filed in writing to the Office of the Registrar of Western Colorado University within 15 calendar days of notification of the evaluation. Failure to file in this timely manner means that the original evaluation will be binding. Western will respond to any timely appeal in writing within 15 calendar days of the receipt of the appeal.

If the initial appeal does not resolve the dispute, the student may appeal in writing to the student's previous institution(s) within 15 calendar days. The presidents of the two institutions (or their representatives) may then

resolve the dispute. If the issue is still not resolved, the student may file an appeal with the Colorado Commission on Higher Education (CCHHE) within 15 calendar days of receipt of written notification by Western of the presidents' decision. The CCHHE may then resolve the dispute. The decision of CCHHE will be final and binding.

## Financial Aid

Western offers financial aid to help deserving students bridge the gap between the expected family financial contribution and the cost of attending the university. All students admitted are encouraged to apply for financial aid. Student financial aid is awarded after a student has been accepted for enrollment and the financial aid application is complete. It is strongly recommended that financial aid applications and supporting documents be submitted by March 1.

## Applying for Aid

Western Colorado University utilizes the Free Application for Federal Student Aid (FAFSA) to determine eligibility for all financial aid. This form is available online at: <http://www.fafsa.ed.gov>. The FAFSA should be filed as soon as possible after October 1 each year for the next school year.

## Grants

Grants need not be repaid. By completing the FAFSA, a student is automatically applying for consideration of the following grants: Federal need-based and/or Colorado Resident need-based grant.

## Scholarships

Scholarships need not be repaid. Western Colorado University offers numerous scholarship opportunities for both incoming and continuing students.

## Employment Programs

Western's student employment program is funded through federal, state, and institutional sources. Students may work as many as 20 hours per week, and wages vary according to the job. It may be possible to work on campus even if you are not otherwise eligible for financial aid.

## Loan Programs

Loans must be repaid. The FAFSA must be completed to receive consideration for the Federal Direct Stafford Loan Program and the Federal Direct PLUS Program.

## General Education

As an institution whose mission seeks to unify traditionally separate academic domains in the pursuit of preparing students for an ever more complex world and to instill in them the values of the liberally educated, Western Colorado University requires all graduates to complete General Education requirements. Through Western's General Education program, students are exposed to a wide variety of subject matter and fields of study which have evolved through time to include diverse perspectives and experiences which reflect and embrace the above mentioned principles which define the role and mission of our university.

The General Education Program provides a foundation for analytical discovery, independent thinking, and informed and engaged citizenship. General Education courses require students to engage the knowledge, perspectives, and methods of specific disciplines while developing essential skills. In so doing, students increase their understanding of

themselves, the natural world, the bases of our society and institutions, the larger world, and their relationships. These courses offer a foundation for further studies and continued intellectual growth.

The thirty-five credit General Education Program contains two components:

- Essential Skills (9 credits) and
- the Liberal Arts (26 credits).

## I. Essential Skills (9 Credits)

The purpose of the Essential Skills requirements is to provide students with the tools needed to reason, write, speak, read, quantify, and use information and technology in new ways of thinking and doing. The acquisition, application, and integration of the Essential Skills are practiced through the General Education curriculum and within courses in the disciplines during the students' university careers.

Students must earn a minimum grade of "C-" in the following courses to fulfill the Essential Skills requirement:

Code	Title	Credits
<b>First Writing Course</b>		
ENG 102	Academic Writing (GT-CO1) <sup>1,2</sup>	3
<b>Second Writing Course</b>		
COM 202	Academic Writing and Inquiry (GT-CO2)	3
<b>Mathematics Course</b>		
Select three credits of the following: <sup>3</sup>		3
MATH 105	Mathematics for the Liberal Arts (GT-MA1) <sup>1</sup>	
MATH 113	Statistical Thinking (GT-MA1) <sup>1</sup>	
MATH 140	College Algebra (GT-MA1) <sup>1</sup>	
MATH 141	Precalculus (GT-MA1)	
MATH 151	Calculus I (GT-MA1) <sup>1</sup>	
MATH 209	Mathematics for Elementary School Teachers I	
MATH 213	Probability and Statistics <sup>1</sup>	
Total Credits		9

<sup>1</sup> Colorado State Guaranteed General Education Transfer Course.

<sup>2</sup> Enrollment in English 102 Academic Writing and English 102 Honors Academic Writing requires reading and writing abilities consistent with the university entry-level expectations defined by the Colorado Commission on Higher Education. Consult with an advisor for English course prerequisites.

<sup>3</sup> The mathematics requirement varies by program of study (major, emphasis, minor). Many programs have specific requirements beyond the University minimum. In all cases, these specific requirements satisfy the University Mathematics Course requirement. To select the appropriate courses, see the Academic Programs section of this *Catalog*.  
If there is no specific mathematics requirement within a program of study, the minimum Mathematics Course requirement of the University may be satisfied by passing, with a minimum grade of "C-," any university-level mathematics course numbered 100 or above.

Enrollment in university-level mathematics courses (numbered 100 or above) requires mathematics abilities consistent with the university entry-level expectations defined by the Colorado Commission on Higher Education. Students should consult with their advisors about which mathematics course is appropriate.

## II. Liberal Arts (26 Credits)

Each of the courses included in the Liberal Arts program extends the development of Essential Skills while examining the social sciences, natural sciences, and the arts and humanities. Courses in the Liberal Arts program may also satisfy major and/or minor requirements.

### Area I: Social Sciences (9 credits)

Courses in Area I focus on the following goals:

- Students use social science methods and reasoning.
- Students demonstrate knowledge of how historical, political, economic, cultural, or social contexts shape the human environment.
- Students demonstrate knowledge of how individuals relate to the social world, past and present.

Nine credits are required from the courses listed below. Students must choose from three disciplines.

Code	Title	Credits
Select nine credits of the following:		
ANTH 107	Introduction to General Anthropology (GT-SS3) <sup>1</sup>	1
BUAD 101	Business of Life	
ECON 201	Macroeconomics (GT-SS1) <sup>1</sup>	1
ENVS 100	Introduction to Environment and Sustainability (GT-SS2) <sup>1</sup>	1
GEOG 110	World Regional Geography (GT-SS2) <sup>1</sup>	1
GEOG 120	Introduction to Human Geography (GT-SS2) <sup>1</sup>	1
GEOG 250	Geography of North America (GT-SS2) <sup>1</sup>	1
HIST 101	World History to 1500 (GT-HI1) <sup>1</sup>	1
HIST 102	World History Since 1500 (GT-HI1) <sup>1</sup>	1
HIST 126	U.S. History to 1865 (GT-HI1) <sup>1</sup>	1
HIST 127	U.S. History Since 1865 (GT-HI1) <sup>1</sup>	1
HIST 254	A History of Africa (GT-HI1) <sup>1</sup>	1
HIST 260	Latin American History (GT-HI1) <sup>1</sup>	1
POLS 117	Introduction to Political Ideas (GT-SS1) <sup>1</sup>	1
POLS 180	Introduction to American Politics (GT-SS1) <sup>1</sup>	1
POLS 255	Introduction to Comparative Politics (GT-SS1) <sup>1</sup>	1
POLS 260	Introduction to World Politics (GT-SS1) <sup>1</sup>	1
PSY 100	General Psychology (GT-SS3) <sup>1</sup>	1
SOC 101	Introduction to Sociology	
SOC 168	Social Problems	
Total Credits		9

<sup>1</sup> Colorado State Guaranteed General Education Transfer Course.

### Area II: Natural Sciences (8 credits)

Courses in Area II focus on the following goals:

- Students demonstrate knowledge of scientific viewpoints.
- Students use the scientific method.
- Students evaluate the impacts of science and technology on society.
- Students demonstrate scientific literacy.

Eight credits are required from the courses listed below:



Code	Title	Credits
Select eight credits of the following:		8
ANTH 218	Physical Anthropology (with laboratory)	
BIOL 120	Studies in Biology (GT-SC2) <sup>1</sup>	
BIOL 130	Environmental Biology (GT-SC2) <sup>1</sup>	
BIOL 135	Environmental Biology Laboratory (GT-SC1) <sup>1</sup>	
BIOL 150	Biological Principles (with laboratory) (GT-SC1) <sup>1</sup>	
BIOL 151	Diversity and Patterns of Life (with laboratory)	
BIOL 200	Environmental and Public Health (GT-SC2) <sup>1</sup>	
CHEM 100	Contemporary Chemistry (GT-SC2) <sup>1</sup>	
CHEM 101	Introduction to Inorganic Chemistry (GT-SC2) <sup>1</sup>	
CHEM 111	General Chemistry I (GT-SC2) <sup>1</sup>	
CHEM 112	General Chemistry Laboratory I (GT-SC1) <sup>1</sup>	
CHEM 113	General Chemistry II	
CHEM 114	General Chemistry Laboratory II	
GEOL 101	Physical Geology (GT-SC2) <sup>1</sup>	
GEOL 105	Physical Geology Laboratory (GT-SC1) <sup>1</sup>	
PHYS 110	Introductory Astronomy (GT-SC2) <sup>1</sup>	
PHYS 115	Physics of Music	
PHYS 120	Meteorology (GT-SC2) <sup>1</sup>	
PHYS 125	Energy and the Environment (GT-SC2) <sup>1</sup>	
PHYS 140	Introductory Physics (with laboratory) (GT-SC1) <sup>1</sup>	
PHYS 170	Principles of Physics I (with laboratory) (GT-SC1) <sup>1</sup>	
PHYS 171	Principles of Physics II (with laboratory) (GT-SC1) <sup>1</sup>	
PHYS 200	General Physics I (with laboratory) (GT-SC1) <sup>1</sup>	
PHYS 201	General Physics II (with laboratory) (GT-SC1) <sup>1</sup>	
SCI 110	Habitable Planet (with laboratory)	
SCI 120	Living Planet (with laboratory)	
SCI 210	Dynamic Planet (with laboratory)	
Total Credits		8

<sup>1</sup> Colorado State Guaranteed General Education Transfer Course.

### Area III: Arts and Humanities (9 credits)

Courses in Area III focus on the following goals:

- Students enhance their appreciation of the modes of creative expression.
- Students ask fundamental questions of value and meaning.
- Students survey a variety of ways humans have perceived their world.
- Students explore the ways in which the human environment is shaped by social, cultural, linguistic, religious, philosophical, and historical circumstances.
- Students gain increased awareness of the moral and ethical dimensions of the human condition.

Nine credits are required from the courses listed below. Students must choose from three disciplines.

Code	Title	Credits
Select nine credits of the following:		9
ART 105	Introduction to Art (GT-AH1) <sup>1</sup>	
COM 119	Introduction to Film	
COM 121	Introduction to Theatre (GT-AH1) <sup>1</sup>	
COM 151	Introduction to Mass Media (GT-AH2) <sup>1</sup>	

COM 216	Dramatic Literature and Script Analysis	
ENG 150	Introduction to Literature (GT-AH2)	
ENG 205	Introduction to Creative Writing	
ENG 230	Environmental Literature (GT-AH2) <sup>1</sup>	
ENG 232	Borderlands: Representing Race, Class, Gender, and Sexuality	
ENG 237	Women and Literature	
ENG 238	Literary Culture of the American West	
ENG 250	Critical Approaches to Literature	
ENG 254	Popular Genre Fiction: Sci Fi Fantasy	
ENG 255	Ancient World Literature (GT-AH2) <sup>1</sup>	
ENG 270	Folklore	
MUS 100	Fundamentals of Music (GT-AH1) <sup>1</sup>	
MUS 140	Introduction to Music (GT-AH1) <sup>1</sup>	
MUS 240	Perspective in Music: Jazz History/Music Media/Women in Music/other selected topics	
MUS 245	History of Rock and Roll	
PHIL 101	Introduction to Philosophy (GT-AH3) <sup>1</sup>	
Total Credits		9

<sup>1</sup> Colorado State Guaranteed General Education Transfer Course.

## Colorado State Guaranteed General Education Transfer Courses

Western Colorado University students who transfer to another Colorado public college or university may facilitate the transferring of general education credits by completing courses designated as State Guaranteed General Education Transfer Courses. Upon acceptance to another Colorado public college or university, students may have up to 31 credits of successfully completed (C- or better) State Guaranteed General Education Transfer Courses meet specific general education requirements of the receiving institution. Courses must incorporate specific content and competency areas as defined by the State Guaranteed General Education Transfer Curriculum. For more information regarding State Guaranteed General Education Transfer Courses and the 31-credit State Guaranteed General Education Transfer Curriculum, please consult the Colorado Department of Higher Education website: <http://higher.ed.colorado.gov>.

Credits earned in general education courses not designated as State Guaranteed General Education Transfer Courses routinely transfer to other colleges and universities as determined by the receiving institution. A student transferring credits to another college or university should consult with the receiving institution to determine how transferred credits may meet particular general education requirements.

Code	Meaning
GT-CO1	Colorado Guaranteed General Education Transfer Course, Introduction to Writing
GT-MA1	Colorado Guaranteed General Education Transfer Course, Mathematics
GT-SS1	Colorado Guaranteed General Education Transfer Course, Economics of Political Systems
GT-SS2	Colorado Guaranteed General Education Transfer Course, Geography
GT-SS3	Colorado Guaranteed General Education Transfer Course, Human Behavior, Culture, or Social Frameworks

GT-HI1	Colorado Guaranteed General Education Transfer Course, History
GT-SC1	Colorado Guaranteed General Education Transfer Course, Natural Sciences with Laboratory
GT-SC2	Colorado Guaranteed General Education Transfer Course, Natural Sciences without Laboratory
GT-AH1	Colorado Guaranteed General Education Transfer Course, Arts and Expression
GT-AH2	Colorado Guaranteed General Education Transfer Course, Literature and Humanities
GT-AH3	Colorado Guaranteed General Education Transfer Course, Ways of Thinking

## General Information

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## Academic Calendar for 2020-2021

\*\*Due to COVID-19, Fall 2020 dates were adjusted in July 2020. Correct dates are reflected below.

Term	Event	Date
Summer	Classes begin 1st 3 weeks (Mayterm) and full term	May 11, 2020
	Memorial Day --no classes	May 25, 2020
	Classes begin 1st 5 weeks	June 1, 2020
	Independence Day --no classes	July 4, 2020
	Classes begin 2nd 5 weeks	July 6, 2020
	End of Summer Semester	August 7, 2020
Fall	New Faculty Report	August 12, 2020
	Classes begin	August 17, 2020
	Labor Day --no classes	September 7, 2020
	Thanksgiving Break --no classes	November 25-27, 2020
	Final Exams	December 1-4, 2020
	Graduate Level Courses End (consult individual programs)	December 17, 2020
Spring	Classes begin	January 11, 2021

Martin Luther King Day --no classes	January 18, 2021
Presidents Day --no classes	February 15, 2021
Spring Break --no classes	March 15-19, 2021
Final Exams	May 4-7, 2021
Spring Commencement	May 8, 2021

See the University web page for additional information, updates, and future calendars. All calendars are subject to change <http://www.western.edu>.

## Assessment of Academic Programs and Services

Assessment is the process of collecting, synthesizing, and interpreting information to aid decision making; it includes information gathered about students, instruction, classroom climate, and/or the institution. The assessment process results in feedback to students and the institution with a goal of improving the instructional process.

At Western, assessment begins as students enter the institution and continues after graduation. Students undergo placement testing in order to enroll in courses that best suit their academic abilities. As students progress through general education and course work in the major, they are evaluated on skills and disciplinary learning and, in turn, faculty use results to improve instruction and the curriculum.

The purpose of student and program assessment at Western is to improve student learning and program delivery. Assessment is an ongoing process; therefore, campus-wide and disciplinary goals and objectives must be determined, assessed, evaluated, and reported. Academic programs are assessed by external reviewers as well as by a thorough internal program review process.

## Governance

The Colorado Commission on Higher Education (CCHE), which acts as the policy and coordinating board for all public institutions of higher education in Colorado, is a nine-member board appointed by the Governor and confirmed by the Colorado State Senate.

Colorado Commission on Higher Education  
1560 Broadway, Suite 1600  
Denver, CO 80202  
(303) 866-2723

Western is governed by the Western Colorado University Board of Trustees, a nine-member lay board. Trustees are appointed by the Governor to four-year terms. One faculty trustee and one student trustee are elected by their constituents and serve one-year terms.

## History of Western

In the late 19th century, Gunnison was a progressive cattle and mining town establishing itself as a cultural leader on Colorado's Western Slope. Placed on the leading edge of the American frontier, Gunnison sought to establish educational programs for the citizens of the area. A bill was introduced in 1885 to establish a college; in 1901, that bill was approved by the state legislature.

This was the beginning of the Colorado State Normal School, the predecessor to what is now Western Colorado University.

The cornerstone of North Hall (now known as Taylor Hall) was placed in October 1910, becoming the first building on the Normal School's campus. The following year, the two-year teaching college welcomed its first class of 13 students, establishing the first college on the Western Slope.

In 1923, the Normal School became a four-year institution; it was renamed Western State College. Western State College was a liberal arts school designed to produce teachers for the Western Slope. In 1923, under the direction of Biology professor John C. Johnson, Ph.D., students constructed a large "W" on Tenderfoot Mountain just south of campus with rocks extending 450 feet up the mountain.

Continuing Western's impact, Johnson bought land at Gothic, a once thriving silver-mining camp 35 miles north of Gunnison, and founded the famed Rocky Mountain Biological Laboratory in 1928. Today, the lab conducts pioneering research on climate change, attracting students and professors from all over the world.

Western continued to grow through the 20th century. In the late 1940s, Mountaineer Bowl was carved out of solid rock on the side of Smelter Hill—creating the highest collegiate football stadium in the nation at 7,771 feet of elevation.

Following World War II, Western entered a new period of expansion, with a student enrollment of 3,200 in the late 1970s.

From that point onward, Western became nationally renowned. The college became known as one of the top outdoor education schools in the nation. Western athletic director Paul Wright became known as "the father of intercollegiate skiing" when he convinced the NCAA to adopt it as an official sport in 1953. Ski coach Sven Wiik became known as the "father of Nordic skiing in the U.S.," serving as the U.S. Olympic coach and turning out more than 20 Olympic skiers. In that same regard, the men's and women's cross country teams have won 12 NCAA titles and produced four Olympians.

Academically, Western has renowned programs in Environment & Sustainability, Biology, Geology, Energy Management, Exercise & Sport Science, Business and Recreation & Outdoor Education. Western also gained a graduate school, and graduate enrollment has tripled since 2010. Western achieved university status in 2012.

Western has also benefitted from many generous donations, which provided funding for several state-of-the-art facilities including the Mountaineer Field House, Borick Business Building, University Center and residence halls.

In September 2018, alumnus Paul M. Rady donated a historic \$80 million to establish the Paul M. Rady School of Computer Science & Engineering. This gift was part of a larger effort to establish a groundbreaking partnership between Western and the University of Colorado Boulder to provide students in Gunnison with access to a high-quality Computer Science education and Mechanical Engineering education within the attentive and personal environment of a smaller university.

In 2019, Western State Colorado University's name was legally simplified to Western Colorado University—courtesy of Colorado House Bill 19-1178. In conjunction with the name simplification, which became official July 1 after Colorado Gov. Jared Polis signed the bill May 31, Western updated its seal.

According to former Western archivist Ethel Rice, the seal was initially designed to represent the qualities of competence, conscience and creativity. The sun rising over the mountains represents the Rocky Mountains, and the sun symbolizes the light of knowledge. The urn represents the ever-increasing flow of knowledge. The harp represents the fine arts. The microscope represents science. And to the right of the microscope is a quill and scroll, which represent the arts and humanities.

Around the shield are three calendar years. The founding of the United States as a nation: 1776. The founding of Colorado as a state: 1876. And the founding of Colorado State Normal School: 1901.

At the bottom of the seal in Latin: "Potestas Ad Ministrandum." Translations vary. According to Rice, a liberal translation means, "From Ability to Performance." Other Western officials have suggested that the Latin phrase translates to "Power of Service," a likely nod to the school's origins as a teachers college.

Today, Western Colorado University is an institution that is dedicated to promoting intellectual maturity and personal growth in its students. Western graduates citizens prepared to assume constructive roles in local, national and global communities.

## Institutional Accreditation

Western Colorado University is accredited by The Higher Learning Commission.

The Higher Learning Commission  
230 South LaSalle Street, Suite 7-500  
Chicago, IL 60604-1413  
(312) 263-0456 (800) 621-7440

Individual academic programs have been accredited, approved, or recognized by discipline-specific professional or governmental agencies, including the following:

- Energy Management: American Association of Professional Landmen;
- Music: National Association of Schools of Music;
- Teacher Education: Colorado Department of Education;
- Colorado Commission on Higher Education;

Institutional accreditation documents may be reviewed in the Office of Academic Affairs.

## Institutional Mission

Western Colorado University promotes intellectual maturity and personal growth in its students and prepares them to assume constructive roles in local, national and global communities. Western's distinctive character emerges from its unity among academic and professional disciplines, high standards of scholarship, and a unique environment in the mountains of western Colorado.

## Leslie J. Savage Library

The staff of the Leslie J. Savage Library provides information, resources, and services designed to advance the intellectual and personal development of members of the University community. When classes are in session, the Library's services are available seven days a week.

Students find the majority of information they seek for course assignments in the Library collection. In addition to over 250,000 volumes

and 3,500 films, the collection includes access to over 70,000 electronic books and over 60 electronic journal databases. Special collections include federal and state government documents, books in the Western Colorado History Collection, and the University archives.

The Library makes extensive use of electronic databases to facilitate identifying and locating desired materials. Using the Library's catalog, the search for information can be extended to libraries and databases throughout the United States. Through the Library's resource sharing services, students can borrow materials from other libraries nationwide.

The Library staff gives students the opportunity to become skilled at using the full range of information resources and services. In addition to helping individuals identify and locate desired information, librarians offer group and individual instruction to students as they start to research topics for course assignments. Savage Library provides a welcoming environment for study and research.

## Student Bill of Rights

The Colorado General Assembly enacted the Student Bill of Rights (C.R.S. 23-1-125) to assure that students enrolled in public institutions of higher education have the following rights:

- students should be able to complete their Associate of Arts and Baccalaureate programs in no more than 120 credits unless there are additional degree requirements recognized by the Commission (Colorado Commission on Higher Education);
- a student can sign a four-year graduation agreement that formalizes a plan for that student to obtain a degree in four years, unless there are additional degree requirements recognized by the Commission;
- students have a right to clear and concise information concerning which courses must be completed successfully to complete their degrees;
- students have a right to know which courses are transferable among the state public two-year and four-year institutions of higher education;
- students, upon completion of core general education courses, regardless of the delivery method, should have those courses satisfy the core course requirements of all Colorado public institutions of higher education;
- students have a right to know if courses from one or more public higher education institutions satisfy the students' degree requirements; and
- a student's credit for the completion of the core requirements and core courses shall not expire for ten years from the date of initial enrollment and shall be transferable.

## The Western Colorado University Foundation

The Western Colorado University Foundation, Inc., is a private non-profit corporation founded in 1975 to advance the mission and goals of Western Colorado University. The Foundation is the primary depository of private gifts from alumni, friends, corporations, and foundations. In the last 10 years, Western Colorado University has received \$50 million in gifts from donors investing in Western's people and mission. Each year, the Foundation gives more than \$2 million to the University, with the greatest portion directed to scholarships.

In 1997, the Foundation established The Foundation Scholars Program. This program offers the most prestigious, renewable scholarships awarded at Western to date.

In recent years, the Foundation has increased its role in raising private support for Western. The Foundation receives annual fund contributions, one-time gifts, and major gifts made over a period of years. Many different gift options are available: bequests, cash, securities, savings bonds, real estate, trusts, life insurance, and personal property.

Since Western is a state-assisted institution, private gifts to the Foundation are critical to maintaining and enhancing excellence in faculty and student programs. An annual report of the Foundation is available for those wishing further information. Contact the Foundation at (970) 641-2237, [tburggraf@western.edu](mailto:tburggraf@western.edu), or mail inquiries to the

Western Foundation, Inc.  
909 Escalante Drive  
P.O. Box 1264  
Gunnison, CO 81230.

## WCU Diversity and Inclusivity Statement

The following statement on Diversity and Inclusivity was adopted by the faculty at Western Colorado University:

"Western Colorado University takes a firm and unyielding stance in support of diversity, inclusivity, scientific inquiry, and creative expression. We believe these principles are necessary for the free and open inquiry that defines our role as a public institution in a democratic society. We believe that these principles are a moral imperative requiring constant vigilance and a firm stance against actions motivated by hate or intimidation. The university welcomes people of color, people with disabilities, people of all genders and orientations, people of all religious preferences, immigrants and refugees regardless of national origin or ethnicity and other underrepresented communities regardless of socioeconomic class. We actively seek to build a civil and respectful culture which affirms these principles in all that we do."

## Graduation Requirements

### Four-year Graduation Plan

Western Colorado University has adopted a four-year graduation plan. If a student signs the four-year graduation plan agreement, fulfills all of the conditions, and is still unable to graduate in four years, the University will absorb the cost of the additional course work required for the degree. The four-year graduation plan is available on the Academic Affairs web page.

### 3 + 2 Programs

Western Colorado University offers 3+2 programs in a number of disciplines allowing eligible students to complete both undergraduate and master's degrees in five years. Available 3 + 2 programs will be listed within the department site offering the program.

## Operative University Catalog

All first-time entering students are allowed six years from their entering date as degree-seeking students to complete undergraduate requirements in force at the time of their entrance to Western. During the six-year period, students may elect to satisfy requirements specified in a Catalog more recent than the one under which they entered. Students



must, however, indicate to the Registrar which Catalog they want used for the evaluation of their credits when they request a “Graduation Audit.” Students who do not complete requirements within the six-year time limit must meet all the requirements of the Catalog in effect the year in which they apply for graduation. Exceptions to this policy will be considered on a case-by-case basis.

Each operative Catalog year begins at the start of the summer session and ends with the conclusion of the following spring semester.

Readmitted or currently enrolled students who choose, or are required to use, a Catalog more recent than the one in effect when they entered must satisfy all requirements in the new Catalog with the following exception: They are allowed to use courses already posted to the permanent record in satisfying the General Education requirements.

## General University Requirements

A minimum of 120 semester credits is required for graduation. Of the 120 total credits required, students must earn 40 credits in upper-division courses (those courses numbered 300 and above). Fifteen of these 40 upper-division credits must be earned in courses that are part of the standard or comprehensive major programs.

Continuing Education Units (CEUs), offered through Extended Studies, appear on your transcript; however, they are not University credits and do not fulfill degree requirements.

At the time of graduation, students are required to have a minimum overall cumulative grade-point average of 2.000 or better, as well as a 2.000 or better grade-point average in their major and minor.

All requirements specified in this section are minimums; some programs require levels beyond these minimums.

## Resident Credit Requirements

Every candidate for a degree must earn a minimum of 30 credits from Western Colorado University. This 30-credit minimum must include: a) at least 15 credits in the major, and b) at least eight credits in the minor. No more than 9 semester hours of a student’s final credits will be accepted in transfer. These final credits must be selected in consultation with his or her faculty advisor. Credit earned for student teaching, independent study, internships, and other courses that may require off-campus experiences are treated as “resident” credit if the student has registered for that credit through Western directly. If a student registers for courses at another institution, regardless of the auspices under which such registration occurs, then such courses cannot be counted as “resident” credit at this University.

## Major and Minor Requirements

Each student is obligated to meet either: (a) the requirements of a standard major program and a minor in another discipline, requiring a minimum of 30 credits earned in the major and a minimum of 18 credits earned in the minor; or (b) the requirements of a comprehensive major program, requiring a minimum of 48 credits with no minor required. The requirements of some majors and minors exceed these minimums. Students must complete a capstone requirement (minimum of 2 credits) as part of the standard or comprehensive major. Capstone courses are incorporated in the degree requirements listed in the Academic Programs section of this Catalog.

A student may earn a second or additional major by completing the requirements of each major.

A student may earn a second or additional emphasis within a major by completing the requirements of each emphasis, which must include a minimum of 18 unduplicated credits. To graduate with both a B.F.A. and either a B.A. or B.S., a student must complete the requirements of both degrees and complete a minimum of 150 credits. Students earning both a B.A. and a B.S. must complete the requirements of both degrees. All degrees, majors, emphases, and minors desired must be declared on the application for the Bachelor Degree.

Western allows well-prepared advanced students who have been provisionally admitted to a 3+2 program to substitute graduate courses for required or elective courses in an undergraduate degree program and then subsequently count those same courses as fulfilling graduate requirements in a related graduate program.

## General Education Requirements

All students must complete the Western Colorado University General Education Program including the Essential Skills and the Liberal Arts requirements. Specific requirements are described in the General Education section of this Catalog.

## Graduation with Honors

In order to graduate with honors, a student must have a cumulative grade-point average at Western Colorado University as follows:

Honor	GPA
Cum Laude	3.500 - 3.749
Magna Cum Laude	3.750 - 3.899
Summa Cum Laude	3.900 – 4.000

In order to be recognized for honors at a commencement ceremony, a student must have achieved the required cumulative grade-point average in all work completed at Western the semester prior to commencement. A student must also have a minimum of 40 GPA credits in residence at Western. Up to eighteen of these credits may be in progress during the final semester. Any honors status which is posted to a student’s permanent record upon graduation will reflect the grade-point average that student earned on all work completed at Western.

## Application for and Awarding of the Degree

In consultation with their advisor(s), students are required to file an Application for Graduation on their MyWestern account during the first two weeks of the semester prior to the one in which they expect to complete all degree requirements. Academic progress will be monitored by the Office of the Registrar upon receipt of the Application for Graduation and an official audit will be saved in DegreeWorks. The Registrar reviews the audit and communicates with the student and the student’s academic advisor on requirements not yet completed.

Degrees are awarded at the end of the semester in which all degree requirements are completed provided all requirements are completed and grades recorded within 25 working days after the last day of that semester. If requirements are not completed and recorded within that period, students must notify the Office of the Registrar when all requirements are completed and file a new Application for Graduation.

## Commencement

All students who complete requirements for graduation and are entitled to receive degrees are encouraged to participate in commencement exercises. In order to participate in commencement a student must have nine or fewer credits left to complete graduation requirements and be registered for those credits the following summer and/or fall term. Students must be in good standing and must submit a request to be included in the commencement ceremony to the Registrar during the first two weeks of the semester in which the commencement is held.

## Academic Regalia

All degree candidates participating in commencement activities shall wear approved commencement attire. In addition to the cap and gown, candidates will be allowed to wear cords, medals and/or stoles if such items have been previously approved by the Commencement Committee and the President's Cabinet. Gold cords are restricted to the university-recognized designations of cum laude, magna cum laude, and summa cum laude. No more than two accoutrements shall be worn by an individual. If any commencement official deems attire to be inappropriate, the student will be asked to remove the unapproved item or they may be denied participation in the commencement ceremony.

## President's Message

### *To our students:*

What an honor it is for me to introduce our growing catalog of courses to both Western Colorado University students and those considering enrolling at our university.

The Western academic experience continues to improve in both breadth and quality, as we continue to add academic programs and challenges to support your academic growth and prepare you for life after college. Our university has a century-long tradition of offering a high-quality, customized education at a value you won't find anywhere else. With an outstanding faculty and staff and average classes of just 17 students, we offer a private-college experience for a public-university price.

This publication describes Western's courses and academic-degree programs. In addition, you'll see it spells out requirements you must complete to earn your university degree. Please note these requirements as you plan your academic schedule and career.

If you need help understanding our academic offerings or planning your future, please know our dedicated faculty and staff are here to help you grow academically and personally. Western's culture of quality academics and close faculty-student mentorship reflects our commitment to your success. We want to ensure you get a phenomenal education here at Western, and we are here to help you chart a path for continued growth after graduation.

While you study here at Western, we will push you to expand your horizons, broaden your sense of community, and explore and pursue both academic and practical skills excellence that will put you a step ahead of your peers.

That's why we call the Western experience *Learning, Elevated*.

Best wishes for your academic success this year at Western.

Greg Salsbury, Ph.D.  
President, Western Colorado University

## Student Programs and Services

Programs and services in support of the academic education at Western are offered in the spirit of American educator John Dewey, who believed that the learning experience should not just be a "preparation for future living" but also the guided and intelligent practice of life in the present.

Thus, the goal of those involved in these programs and services at Western is to provide opportunities for students to "apply the curriculum;" to question thoughtfully; to reason clearly; to either compete vigorously or to cooperate sensitively, depending on the challenge; and otherwise to fully embrace the human condition and the responsibilities and opportunities it affords.

Student programs offer students the opportunity for direct participation in activities involving their mental, physical, spiritual, or career-related development.

Services assist students both in making their way through Western and in making the transition to their post-graduate lives. These programs and services include cultural, academic, and diversity-related programs and services, educational and career-related programs and services, and recreational and athletic programs.

The programs and services offered in each of these categories are described briefly in the pages that follow and they are described in more detail in the Student Handbook (<http://www.western.edu/current-students/student-affairs>) (<http://www.western.edu/current-students/student-affairs/>).

## Co-Curricular Programs

### Art Exhibitions

Western's art faculty, advanced art students, and visiting artists provide a steady rotation of shows and exhibits in the Quigley Hall Gallery and community galleries.

### Enrichment Convocations and Lectures

Each semester, Western arranges for special on-campus presentations by distinguished professionals, government officials, visiting faculty, and other guests from the world beyond the campus.

### Headwaters Conference

Each fall, Western invites an interdisciplinary gathering of scholars, writers, poets, storytellers, public officials, and others involved in the cultural development of the Southwest to discuss issues and problems of common concern to Southwesterners.

## Honorary Organizations and Departmental Clubs

Western has student chapters of several national honorary organizations and departmental clubs which allow students to pursue their disciplinary studies outside the classroom. These groups include: Alpha Kappa Delta (Sociology), Alpha Zeta (Spanish), Anthropology Club, Art League, Association for Students of Exercise and Sport Science (ASESS), Chemistry Club, English Club (Wordhorde), Future Educators of America, Gamma Chapter of Tri Beta (Biology), Geology Club, History League, ICE Club, Investment Club, NAFME, Omicron Delta Kappa (leadership and service), Organics Guild, Phi Alpha Theta (History), Pi Sigma Epsilon (Sales/Marketing), Politics Club/Model UN, Pre-Health Club, Psi Chi (Psychology), Psychology Club, SACNAS, Sigma Tau Delta (English), Sociology Club and Sustainability Coalition (Environmental Sustainability), WAPL, Western Water Channel, Wildlife Society.



## LEAD Office

The Leadership, Engagement, and Development (LEAD) Office creates and provides leadership development opportunities and actively engages students into the Western and local community. This office also maintains support for annual programs such as Orientation, Senior Reception, Family Weekend, and Community Clean-up as well as promoting service opportunities. The LEAD Office is located in University Center 118.

## Mountain Rescue Team

The team is a fully certified university-based search and rescue team. They are a highly trained and dedicated group which has gained national attention a number of times for search and rescue work in the surrounding mountains.

## Multicultural Center

This Center exists to offer educational, social, psychological, and emotional support for students from culturally or racially diverse backgrounds, however, the office is open to anyone. Activities help students from diverse backgrounds develop their special talents, aid in the retention of these students, and broaden the cross-cultural understanding of all students, staff, faculty, and the administration. The Multicultural Center is located in the University Center. Housed in the Multicultural Center are five clubs: Amigos, the Asian/ Pacific Islander Club (APIC), Black Student Alliance (BSA), Native American Student Council (NASC), and the Polynesian Dance and Chant club.

## Music Programs

Each semester, programs by the orchestra, chorus, jazz band, and other groups are featured, as well as individual recitals by music faculty members, advanced music students, and guests.

## Peace Corp Prep

Western's Peace Corp Prep program empowers undergraduates to successfully compete for Peace Corps placements anywhere in the world. Participants who complete the program receive certification that they have completed volunteer hours, leadership, and academic preparation in five core competencies required for Peace Corps intercultural fieldwork. Contact the Peace Corps Prep Coordinator in the LEAD Office (University Center 118) for more information.

## Program Council

Each year the Program Council, a student-run organization, sponsors bands, speakers, performers, and other entertainers for concerts and presentations.

## Religious Organizations

Western has several student religious organizations: Christian Challenge, Ignite, Intervarsity Christian Fellowship, Real Talk, and Young Life. In addition, churches of all denominations in the community welcome participation from students.

## Residential Curriculum

The Department of Residence Life at Western Colorado University promotes the well-being of on-campus residents by fostering academic growth and personal success in a safe and inclusive living environment. The Residential Curriculum is the framework upon which we base our work. The Curriculum answers the question, "What do we want students to learn as a result of living in our residential communities?"

The term "residential curriculum" is used to describe an intentional way of promoting learning in college and university residence life and education programs. A residential curriculum, however, is a very specific approach to structuring these learning opportunities.

As a result of living on campus, our goal is to help students become more responsible, empowered, and actively engaged members of Western's inclusive community as well as adhering to the core values of learning, respect, community, integrity and leadership.

## Student Government Association (SGA)

The SGA is Western's student government comprised of representatives from the academic disciplines and from all other student organizations. SGA meets weekly to make decisions on most aspects of student participation in the life and operation of the University, including expenditures of student fees. All students are welcome to attend.

## University Media

Students manage and operate the University newspaper (Top O' the World), radio station (KWSB-FM), and an annual magazine (Western Pathfinder Magazine), and film/video production unit (Mountaineer Media).

## Western Theatre Company

Each year students work in conjunction with communication arts faculty to present five or six full-length theatre productions, including some which are written and directed by students.

## Educational and Career-related Services

### Academic Advising

Western Colorado University places great value on the relationship built between a student and his/her academic advisor. Each freshman is assigned an advisor to assist with course selection, registration, and understanding academic policies and procedures. Any student who needs registration information or advising services may contact the Academic Resource Center (Taylor Hall 300) for assistance or referrals.

### Academic Resource Center

The Academic Resource Center provides the following services:

- **Disability Services.** As the key office for providing resources and academic accommodations for students with disabilities, the Academic Resource Center offers students a variety of services to assist them as they pursue their academic and career goals. Some of these services may include extended time for tests, an alternative testing site, notetakers, accessible technology including screen readers and voice-to-text software, written material in alternate format, and other academic adjustments as appropriate, depending on students' needs. In order to receive services, students must submit appropriate documentation of disability to verify eligibility under Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act.
- **Exploratory Program.** The Exploratory Program is an advising program for students who have not yet declared a major. All Exploratory students will be advised through the Academic Resource Center and will receive tailored assistance regarding declaring a major.
- **International Student Services.** A variety of services are available to international students, such as visa assistance, orientation, advising

on personal and academic matters, employment information, and opportunities to participate in numerous cultural and social activities.

- **Learning Skills Assistance.** The Academic Resource Center staff provides academic counseling to help students develop effective study habits. This assistance, which is offered both individually and through workshops, provides students with skill-building techniques in areas such as textbook reading, memorization, test taking, note taking, organization, and time management. Students wishing to enhance their motivation, develop an understanding of their own individual learning styles, and improve their overall study skills are encouraged to use the Academic Resource Center's resources.
- **National Student Exchange.** The National Student Exchange (NSE) program gives eligible students the opportunity to study at one of over 200 colleges and universities across the United States and its territories for up to one academic year.
- **Study Abroad.** Students are encouraged to take advantage of the many opportunities to study abroad, including programs sponsored by Western and programs offered through other colleges, universities, and agencies.
- **Testing Services.** The Academic Resource Center administers Accuplacer, CLEP, challenge, and correspondence exams by appointment.
- **Turning Point.** Turning Point is a program for students on academic probation. The program is designed to assist students in identifying the cause of their academic difficulty and how to achieve academic success.

## Career Services

Career Services supports students' career development and outcomes through a variety of services and events, including: employer development; résumé and cover letter editing; mock interviews; career, job, and internship fairs; and group and one-on-one career advising.

## Extended Studies

The mission of Extended Studies is to extend Western's educational opportunities for life-long learning. Extended Studies is an integral part of the University. Both credit and non-credit courses are offered, and some classes are offered for graduate credit.

## Information Technology Services

Information Technology Services provides technical resources and support to all constituents of the campus community. This includes computing resources, printing, internet access, telephone services, and electronic support of classrooms. Students will find a learning environment at Western that is enhanced by a variety of computer resources designed to improve the quality of education and to promote active learning. All students are given a Western e-mail and system account which grants them access to the numerous online resources available from the University. These resources include applications, class registration, fee payment, financial aid inquiries, network storage, campus software, and course grades. Access to local and national resources is accomplished via a variety of modern computer laboratories or through a campus-wide wireless network and a high-speed internet connection. The highlight of the services offered to students is the IT Helpdesk, which assists students with all their computing needs, including personal computers, smartphones and game consoles.

## Student Services

The Office of Student Success and the LEAD Office provide a strong support system designed to help students make the most of their

Western experiences. Staff members are readily available to assist students with the wide array of integrated services and programs offered through both offices. The staff also provides helpful connections to other campus resources, such as academic advising and tutoring. Programs connected with the Office of Student Success (TAY 301) and the LEAD Office (University Center 118) include the following:

- **Student Employment.** The LEAD Office provides information about jobs available to Western students. The LEAD Office receives job listings, including work-study positions, from on-campus departments and off-campus employers.
- **Testing Services.** The Office of Student Affairs administers many nationally coordinated exams, including the ACT, LSAT, MPRE, PLACE, and SAT.
- **Student Health & Wellness.** Western Colorado University realizes that student health and wellness is essential to academic, personal and professional success. Our institutional prevention education program takes a holistic approach to wellness and utilizes both primary prevention and risk reduction strategies to address the following areas of concern: Alcohol/Drug use and abuse, Sexual Misconduct, Healthy Relationships, Mental Health, Suicide Prevention, Stress and Anxiety. Western's Health & Wellness offers resources, education, assessment, formalized trainings, engagement opportunities and peer support to those in need. Peer Health Educators (PHEs) part of Student Health & Wellness and exist to help students have a safe and healthy experience while attending Western. To accomplish this goal, PHEs organize alternative activities and awareness campaigns, provide outreach and education, and plans programming to address the varied number of health and wellness issues that exist on university campuses. One unique aspect of the approach is that PHEs encourage positive decision-making and responsible use. The PHEs want to ensure that students are provided the necessary skills, information, and support to make better, healthier, and ultimately more productive decision with respect to drug and alcohol use, sexual behavior and relationships, stress and mental wellness, and overall health. The PHEs collaborate with campus groups to provide education to the entire campus community and partners with GCSAPP and the BACCHUS Initiatives of NASPA to provide a comprehensive approach to prevention and wellness education for Western students.

## Recreational and Athletic Programs

### Club Sports

Club sports provide the opportunity for student-athletes to participate in sporting competitions against other college, university, or club teams. Club sports teams compete against teams across Colorado, the Rocky Mountains, and the United States. Club sports teams include: baseball; women's basketball; figure skating (Co-Rec); men's and women's lacrosse; men's and women's hockey; men's and women's rugby; men's and women's soccer; tennis; and volleyball (Co-Rec).

### Intercollegiate Athletics

Western Colorado University is a member of the Rocky Mountain Athletic Conference, participating under the rules and guidelines of the National Collegiate Athletic Association (NCAA) Division II. The University fields men's teams in football, basketball, cross-country running, track and field (indoor and outdoor), and wrestling. Western's women's teams represent the University in basketball, volleyball, cross-country running, soccer, swimming, and track and field (indoor and outdoor).

## Intramural Program

Western's intramural program is under the auspices of Campus Recreation with funding support from student fees. Organized activities include men's and women's leagues in basketball, flag football, and soccer. There are also coeducational competitions in softball, volleyball, dodgeball, kickball, floor hockey, disc golf, and ultimate frisbee.

## Western Mountain Sports

Western Mountain Sports is a unique program that takes advantage of and leverages the world class opportunities for authentic mountain sports competition that the Gunnison Valley provides. The brainchild of professional mountain biker and Western Alumni, Dave Wiens, Western Mountain Sports is embarking on its eighth year of existence. Western Mountain Sports is competitive mountain biking, skiing, snowboarding, road biking, climbing and trail running. Western mountain bikers compete primarily on the USA Collegiate Mountain Biking circuit sanctioned by USA Cycling. Western skiers and snowboarders compete on a variety of circuits including the United States Collegiate Ski and Snowboarding Association (USCSA) events. Western students have won back-to-back DII Mountain Bike Championships and have consistently placed in the top three of the USCSA Men's/Women's Nordic Team Championships.

## Wilderness Pursuits

Wilderness Pursuits (WP) is a co-curricular, professionally managed outdoor program that provides rafting, kayaking, mountaineering, hiking, skiing, ice climbing, sea kayaking, and cycling adventures throughout Colorado and the Intermountain West at deep discounts. WP also rents state-of-the-art camping, kayaking, backpacking, skiing, snowshoeing, and mountaineering equipment for nominal fees. WP provides resources and information for planning private expeditions such as maps, books, and videos. WP maintains ski and bike shop repair areas with free access to tools and supplies. Students and staff of all abilities are welcome to participate in WP programs. WP also implements contract programs, such as the Wilderness Based Orientation, the Peter Terbush Memorial Outdoor Leadership Summit, and other programs by special arrangements.

## Special Services

### Campus Health Center

The Health Center is organized and staffed to assist students in various ways, including:

- **Counseling Services:** Licensed counselors provide individual, group, marital, and family counseling.
- **Medical Services:** A physician's assistant provides routine and referral medical care.
- **Public Health:** A staff of registered nurses provides family planning services as well as STI testing and counseling.

### Ombudsperson

This service offers assistance or referrals regarding University policies, procedures, and regulations and assists in resolving student-based problems and conflicts. The Ombudsperson is also readily accessible to students as a neutral and informal mediator whose role is to promote fair and equitable treatment at Western.

### Tenderfoot Child and Family Development Center

A fully licensed day-care center for up to 140 children, six weeks to 12 years old.

## Westerners in Transition (WIT)

This program assists women and men of all ages who do not fit into the usual profile of a single student attending the University directly from high school. WIT guides the incoming student in navigating the processes of admissions, financial aid, registration, and other important steps involved in matriculating at Western. Western's staff is committed to assisting WIT students through all of the important steps in their university careers. WIT students will network with other individuals who share their experiences as adult learners and who can provide essential mentoring. The program provides personal advising, mentoring, workshops, a newsletter, networking, leadership opportunities, grants, and scholarships. The WIT Program is located the LEAD Office, University Center 118.

## Student Handbook

Additional student services, policies, and standards of conduct are described in the Student Handbook, available online and published annually by the Office of Student Affairs (<http://www.western.edu/current-students/student-affairs> (<http://www.western.edu/current-students/student-affairs/>)).

## Tuition and Fees

Listed below are the estimated basic costs of attending Western Colorado University during 2019-2020. These costs are subject to change. Costs are presented here for information only.

### Full-time Students

Tuition for:	16-Week Semester	Academic Year
Resident Tuition		
Total Tuition	\$4,587	\$9,174
College Opportunity Fund	(\$1,275)	(\$2,550)
Cost to Student	\$3,312	\$6,624
Non-Resident Tuition	\$9,048	\$18,096

### Part-Time Students

Tuition for part-time students is based on a per-credit charge. The estimated rates for 2019-2020 are \$276 per credit for resident students (after application of the College Opportunity Fund Stipend) and \$754 per credit for non-residents. For tuition purposes, "part-time" is defined as fewer than 12 credits in a 16-week semester.

### Tuition Surcharge

Students enrolled for more than 18 credits in a 16-week semester will pay a tuition surcharge. The tuition surcharge is a per-credit charge at the basic resident or non-resident rate.

### Mandatory Fees (estimated)

Mandatory fees have been approved by the Board of Trustees to pay for special services, including the programs operated by the Student Government Association. The estimated cost of all mandatory fees for a full academic year for 2019-2020 is \$3812.70. Mandatory fees are prorated for part-time students.

School of Business Fee: Students taking courses in the School of Business (Accounting, Business Administration, and Economics) pay a \$45 per credit fee for all non-GE courses.

Students taking lab courses in the natural and social sciences, field-based courses, and student teaching courses in education will have an additional fee assessed. Catalog course descriptions identify the courses with fees.

### Optional Fees (estimated)

The following 2019-2020 optional fees will be assessed to each student's account: Renewable Energy Fee - \$30, Student Recreation Fee - \$200 and Scholarly Activity Fee - \$20. Any or all of these fees may be waived by contacting the Cashier's Office at cashier@western.edu. Student's wishing to waive optional fees must do so by the full term drop deadline. The date of the drop deadline for any given semester can be found by visiting www.western.edu/registrar (http://www.western.edu/registrar/).

### Room and Board Costs (Subject to change)

Western provides students several housing options in a variety of residence halls. Apartments are available to returning students. Below are examples of estimated living expenses for 2019-2020. For a comprehensive list of housing and meal plan fees, please visit http://www.western.edu/current-students/residence-life/room-and-board-rates (http://www.western.edu/current-students/residence-life/room-and-board-rates/)

#### Residence Halls & Apartments

Residence Halls	Fall Semester	Spring Semester	Total Academic Year
Escalante, Mears, Ute - Double	\$2,515.00	\$2,515.00	\$5,030.00
Escalante, Mears, Ute – Single	\$2,930.00	\$2,930.00	\$5,860.00

Apartments	Fall Semester	Spring Semester	Total Academic Year
Chipeta – Single, One Bedroom Apt.	\$3,500.00	\$3,500.00	\$7,000.00
Chipeta – Single, Two Bedroom Apt.	\$3,300.00	\$3,300.00	\$6,600.00
Pinnacles – Double as Single Room	\$3,400.00	\$3,400.00	\$6,800.00
Pinnacles-Single Room	\$3,300.00	\$3,300.00	\$6,600.00
Pinnacles-Double Room	\$3,200.00	\$3,200.00	\$6,400.00

All students residing in University residence halls (non-apartments) are required to purchase a meal plan. It is suggested that students living in apartments carry a meal plan, but it is not required.

#### Meal Plan Choices

Plan Type	Fall Semester	Spring Semester	Total Year
<b>Premier Plans:</b> The Blue Mesa Plan or Mountaineer Plan is required of all freshmen and is available to all students.			
<b>Blue Mesa Plan</b> 19 Meals a week plus \$175 Flex Dollars (to be used exclusively in the Rare Air Café and Mad Jacks).	\$2,560.50	\$2,550.50	\$5,121.00
<b>Mountaineer Plan</b> 15 Meals a week plus \$175 Flex Dollars (to be used exclusively in the Rare Air Café and Mad Jacks)	\$2,337.00	\$2,337.00	\$4,674.00
<b>Crimson Plan<sup>1</sup></b> 10 Meals a week plus \$250 Flex Dollars (to be used exclusively in the Rare Air Café and Mad Jacks)	\$2,064.50	\$2,064.50	\$4,129.00

<sup>1</sup> Available only to second-year students and above.

#### Optional meal plans

The optional meal plans below will only be available to second-year students and above who live in the on-campus apartments or off campus. You may purchase additional plans if you run out during a semester. These plans carry over between fall and spring semester. Plans are non-refundable.

Plan Type	Per Plan
<b>Mountaineer 80</b> Any 80 individual meals in the Rare Air Café plus \$100 flex dollars to be used in the Rare Air Cafe or at Mad Jacks.	\$873.00
<b>Mountaineer 40</b> Any 40 individual meals in the Rare Air Café plus \$50 flex dollars to be used in the Rare Air Cafe or at Mad Jacks.	\$435.00
<b>Mountaineer 20</b> Any 20 individual meals in the Rare Air Café plus \$25 flex dollars to be used in the Rare Air Cafe or at Mad Jacks.	\$218.00

The Mears complex will offer a community kitchen that will be available exclusively to sophomores living in the Mears complex. The use of this



kitchen can supplement your meal plan, as all students living in the Mears complex are required to have at least the Crimson Plan.

## Residence Life Requirement

Information about the online housing selection process will be e-mailed to the student's western.edu official e-mail account beginning in the spring. All first and second-year students are required to live in on-campus housing and purchase a meal plan unless excused by the Housing Appeal Committee for one of the following reasons:

1. the student is married;
2. the student is living with parent(s) or a legal guardian;
3. the student has previously lived on campus for two terms at another institution;
4. the student is at least 21 years of age by the first day of classes.; or
5. the student is an honorably discharged veteran.

## Deposit

A \$250 housing deposit is required to access the housing profile portal. This deposit reserves a space on campus for the academic year. Cancellations must be submitted in writing to the Residence Life office before July 1st for the fall semester and November 17th for the spring semester to receive a full refund of the \$250 housing deposit. After these dates, housing deposits are non-refundable.

## Payment of Charges

Tuition and fees are due on the first day of classes. Students will be mailed a billing statement before the beginning of each semester with an estimate of charges. Western Colorado University will not register a student, release a diploma, provide a transcript, or supply other University services to any current student or former student who has an outstanding financial obligation to the University.

Per state statute, failure to pay a financial obligation to the University when it is due may result in an account being placed with a collection agency with such action reported to a credit bureau. In addition, an account may be charged legally allowable collection charges and attorney fees to help secure payment of the debt owed the University.

## Late Charges

In each of the 16-week semesters and the summer session, a date is established after which payment is considered late. This date is available from the Cashier's Office.

The late charge begins at \$50 for students who do not pay by the due date. Accounts not in good standing by the last day of each semester will be assessed an additional \$50 late charge. Failure to pay the bill on time will result in removal from courses and restricted access to school services.

## Refund of Charges

The following refund policies are in place at Western Colorado University:

When a student officially withdraws from Western (see Academic Policies section on Withdrawal from the University), tuition and fees are refunded according to the following schedule for a full term 16-week semester.

Refund Amount	Time Period
100%	Through the end of the official drop period

50%	For the period between 15% and 25% of the term
25%	For the period between 25% and 50% of the term

Students taking a course(s) in a part of term that ends prior to the end of the full term semester will not receive a refund, in whole or part, once the final meeting time for that course(s) has concluded.

If a student officially withdraws from Western, the housing and meal plan charges will be refunded according to the following schedule:

### Prorated by week through the end of the official drop period

Refund Amount	Time Period
50%	For the period between 15% and 25% of the semester
25%	For the period between 25% and 50% of the semester
0%	For the period after 50% of the semester

Please refer to the Office of the Registrar website for specific dates of the official drop period.

Students who officially withdraw from Western, or who simply stop attending classes, are subject to repaying all or part of any financial aid received, depending on their length of actual attendance.

## Changes in Tuition and Fees

Tuition rates are established each year by the Board of Trustees, and student fees are recommended by the Student Government Association and approved by the Trustees. The University reserves the right to change any of these costs at the beginning of any academic semester.

## Colorado Residency

New students are classified as in-state or out-of-state students for tuition purposes on the basis of information provided on the application for admission and on other relevant forms. Applicants may be required to submit evidence substantiating their claim of in-state eligibility.

To be eligible for a change to in-state status, students must submit petitions with appropriate documentation. The forms, deadline information, and explanation of the Colorado tuition classification statutes are available online.

Tuition classification is governed by Colorado statutes and by judicial decisions that apply to all state-funded institutions in Colorado and is subject to change without notice.

## Undergraduate Courses

### A

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- Anthropology (ANTH) (p. 296)
- Art (ART) (p. 297)

**B**

- Biology (BIOL) (p. 300)
- Business Administration (BUAD) (p. 303)

**C**

- Chemistry (CHEM) (p. 307)
- Communication Arts (COM) (p. 308)
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**E**

- Economics (ECON) (p. 313)
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- Engineering (ENGR) (p. 317)
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- Environment and Sustainability (ENVS) (p. 320)
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**G**

- Geography (GEOG) (p. 325)
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**H**

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**L**

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**P**

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**S**

- Science (SCI) (p. 346)
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## Accounting (ACC)

**ACC 201. Introduction to Financial Accounting. (3 Credits)**

An introduction to the field of accounting with emphasis on corporate financial statements. Financial statements are viewed as a communication device conveying the financial health of a business to interested parties. The objective of this first course is to teach students to read, analyze, and interpret these financial statements. The emphasis is on developing critical thinking and problem-solving skills using accounting concepts. Students are exposed to the steps used by accountants to record, measure, and process financial information. Cash flow analysis is contrasted with the accrual basis of accounting; the concepts of asset valuation and income measurement are discussed. Accounting majors must pass this class with a minimum grade of C. Prerequisites: completion of the College Mathematics Course Requirement with minimum grade of C-, or instructor permission.

**ACC 202. Introduction to Managerial Accounting. (3 Credits)**

An introduction to the preparation, uses, and analysis of common management accounting information. Topics include cost-volume-profit analysis, capital budgeting and present value applications, cash budgets, financial statement analysis, taxes, and management decisions, plus a brief introduction to modern cost accounting, with emphasis on activity-based costing systems. The development of problem-solving and analytical abilities is given primary importance throughout the course. Accounting majors must pass this class with a minimum grade of C. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of C-; and ACC 201 with a minimum grade of C.

**ACC 255. Business Structure and Taxes. (3 Credits)**

Students are provided with information on business structure and how taxation affects each business type. This course is especially helpful for students considering starting their own business but students may find this course helpful in understanding current and future business structures of existing businesses.

**ACC 292. Independent Study. (1-6 Credits)****ACC 297. Special Topics. (6 Credits)****ACC 301. Intermediate Financial Accounting I. (3 Credits)**

Rigorous and comprehensive study of the means by which generally accepted accounting principles are used to generate the publicly-available information disseminated by modern U.S. corporations. Theoretical and practical criticisms and alternatives to current accounting practice are also considered, as is the idea of accounting as an information feedback system that allows individuals and organizations to reshape their environment. In addition, students are exposed to the realities of the economic and political climate surrounding the accounting standard-setting process. Accounting majors must pass this class with a minimum grade of C. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; and ACC 201 with a minimum grade of "C."

**ACC 302. Intermediate Financial Accounting II. (3 Credits)**

Continuation of ACC 301. As the ACC 301-02 sequence progresses, increased emphasis is placed on the relationship of modern accounting and information theory to current accounting practice. In addition, students are expected to develop an insight into the behavioral and economic consequences of the financial reporting process. Accounting majors must pass this class with a minimum grade of C. Prerequisite: ACC 301.



**ACC 320. Advanced Management Accounting. (3 Credits)**

A study of the information needed by managers for planning, control and decisionmaking. Both the tools needed to generate this information and the principles involved in evaluating the information are covered. Topics include: breakeven analysis; product and process costing, including activity-based costing, standard costing and joint costs; cash budgets and forecasting; relevant costs and nonroutine decisions; the direct vs. absorption costing tradeoff; and capital budgeting. The overall level of difficulty in this course is generally consistent with the level of difficulty encountered on typical management accounting problems found on the Uniform CPA Examination. Accounting majors must pass this class with a minimum grade of C. Prerequisites: ACC 202 and ACC 301.

**ACC 340. Accounting Information Systems. (3 Credits)**

A dual-purpose course which explores the theoretical view of information systems, while at the same time exposing the student to actual off-the-shelf accounting software. The course alternates between textbook readings and discussions and several case studies which require the student to create a computerized accounting system for a fictional client. After completing the course, the student is expected to possess the ability to computerize a manual accounting system, to understand system theory underpinnings of accounting information systems, and to have developed a view of the implications of expected technological advances on management information systems in general and accounting systems in particular. Prerequisite: BUAD 220 or CIS 120. Prerequisite or corequisite: ACC 301.

**ACC 350. Income Tax. (3 Credits)**

An introduction to the federal income tax system. Emphasis is on the ways in which the U.S. income tax laws influence personal and business behavior and decision making, and how the tax laws can be used to accomplish various economic and social objectives. Topics covered include an introduction to tax research, principles of income and deduction, tax liability, and tax credits. Individual taxation is the primary focus, but the basic principles apply to most forms of business organization as well. Accounting majors must pass this class with a minimum grade of C. Prerequisite: minimum sophomore standing.

**ACC 365. VITA. (3 Credits)**

Sponsored nationally by the IRS, VITA is the Volunteer Income Tax Assistance program. It involves assisting taxpayers in preparing their state and federal tax returns. Prerequisite: ACC 350 with at least a B- and instructor permission.

**ACC 392. Independent Study. (1-6 Credits)****ACC 397. Special Topics. (1-6 Credits)****ACC 410. Auditing. (3 Credits)**

An introduction to the field of auditing including an examination of the standards and methods used by certified professional accountants when attesting to the fairness of corporate financial statements. Specific topics include the accounting professional code of ethics, generally accepted auditing standards (GAAS), internal controls, sampling techniques, audit planning and specific audit procedures. Government policies concerning auditors' responsibilities for fraud detection are also discussed. Prerequisite: ACC 302.

**ACC 415. Information Technology Auditing. (3 Credits)**

Building on concepts covered in ACC 410 (Auditing), the course emphasizes the process of auditing information technology (IT), IT governance and management, IT acquisition, development and implementation, IT maintenance and support, and protection of IT assets. The course will present tools, concepts, and techniques necessary to properly audit IT. Prerequisites: ACC 340 and ACC 410.

**ACC 450. Advanced Financial Accounting. (3 Credits)**

An overview of the financial accounting theory, practice, problems, and reporting requirements for various economic entities. These include partnerships, foreign branches and subsidiaries, state and local governments, colleges and universities, hospitals, voluntary organizations, and the modern parent/subsidiary corporate structure. The approach taken in this course is that there are common information needs which each of these entities must satisfy. While the specific approach used to satisfy this need is dependent on a variety of factors, the common thread is that useful information is being generated for the consumers of that information. Prerequisite: ACC 302.

**ACC 460. Advanced Income Tax. (3 Credits)**

A continuation of federal income taxation, with emphasis on property transactions, corporations, partnerships, and fiduciaries. A primary objective is decision-making from an after-tax point of view, that is, how taxes affect behavior. Topics include the tax effects of organizing, operating, and liquidating partnerships and corporations. Tax research methodology and the federal estate and gift tax are also covered. Prerequisite: ACC 350.

**ACC 465. VITA Reviewer. (3 Credits)**

Sponsored nationally by the IRS, VITA is the Volunteer Income Tax Assistance program. VITA Reviewer is for students with experience from ACC 365 and involves reviewing tax returns. Prerequisite: ACC 365 and instructor permission.

**ACC 491. Seminar in Accounting. (3 Credits)**

A boardroom approach to problem solving through research, discussion, and analysis.

**ACC 492. Independent Study. (1-6 Credits)**

A singular investigation into a unique problem arrived at between the researcher and the advisor.

**ACC 497. Special Topics. (1-6 Credits)****ACC 498. Accounting Ethics. (3 Credits)**

Investigates and explores the ethical responsibilities faced by professional accountants in all fields. Students will read, discuss, and analyze case studies regarding ethical situations and issues confronted by the accounting profession. The AICPA Code of Professional Conduct will be studied, as well as foundational ethical theory and an approach for identifying and analyzing ethical issues, with a focus on current events. Students are expected to make significant written and oral contributions to the class. This is the capstone course for the Standard Accounting Major and the Professional Emphasis. Prerequisite: senior status.

**ACC 499. Internship in Accounting. (1-6 Credits)**

Experiences designed especially for the uninitiated student. Internships provide guided, counseled, and progressive experience under a dual tutelage program of a businessperson and an academician. Graded Satisfactory/Unsatisfactory only.

## Anthropology (ANTH)

**ANTH 107. Introduction to General Anthropology (GT-SS3). (3 Credits)**

A general introduction to anthropology. All three sub-fields of modern anthropology: cultural anthropology (archaeology and ethnography), physical anthropology, and linguistics are covered. GT-SS3

**ANTH 197. Special Topics. (1-6 Credits)****ANTH 218. Physical Anthropology (with laboratory). (4 Credits)**

An examination of biological variation in modern human populations and biological evolution of humans as shown by the fossil record. Additional course fee applies. Prerequisite: ANTH 107.

**ANTH 219. Archaeology (with laboratory). (4 Credits)**

A study of the methods and theory of modern archaeology. The emphasis is on how archaeologists understand the past. A general chronology of world prehistory is presented. Additional course fee applies. Prerequisite: ANTH 107.

**ANTH 230. Cultural Anthropology (with laboratory). (4 Credits)**

An exploration of ethnographic theory and methods, and a cross-cultural and comparative examination of societies studied by ethnographers. Additional course fee applies. Prerequisite: ANTH 107.

**ANTH 292. Independent Study. (1-4 Credits)****ANTH 297. Special Topics. (1-6 Credits)****ANTH 320. Cultural Ecology. (3 Credits)**

An examination of key perspectives, theories, and methods in the study of ecological anthropology. Students learn about the use and definition of the environment by groups from different cultural backgrounds, and build a comparative perspective in so doing. The focus is on contemporary groups, but archaeological examples are used as comparison and to build time-depth in our understanding of cultural ecology. Prerequisite: ANTH 107 or instructor permission.

**ANTH 322. Analysis of Material Culture (with laboratory). (4 Credits)**

A lab course training students in analytical methods in anthropology. Students are responsible for a major project in which they carry out all phases of anthropological research, including research design, background research, hypothesis, analysis, and presentation of results. Materials studied include lithics, fauna, ceramics, and botanical remains. An excellent preparation for (or follow-up to) the Archaeological Field School. Prerequisite: ANTH 219.

**ANTH 333. Archaeology of Colorado. (3 Credits)**

A detailed look at the archaeological sequences of Colorado with an emphasis on western Colorado. Time periods from Paleo-Indian to Historic are described. This course is a recommended preparatory course for the Archaeological Field School in Colorado or the Archaeological Field Trip. Prerequisite: ANTH 219.

**ANTH 344. Indians of North America. (3 Credits)**

A detailed look at the native people found in North America and their relationships to each other and the non-native settlers of North America. Several case studies are examined in depth. Prerequisite: ANTH 107 or instructor permission.

**ANTH 355. Medical Anthropology. (3 Credits)**

An examination of medical systems from various cultural groups, focusing on beliefs, methods of healing, health practitioners, and medical pluralism. Prerequisite: ANTH 107.

**ANTH 369. Anthropology Field Trip. (1-3 Credits)**

A field study of archaeological and ethnographic cultures in the western United States. Students camp and tour ancient sites, modern Native American towns, and anthropological museums. This course may be taken for a maximum of six credits.

**ANTH 392. Independent Study in Anthropology. (1-4 Credits)****ANTH 397. Special Topics. (1-6 Credits)****ANTH 465. Senior Research Seminar. (3 Credits)**

A study of the history and intellectual growth of anthropology is paired with individual work on student projects, which employ theory and methods discussed in class. Students present their work to the university community. Prerequisite: Senior standing; or instructor permission.

**ANTH 467. Ethnography Field School. (4 Credits)**

A field experience in cultural anthropology in which students are immersed in the culture, traditions, and lifeways of a group of people, learning methods of inquiry and anthropological perspectives through hands-on experiences. This course may be taken for a maximum of eight credits. Prerequisite: ANTH 230 or instructor permission.

**ANTH 469. Archaeology Field School. (4 Credits)**

A field-experience course in which students learn and perform proper field techniques. Some laboratory work may be involved. This course is offered during the summer session and may be taken for a maximum of eight credits. Additional course fee applies. Prerequisites: ANTH 219 or instructor permission.

**ANTH 492. Independent Study. (1-4 Credits)****ANTH 497. Special Topics. (1-6 Credits)**

## Art (ART)

**ART 000. Exhibition and Convocation Attendance. (0 Credits)**

Monthly or bi-monthly department gatherings for presentations by exhibiting artists and scholars, or workshops, which enable students to develop their own work and their understanding of the discipline of art. Art majors are required to register for and attend Art 000 every semester of enrollment towards their Art degree; minimum 6 semesters of Satisfactory grade. Graded Satisfactory/Unsatisfactory only.

**ART 105. Introduction to Art (GT-AH1). (3 Credits)**

An introduction to the visual arts, including consideration of the fundamentals of art making, artistic practice, design, art history, analysis, and interpretation. Students engage with art through a combination of lectures, demonstrations, gallery-based exercises, and/or hands-on studio projects. (Course does not count toward the Art major or minor.) GT-AH1

**ART 119. Foundation Drawing I. (3 Credits)**

A foundation course in drawing with special attention to line, value, perspective, texture, and shape. Landscape, still life, and other forms are used as subject matter. The visual elements and principles of organization in relationship to perceiving both flat and illusionary space are explored. Black and white media are exclusively practiced. Prerequisite: Art major or minor status.

**ART 120. Foundation Drawing II. (3 Credits)**

A foundation course in drawing, placing emphasis on composition. The study of the essential aspects of drawing (such as gesture, contour, proportions, anatomy, structure, textural surface, and articulation) and their synthesis into a coherent drawing attitude. Included in this course is the introduction of drawing the life form and color. Prerequisite: ART 119.

**ART 171. Foundation Design: Two-Dimensional. (3 Credits)**

An introduction to design organization with an emphasis on the exploration of line, value, texture, shape, and color. Prerequisite: Art major or minor status.

**ART 172. Foundation Design: Three-Dimensional. (3 Credits)**

A foundation course in design organization with emphasis on the exploration of mass, texture, process, and techniques in the three-dimensional area. Tools and materials are explored. Prerequisite: Art major or minor status.

**ART 197. Special Topics. (1-6 Credits)****ART 203. Introduction to Ceramics. (3 Credits)**

An introduction to the basic techniques and processes of ceramics: pinch, coil, slab, and some wheelwork. Prerequisites: ART 120, ART 171, and ART 172.

**ART 222. Art History I. (3 Credits)**

A survey of western and non-western art from approximately 30,000 years ago to the 14th century. Works of art and architecture are examined within the cultural and historic context for art-making through world human history. Prerequisite: ENG 102 with a minimum grade of "C", and sophomore or higher status, or instructor permission.

**ART 223. Art History II. (3 Credits)**

A survey of western and non-western art from approximately the 14th century to the present. Works of art and architecture are examined within the cultural and historic context for art-making through world human history. Prerequisite: ENG 102 with a minimum grade of "C", and sophomore or higher status, or instructor permission.

**ART 230. Introduction to Sculpture. (3 Credits)**

An introduction to the various processes of sculpture: carving, modeling, and casting. Aesthetic qualities and craftsmanship of the sculptural forms are emphasized. Prerequisites: ART 120, ART 171, and ART 172.

**ART 235. Introduction to Jewelry. (3 Credits)**

An introduction to the creative use of silver and precious gemstones in the making of jewelry. Design and craftsmanship are emphasized. Prerequisites: ART 120, ART 171, and ART 172.

**ART 246. Introduction to Photography. (3 Credits)**

An introduction to contemporary photographic technique incorporating traditional black-and-white analogue photography alongside digital photographic practice and procedure. Lectures introduce topic areas that the student must exercise in lab sessions. Students must supply their own quality 35mm or 120mm camera. Prerequisites: ART 120, ART 171, and ART 172.

**ART 257. Introduction to Printmaking. (3 Credits)**

An introduction to the basic techniques of printmaking including lithography, woodcut, etching, and the collagraph. Emphasis is on the traditional approaches in printmaking. Prerequisites: ART 120, ART 171, and ART 172.

**ART 270. Introduction to Graphic Design and Illustration. (3 Credits)**

An introductory course utilizing the basic fundamentals of art in a broad base of commercial applications. Design in the areas of corporate identity, packaging, illustration, and typography are explored. Illustration, new techniques, materials, and tools used by the designer are emphasized. Prerequisites: ART 120, ART 171, and ART 172; or ART 171 with a declared minor in Web Design and Development.

**ART 271. Calligraphy/Typography. (3 Credits)**

A study of individual letter forms as design elements that relate to user interface, experience and visual communication. Students can apply skills learned in this class in other areas including interaction and web design. Prerequisites: ART 120, ART 171, and ART 172; or ART 171 and a declared minor in Web Design and Development.

**ART 280. Introduction to Painting. (3 Credits)**

An introduction to oil painting, using basic tools, materials, techniques, and the development of compositional methods. Prerequisites: ART 120, ART 171, and ART 172.

**ART 283. Introduction to Airbrush. (3 Credits)**

Introduction to the use of the airbrush as a tool for painting, drawing, and design. Multiple use of the tool within traditional and non-traditional directions, as well as tool maintenance, are stressed. Prerequisites: ART 120, ART 171, and ART 172

**ART 286. Introduction to Watercolor. (3 Credits)**

An introduction to both the traditional and contemporary methods of watercolor. The various watercolor media are explored. Prerequisites: ART 120, ART 171, and ART 172.

**ART 297. Special Topics. (1-6 Credits)****ART 303. Intermediate Ceramics. (3 Credits)**

An exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 203.

**ART 319. Intermediate Drawing. (3 Credits)**

A study of figure drawing with an emphasis on structure, figure compositions, and portrait studies from the model using various drawing media and techniques. Prerequisite: ART 120.

**ART 321. American Art: Colonial to Modern. (3 Credits)**

A survey of the arts of America from the 17th century to the present. Emphasis is placed on uniquely American innovations and expressions, regional distinctions in American art, with a strong component in art of the American West; significant individual artists and trends; and the arts of the many diverse peoples that comprise America. Prerequisite: junior standing or instructor permission.

**ART 324. Art Criticism and Critical Theory in Contemporary Art. (3 Credits)**

A survey of contemporary art and art practices through the discipline of art criticism. This seminar course prepares students for senior-level courses and advanced studies in art and art history at the graduate level. A survey of modern and contemporary art since the midtwentieth century is followed by seminar presentations on selected readings. Prerequisites: ART 222 and ART 223.

**ART 325. Women Artists. (3 Credits)**

A survey of women artists and their work from the 16th century (Renaissance) to contemporary times. The contributions of women artists and the changing roles of women in the western tradition of the visual arts are examined within relevant historical, political, social, theoretical, and gender contexts. Prerequisite: junior standing or instructor permission.

**ART 330. Intermediate Sculpture. (3 Credits)**

An exploration of the expressive possibilities of individual sculpture direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 230.

**ART 335. Intermediate Jewelry. (3 Credits)**

Designed for exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 235.

**ART 346. Intermediate Photography. (3 Credits)**

An intermediate course that explores the expressive possibilities of individual photography direction with an emphasis placed on digital photographic practices and principles. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 246.

**ART 357. Intermediate Printmaking. (3 Credits)**

An exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 257.

**ART 370. Intermediate Graphic Design. (3 Credits)**

An exploration of digital technology as it relates to visual communications in print, and interactive based design. Students will develop an understanding of design terminology, language and process related to current user interaction applications. Prerequisite: ART 270.

**ART 375. Intermediate Magazine Production. (3 Credits)**

An integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART370 and instructor permission.

**ART 380. Intermediate Painting. (3 Credits)**

An exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 280.

**ART 386. Intermediate Watercolor. (3 Credits)**

Designed for exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 286.

**ART 390. Workshop in Art. (3 Credits)**

A review and critique of advanced problems in art: two-dimensional, three-dimensional, or design. May be repeated for a maximum of nine credits (three per semester). Prerequisites: junior or senior status and instructor permission. Students must have completed 300-level course in their chosen emphasis.

**ART 392. Directed Study. (1-6 Credits)****ART 397. Special Topics. (1-6 Credits)****ART 398. Field Study in Art. (1 Credit)**

A 7-10 day course offered at differing national or international sites by Art faculty. Field study classes offer a variety of educational experiences, including workshops, museum/gallery/artist studio visits, study of art historically significant sites, in combination with course lectures and assignments. May be taken up to three times for credit as an Art elective by Art majors or minors. Prerequisite: students must have taken minimally one university-level Art course.

**ART 400. Artist's Portfolio/Senior Exhibition. (3 Credits)**

A Capstone Course in which students develop a portfolio of recent work which enhances preparation for the Senior Exhibition, a career in art, gallery representation, or application to graduate school. Prerequisite: senior standing.

**ART 403. Advanced Ceramics I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 303.

**ART 404. Advanced Ceramics II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 403.

**ART 405. Advanced Ceramics III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual ceramic direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 403.

**ART 419. Advanced Drawing. (3 Credits)**

An advanced study in figure drawing with emphasis on the figure, expanding visual awareness by developing control of drawing as a tool for research and invention. Problems progress from simple structural analysis to more sophisticated exploration of subject matter, and finally to individual interpretation. Prerequisite: ART 319 and B.F.A. candidate.

**ART 421. Art of Mesoamerica and the Andean of South America. (3 Credits)**

A survey of the arts of the Pre-contact civilizations in Middle America and the Andes. The art and architecture of these ancestral peoples are examined within their cultural contexts. Prerequisite: junior standing or instructor permission.

**ART 422. Native American Art of North America. (3 Credits)**

A survey of the arts of the indigenous (First Nations) civilizations of North America, from antiquity to the present era. The art and architecture of these peoples and artists are examined contextually. Prerequisite: minimum junior standing or instructor permission.

**ART 424. Modern Art History, Aesthetics, Theory, and Criticism. (3 Credits)**

An exploration of trends and developments in the Western tradition of the visual arts from the mid-nineteenth century to the present, considering Modernism, Post-Modernism, and recent tendencies. The visual arts of these periods are viewed through the lens of theories and ideas that have powered change in Western art, including current revisionist and theoretical considerations in Art and Art History. Prerequisite: minimum junior standing or instructor permission.

**ART 430. Advanced Sculpture I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 330.

**ART 431. Advanced Sculpture II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 430.

**ART 432. Advanced Sculpture III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual sculptural direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 431.

**ART 435. Advanced Jewelry I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 335.

**ART 436. Advanced Jewelry II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 435.

**ART 437. Advanced Jewelry III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual jewelry direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 436.

**ART 446. Advanced Photography I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 346.

**ART 447. Advanced Photography II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 446.

**ART 448. Advanced Photography III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual photography direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 447.



**ART 457. Advanced Printmaking I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 357.

**ART 458. Advanced Printmaking II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 457.

**ART 459. Advanced Printmaking III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual printmaking direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 458.

**ART 470. Advanced Design and Illustration I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 370.

**ART 471. Advanced Design and Illustration II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 470.

**ART 472. Advanced Design and Illustration III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual graphic design direction. Students collaborate with the instructor to plan a suitable and particular direction of study. Prerequisite: ART 471.

**ART 475. Advanced Magazine Production I. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 375 and instructor permission.

**ART 476. Advanced Magazine Production II. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 475 and instructor permission.

**ART 477. Advanced Magazine Production III. (3 Credits)**

An advanced integration of journalism and art course work into a study of magazine production. Faculty supervise students in design and production work leading to the publication of the Western Pathfinder Magazine, in both print and online versions. Prerequisite: ART 476 and instructor permission.

**ART 480. Advanced Painting I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisites: ART 380.

**ART 481. Advanced Painting II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 480.

**ART 482. Advanced Painting III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual painting direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 481.

**ART 486. Advanced Watercolor I. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisites: ART 386.

**ART 487. Advanced Watercolor II. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 486.

**ART 488. Advanced Watercolor III. (3 Credits)**

An advanced exploration of the expressive possibilities of individual watercolor direction. Students collaborate with the instructor to plan a suitable and particular direction for study. Prerequisite: ART 487.

**ART 490. Workshop in Art. (3 Credits)**

A review and critique of advanced problems in art: two-dimensional, three-dimensional, or design. May be repeated for a maximum of nine credits (three credits per semester). Prerequisites: senior standing and instructor permission. Students must have completed a 400-level course in chosen emphasis.

**ART 491. Seminar in Art. (3 Credits)**

An investigation and evaluation of contemporary topics in art. Students are exposed to artistic expression through visiting artist programs, exhibitions, and workshops. Students develop individual research topics. Prerequisites: B.F.A. candidate and senior standing.

**ART 492. Directed Study. (1-6 Credits)**

Individualized instruction for advanced students who have taken all the courses in a particular art area and wish to pursue the area further. Prerequisite: junior or senior status with at least 15 credits in Art.

**ART 497. Special topics. (1-6 Credits)****ART 499. Internship in Art. (1-12 Credits)**

Supervised practical experiences in art for advanced students. With faculty approval, credit earned in this course may be applied to the Major or Minor in Art. Prerequisite: instructor permission.

## Biology (BIOL)

**BIOL 120. Studies in Biology (GT-SC2). (3 Credits)**

An introduction to selected biological topics and the methods of science through an exploration of current topics such as evolution, bioethics and conservation biology. Students may only take this course once for credit. GT-SC2

**BIOL 130. Environmental Biology (GT-SC2). (3 Credits)**

An introduction to basic biological principles as they apply to interactions between organisms and their environment. Consideration is given to biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics, and evolution with a special emphasis on human impacts on these biological systems. This course establishes a strong foundation in applied biology from a scientific perspective. GT-SC2

**BIOL 135. Environmental Biology Laboratory (GT-SC1). (1 Credit)**

An experimental approach in both the field and laboratory to explore fundamental biological principles including biotic and abiotic interactions, energy flow, biogeochemical cycling, population growth, biodiversity, basic cell biology, genetics and evolution. Additional course fee applies. Prerequisite or corequisite: BIOL 130. GT-SC1

**BIOL 150. Biological Principles (with laboratory) (GT-SC1). (4 Credits)**

An introduction to the central unifying concepts of biology including the biochemical foundations of life, cell structure and function, cell metabolism, genetics, and evolution. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English. GT-SC1

**BIOL 151. Diversity and Patterns of Life (with laboratory). (4 Credits)**

An overview of organismal diversity and evolution. Through a taxonomic survey, students are introduced to prokaryotic and eukaryotic diversity and evolution including microorganisms, fungi, plants, and animals. Fundamentals of evolution including the history of life, evidence for common ancestry, mechanisms of evolutionary change, and speciation are covered. Organismic structure, function, and ecology are also explored. Laboratories introduce students to the process and methods of science through investigative experiences. This course is designed for the science major. A year of high school biology and a year of high school chemistry are highly recommended. Additional course fee applies. Prerequisites: University Entry-Level Expectations met for mathematics and English.

**BIOL 197. Special Topics. (1-6 Credits)****BIOL 200. Environmental and Public Health (GT-SC2). (3 Credits)**

An appraisal of man's surroundings which influence his health, including an introduction to the societal structure designed to cope with health problems. Of particular benefit to those who plan to major in the social sciences or enter the field of public health. GT-SC2

**BIOL 201. Introduction to Microbiology (with laboratory). (4 Credits)**

A study of the basic aspects of microbiology for allied health students that includes an introduction to the identification, physiology, growth and control of microbes. Laboratory exercises will emphasize aseptic, pure culture, and identification techniques. This course can only be used to fulfill graduation requirement for students in the allied health biology emphasis. Additional course fee applies.

**BIOL 292. Independent Study. (1-4 Credits)****BIOL 297. Special Topics. (1-6 Credits)****BIOL 300. Basic Nutrition. (3 Credits)**

An introduction to the science of human nutrition. Consideration is given to the chemical nature and functions of the major groups of nutrients, the function of the digestive system, energy metabolism and balance, weight control, and nutrition for fitness. Human nutrition during the life span is also addressed. Prerequisites: BIOL 150; and CHEM 101 or CHEM 111.

**BIOL 301. General Ecology. (3 Credits)**

An introduction to basic ecological principles and their relationships to natural systems. Human impact on the natural systems is assessed. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: COM 202.

**BIOL 302. Ecology Laboratory and Recitation. (2 Credits)**

An experimental approach in both field and laboratory to explore fundamental ecological principles. Students gather and analyze data to address ecological hypotheses, learn practical ecological skills (performing field techniques, using statistical and graphical tools, and interpreting ecological software), and develop oral and written communication skills. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and CHEM 113. Prerequisite or corequisite: BIOL 301.

**BIOL 310. Cell Biology. (3 Credits)**

An introduction to cellular function and structure. Prerequisites: BIOL 150 and BIOL 151. Prerequisite or corequisite: CHEM 231 or CHEM 331; and COM 202.

**BIOL 312. Genetics (with recitation). (4 Credits)**

A course in Mendelian inheritance, linkage, chromosomal aberrations, molecular genetics, gene regulation, genetic engineering, and population genetics. Prerequisites: BIOL 301, BIOL 310, CHEM 231, and CHEM 234; or CHEM 331.

**BIOL 313. Cell and Genetics Laboratory. (2 Credits)**

An introduction to experimentation and laboratory techniques used in cell biology, physiology, and genetics, including experimental design, data analysis, and presentation of research results. Additional course fee applies. Prerequisite or corequisite: BIOL 312.

**BIOL 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. BIOL 317 and MATH 317 cannot both be taken for credit. Prerequisites: BIOL 312 and MATH 213.

**BIOL 320. Ornithology (with laboratory and recitation). (4 Credits)**

An introduction to the study of bird evolution, ecology, and conservation. This course has a strong field component providing frequent opportunities to observe birds in their native environments. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission

**BIOL 322. Mammalogy (with laboratory and recitation). (4 Credits)**

An introduction to the study of mammal taxonomy, evolution, ecology and conservation. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 327. Field Entomology (with laboratory). (4 Credits)**

An introduction to the world of the most diverse and abundant form of animal life on Earth through an experiential, field, and laboratory class. The course emphasizes field study, collection and preservation, identification, ecology, and natural history. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 342. Microbiology (with laboratory). (4 Credits)**

An introduction to microbial morphology, identification, physiology, genetics, and microbiology laboratory techniques. A brief consideration is given to fungi. Additional course fee applies. Prerequisites: Biology Nucleus

**BIOL 352. Botany (with laboratory). (4 Credits)**

Using field and laboratory experiences this course explores the diversity within the plant kingdom using a comparative approach to examine evolutionary trends and relationships. Students are introduced to the structure and function of plants through an investigation of plant cells, tissues, organs, and basic physiological processes. Economic importance, human uses, and significance of plants to society are emphasized. Additional course fee applies. Prerequisites: BIOL 150, BIOL 151, and ENG 102; or instructor permission.



**BIOL 353. Rocky Mountain Flora. (3 Credits)**

A field and laboratory course focusing on identification of flowering plants common to the Western Slope of the Colorado Rocky Mountains. This course covers methods of plant collection and preservation, field identification, natural history, and ecology as well as local plants of particular human interest, including those that are medically important, edible, and poisonous. Additional course fee applies. Prerequisites: BIOL 150 and BIOL 151; or instructor permission.

**BIOL 355. Spring Fungi Rocky Mountains (with laboratory). (3 Credits)**

An introduction to the enigmatic kingdom of Fungi. Fungal classification, life cycles, morphology, development, symbioses, and ecological and economic significance will be explored through lecture, lab, and field experiences. Methods of fungal collection, preservation, and identification will be covered with a focus on spring and snowbank fungi of the Rocky Mountains. Prerequisites: BIOL 150 and 151.

**BIOL 362. Evolution. (3 Credits)**

This course provides a comprehensive overview of evolutionary processes, mechanisms, and analytical techniques. Topics include population genetics, conservation genetics, phylogenetic analysis, adaptation, behavioral evolution, sexual selection, and speciation. Evolutionary perspectives in human health and medicine, conservation biology, agriculture, natural resource management, biotechnology, global change, and emerging diseases are considered. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or Both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 372. Human Anatomy and Physiology I (with laboratory). (4 Credits)**

An introduction to regulatory mechanisms which maintain normal body function. Specific topics include cytology, histology, integumentary system, skeletal system, muscular system, and nervous system. The course is designed for pre-nursing and exercise and sport science students. Additional course fee applies. Prerequisites: BIOL 150; CHEM 231 or CHEM 111.

**BIOL 373. Human Anatomy and Physiology II (with laboratory). (4 Credits)**

A continuation of BIOL 372 Human Anatomy and Physiology I. Specific topics include immunology, cardiovascular system, respiratory system, digestive system, excretory system, reproductive system, and endocrine system. Additional course fee applies. Prerequisite: BIOL 372.

**BIOL 392. Independent Study in Biology. (1-4 Credits)**

A study in a specific area of biology under the direction of a faculty member. May be taken for a maximum of four credits. Graded Satisfactory/Unsatisfactory only.

**BIOL 397. Special Topics. (1-10 Credits)****BIOL 398. Biology Teaching Practicum. (1 Credit)**

Under faculty supervision, students participate in the development of laboratory and field experience exercises, as well as in their instruction and execution. Specifically designed for students serving as teaching assistants in Biology. May be taken for a maximum of 3 credits. Graded Satisfactory/Unsatisfactory only. Prerequisite: Biol 150, Biol 151, and instructor permission

**BIOL 420. Molecular Biology (with laboratory). (4 Credits)**

A study of the molecular mechanisms by which cellular processes are controlled in prokaryotic and eukaryotic cells. Topics include the biochemistry of macromolecular processes, the structure of genes and chromosomes, the genetic and molecular techniques used to study gene expression, and the transcriptional and translational control of gene expression. The laboratory includes recombinant DNA techniques to manipulate the genome of a model organism. Additional course fee applies. Prerequisites: BIOL 312 and CHEM 471.

**BIOL 430. Wildlife Ecology and Management (with laboratory). (4 Credits)**

Principles of ecology are applied to population and habitat management towards wildlife conservation. Tools used by wildlife biologists to restore endangered species, harvest sustainable populations, reduce overpopulated species, and to monitor and study populations are emphasized. Habitat management approaches are discussed, along with human dimensions in wildlife conservation. A field component allows students to investigate wildlife populations and habitat issues in the Gunnison Basin. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 431. Wildlife Techniques Workshop. (1 Credit)**

A one week intensive field course focuses on wildlife conservation issues and wildlife management techniques such as trapping and marking wildlife, radio telemetry, population monitoring, GPS and GIS, and wildlife conflict resolution. The course includes a trip outside the basin; a field trip course fee is required. This course meets the week prior to the start of the fall semester. Prerequisite: BIOL 301 or instructor permission. Co-requisite: BIOL 430.

**BIOL 435. Animal Behavior. (3 Credits)**

An introduction to the study of animal behavior. This course emphasizes the importance of ecology and evolution in understanding animal behavior. Prerequisites: Biology Nucleus or instructor permission.

**BIOL 440. Conservation Biology. (3 Credits)**

This course addresses the reduction in biological diversity of the planet and suggested solutions to prevent further reduction. Integrating themes are drawn from scientific disciplines such as population genetics, ecology, evolutionary biology, botany, zoology, molecular biology, biochemistry, and wildlife management. Prerequisites: BIOL 312; or ENVS 350, ENVS 370, ENVS 390, and either BIOL 151 or both BIOL 130 and BIOL 135; or instructor permission.

**BIOL 444. Colorado Ecoregions. (3 Credits)**

A survey of the three main ecoregions of Colorado including the Great Plains, the Southern Rocky Mountains, and the Colorado Plateau. Students travel throughout Colorado and explore the ecology and natural history of the ecosystems by hiking, backpacking, and river rafting. Content includes an evolutionary perspective on ecosystem features and the adaptations of species characterizing each system, as well as applied issues in natural resources management. Additional course fee applies. Prerequisite: BIOL 301 or instructor permission.

**BIOL 454. Developmental Biology (with laboratory). (4 Credits)**

An examination of the embryology of vertebrates, stressing mammalian embryonic development and comparisons with amphibians, reptiles, and birds. Additional course fee applies. Prerequisites: Biology 312.

**BIOL 467. Fisheries Biology. (3 Credits)**

An introduction to the science underlying fisheries and their management. Topics will include the morphology, evolution, ecology, behavior and conservation of fishes, including experimental design, data analysis and communication of results focusing primarily on freshwater fisheries and common fishes of Colorado. Marine fisheries will be covered briefly. Prerequisites: BIOL 301 or instructor permission.

**BIOL 474. Comparative Animal Physiology (with laboratory). (4 Credits)**

An analysis of function in invertebrates and vertebrates, utilizing an environmental approach and emphasizing evolutionary trends in physiological systems. Prerequisites: Biology Nucleus and PHYS 140 or PHYS 170 or PHYS 200.

**BIOL 476. Aquatic Ecology (with laboratory). (4 Credits)**

A study of physical, chemical, and biological parameters of lakes and streams in the functioning of freshwater eco-systems. Additional course fee applies. Prerequisites: Biology Nucleus and SCI 202; or instructor permission.

**BIOL 477. Plant Ecology (with laboratory). (3 Credits)**

An introduction to plant populations and communities, including their role with interterrestrial ecosystems. Additional course fee applies. Prerequisites: Biol 301; or instructor permission

**BIOL 481. Forest Ecology (with laboratory). (4 Credits)**

Ecology of forest species, communities, landscapes, and ecosystems, with a focus on the Gunnison Basin. Topics include tree physiology, species interactions, fire and disturbance, succession, forest types, climate, forest management and restoration. Labs and field trips will provide hands-on experience and practical skills in tree identification, forest mensuration, vegetation sampling, statistics and GIS. Students will develop and conduct independent/group research projects. Additional course fee applies. Prerequisites: BIOL 301, MATH 213

**BIOL 492. Independent Study. (1-4 Credits)****BIOL 495. Senior Seminar. (1 Credit)**

An examination of biological subdisciplines through an investigation of the primary literature. The professional practices, procedures, and standards of the subdiscipline are discussed. This course may be repeated for credit and must be taken twice to fulfill the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 496. Senior Thesis. (2-4 Credits)**

An advanced research experience resulting in a Senior Thesis, supervised by a thesis committee of three faculty members including at least one biologist. A proposal of the project must be approved by the thesis committee prior to project initiation. In addition to completing the written thesis, students must present the results of their work in a departmental seminar. This course satisfies the capstone course requirement. Prerequisites: Biology Nucleus; and MATH 151 or MATH 213.

**BIOL 497. Special topics. (1-6 Credits)**

## Business Administration (BUAD)

**BUAD 100. Business in Society. (3 Credits)**

A study of the role of business in modern society. Topics include the private enterprise system, consumerism, management functions, major functional areas of large business, vital areas of small-business operation, and the environment of business.

**BUAD 101. Business of Life. (3 Credits)**

This course helps students begin building the foundations of four critical life skills: economic decision making, managing personal finances, personal branding and creating change. Students learn the basics of objective decision making, managing budgets and filing income taxes, creating and projecting a personal image, and using creativity and innovation within organizations and personal lives.

**BUAD 150. Introduction to Hospitality. (3 Credits)**

An introduction to hospitality management, including historical developmental patterns, current business trends, and future international expectations. Current job market, working environments, personal risks, and rewards are explored.

**BUAD 185. Business Communication. (3 Credits)**

A study of the fundamentals, principles, and practices of effective written communication, including concepts of appearance, language, and psychology of tone and persuasiveness as applied to the business letter, memorandum, email, spreadsheet, and report. Presentation skills are also discussed and practiced. Prerequisites: ENG 102 with a minimum grade of "C-".

**BUAD 197. Special Topics. (1-6 Credits)****BUAD 202. Energy Management Professional Development. (1 Credit)**

Designed specifically for Energy Management students. It is intended to provide students with hands on, real world professional awareness. Prerequisite: Instructor permission

**BUAD 206. Personal Finance. (3 Credits)**

Designed to help students plan the handling of their finances in everyday business transactions. Topics include budgeting, credit, savings, insurance, income tax, investments, and estate planning.

**BUAD 210. Legal Environment of Business. (3 Credits)**

Provides students an ability to sense the occasions when a lawyer should be consulted for guidance in avoiding legal mistakes. A study is made of the ordinary legal aspects of common business transactions, including the topics of social forces, contracts, personal property, and agency.

**BUAD 220. Spreadsheets and Analysis. (3 Credits)**

Students learn to utilize spreadsheets to organize, manipulate, analyze, and present data and information in business settings.

**BUAD 230. Evolution of the Oil Economy. (3 Credits)**

Studies the evolution of global oil and gas development and its economic and geopolitical effects. The relationships between oil technology, economics, social and political institutions, and the unique cultures in oil-producing regions are investigated. Additionally students study a multi-disciplinary approach to understanding how oil affects economic development and commerce.

**BUAD 240. Strategic Negotiations. (3 Credits)**

Merges theory with practice, offering students a hands-on opportunity to learn negotiation and communication skills. Students study how to develop personal negotiation plans and preparation methods, analyze other parties' interests, identify and implement solutions for mutual gain, communicate effectively, and successfully draft agreements. Students practice and refine both their personal and professional negotiation and communication skills using realistic mock scenarios to negotiate, compose, and evaluate agreements. Prerequisite: COM 202 with a minimum grade of "C-".

**BUAD 270. Principles of Marketing. (3 Credits)**

An introduction to the fundamental concepts of marketing, including consumer demand and behavior, segmentation, advertising, marketing research, product development, distribution, pricing, the internet as a marketing agent, and global marketing issues. The student is exposed to the most basic tools, factors, and marketing principles administered by management in establishing policy, planning, and complex problem solving. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 24 credits; or instructor permission.

**BUAD 275. Innovation, Creativity and Entrepreneurship: Mindset (ICE: Mindset). (3 Credits)**

The ICE mindset comprises the underlying beliefs and assumptions that drive the behavior enabling people to create positive change. This course takes the approach that anyone (not just those who want to start businesses) can benefit from understanding and applying an innovative, creative, and entrepreneurial mindset to any situation that demands change in their life. Students are immersed in learning about the fundamental aspects of an ICE mindset and the unlimited opportunities it can provide.

**BUAD 292. Independent Study. (1-6 Credits)****BUAD 297. Special Topics. (6 Credits)****BUAD 299. Internship. (3 Credits)**

A course designed specifically for freshmen- and sophomore-level students. Internships provide guided, counseled, and progressive experience under a dual-tutelage program of a businessperson and an academician. An academically monitored activity to assure quality experience. Graded Satisfactory/Unsatisfactory only.

**BUAD 300. Business Ethics. (3 Credits)**

A study of how ethics apply to business organizations today. Special emphasis is placed on developing moral reasoning. The course provides multiple perspectives on actual cases and ethical dilemmas faced by organizations with an emphasis on allowing students to think through ethical problems. Topics studied include moral philosophies, moral agency and development, ethical underpinnings of free markets and economic systems, and ethical concerns with the environment, future generations, and other stakeholders such as employees and consumers. Prerequisites: completion of Base Curriculum; BUAD 185 or COTH 202; or instructor permission.

**BUAD 301. Topics in Business Administration. (1-6 Credits)**

Provides an opportunity for students to examine current issues, topics, problems, and trends within the field.

**BUAD 302. Energy Management Professional Development II. (1 Credit)**

Designed specifically for Energy Management students. It is intended to provide students with hands on, real world professional awareness. Prerequisite: Junior or senior standing and instructor permission.

**BUAD 305. Applied Energy Seminar. (3 Credits)**

Introduction to the energy industry, including fossil fuel and renewable energy use and development. Explores topics including global energy production and consumption, energy efficiency, infrastructure, grid systems and transmission, and environmental and social impacts of energy development with an emphasis on regulation, policy, and the oil and gas industry. Prerequisite: COM 202.

**BUAD 311. Business Analytics. (3 Credits)**

This course covers managerial statistical tools in descriptive and predictive analytics, including regression. Other topics covered include forecasting, risk analysis, simulation, data mining, and decision analysis. Prerequisites: BUAD 220 or CS 120; ECON 216 or MATH 213.

**BUAD 315. Business Law. (3 Credits)**

Study includes: legal attributes of different business entities, employment and agency, intellectual property, securities, antitrust, sales, products liability, secured and unsecured lending, suretyship, bankruptcy, and real and personal property. Prerequisite: BUAD 210.

**BUAD 320. Property and Contracts. (3 Credits)**

An introduction to basic property and contract law with a focus on land management. Topics include the basic rules of contract and real property law, the land survey systems, legal descriptions, recording statutes, public records examination, surface and mineral ownership, interest types in property, concurrent estates, calculating ownership and revenue associated with mineral development, methods of acquiring property, conveyancing, title research, mineral leasing, and ethics. Prerequisite: BUAD 210.

**BUAD 321. Oil and Gas Agreements. (3 Credits)**

Introduces the preparation, negotiation, and drafting of contracts and agreements used in land management and the petroleum industry. This course covers the knowledge and skills a petroleum land professional is expected to exhibit in drafting and negotiating commonly used contracts with a focus on upstream agreements including but not limited to: oil and gas leases, surface use agreements, farmout agreements, AMI's, joint operating agreements, master service agreements, seismic agreements, pooling agreements, purchase and sale agreements, and exchange agreements. Prerequisites: BUAD 320; or instructor permission.

**BUAD 322. Financial Planning. (3 Credits)**

An exploration of the fundamental issues of financial planning. Students gain an understanding of the concepts of the financial planning process, the economic environment, the time value of money, the legal environment, financial analysis, and ethical and professional considerations in financial planning. Prerequisite: Completion of Base Curriculum.

**BUAD 325. Management Information Systems. (3 Credits)**

A study of how managers can and should be involved with systems planning, development, and implementation; what information systems resources are available to managers for decision support; and how information and technology can be used to support business strategy. Also, this course takes a managerial approach to information systems concepts and applications in business, while exposing the student to various types of software in the business sector. Prerequisite: BUAD 220 or CIS 120.

**BUAD 327. Social Media Marketing. (3 Credits)**

Students build their social media marketing skills by utilizing projects that give students hands on experience implementing social media marketing strategies. Upon completion, students should be able to use social media technologies to create and improve marketing efforts for businesses. Prerequisite: BUAD 270.

**BUAD 331. Food and Beverage Management. (3 Credits)**

Prepares students for management of sales, food cost controls, beverage cost controls, labor, personnel, sanitation, and market analysis as they relate to the resort industry. Prerequisites: completion of Base Curriculum; BUAD 150; or instructor permission.

**BUAD 332. Rental and Retail Management. (3 Credits)**

An introduction to operating rental and retail-profit centers as part of a corporation involved in the resort industry. Topics covered include managing personnel, equipment, training, traffic flow, buying, forecasting, and accounting. Prerequisites: completion of Base Curriculum; BUAD 150; or instructor permission.

**BUAD 333. Organizational Behavior. (3 Credits)**

Provides students an understanding of human behavior in organizations today. Students will become familiar with the basic dimensions of organizational behavior covering topics such as leadership, motivation, management of people, and group dynamics. The course stresses an experimental approach as well as the personal nature of the material and how this relates to the complexities of behavior in and of organizations. Prerequisite: BUAD 185 or COM 202; or instructor permission.

**BUAD 334. Lodging Operations. (3 Credits)**

A focus on organizational structure and front office positions. Topics covered include reservation, registration and rooming process; management, financial, and policy control procedures; and organization, staffing, and functions of housekeeping departments Prerequisite: completion of Base Curriculum; BUAD 150; or instructor permission. Class will be held at Crested Butte Mountain Resort.

**BUAD 335. Marketing Communications. (3 Credits)**

Advertising, sales promotions, media utilization, public relations, and personal selling are highlighted in this course. Legal regulations and ethical considerations in mass media advertising and promotions are also covered. Finally, the student is exposed to the principles of planning and budgeting for such media events. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ACC 201 with a minimum grade of "C"; BUAD 270; or instructor permission.

**BUAD 337. Hospitality Law and Risk Management. (3 Credits)**

Provides an awareness of the rights and responsibilities that the law grants to or imposes upon a hotelkeeper and illustrates the possible consequences of failure to satisfy legal obligations. Also included is risk management as a means of mitigating exposure to lawsuits and fines. Prerequisites: BUAD 150; BUAD 210; or instructor permission.

**BUAD 340. Global Business. (3 Credits)**

An advanced course with application of management and marketing principles to the inter-national marketplace. Cultural, political, and geographic differences are analyzed in order to develop market strategies for global markets. Prerequisite: BUAD 185 or COM 202; or instructor permission.

**BUAD 342. Environmental Law. (3 Credits)**

An introduction to the history, principles, and enforcement of environmental law with a focus on certain major environmental laws, including the National Environmental Policy Act, Clean Air Act, Clean Water Act, and other laws, acts, and policies. Certain hot topics in natural resource law are also addressed. Students recognize the interplay between environmental laws and various industries, including the energy industry. Prerequisite: BUAD 210.

**BUAD 343. Sales I. (3 Credits)**

A focus on the habits, thinking, perspective and skills needed to understand professional selling. Students learn the SPIN model and engage in significant amounts of presentation practice and skills building. Students will choose a company, product or service to serve as their role play model for the semester. Prerequisite: BUAD 270.

**BUAD 345. Consumer Behavior. (3 Credits)**

Utilizing theories from the behavioral sciences, this course provides an in-depth examination of the individual customer learning and decision-making processes, segmentation, as well as culture, subculture, and social class relationships with marketing. Students develop an understanding of consumers' shopping behavior, utilization of different marketing channels, perception of products, and reactions to advertising and other selling methods. Prerequisites: completion of Base Curriculum; BUAD 270; or instructor permission.

**BUAD 350. Human Resource Management. (3 Credits)**

Provides students with an understanding of the functions, content and challenges of Human Resource Management (HRM) in organizations today. Insights will be developed on basic dimensions of HRM such as recruitment, selection, performance management, rewards and retention, as well as particular challenges concerning strategic HRM and global environments. Emphasis is placed on how the complexities of HRM relate to students' past and future experiences as members of organizations. Prerequisites: BUAD 185 or COM 202 or instructor permission.

**BUAD 360. Managerial Finance. (3 Credits)**

An introductory course to the field of managed finance, covering such topics as financial analysis, time value of money, risk/return analysis, capital budgeting, working capital management, cost of capital, optimal capital structure. Prerequisites: Completion of Business Administration Base Curriculum; or Energy Management Base Curriculum; or instructor permission.

**BUAD 363. Business and the Environment. (3 Credits)**

A focus on the impact on the environment of human presence and absence. There is a consideration of various 'green practices' that result in both positive environmental impacts and cost savings to industry, and examination of governmental initiatives regarding various business practices and their expected impacts on the environment, on businesses' bottom lines, and on consumers. Course material emphasizes videos, readings, and guest lectures. Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 370. Exploration Production Processes. (3 Credits)**

Provides students with an introduction to engineering in exploration and production, focusing on oil and gas upstream and midstream engineering processes and their interface with land functions. Concepts discussed in this course include: seismic, exploration, well-site selection and preparation, drilling, wellbore integrity, completions, hydraulic fracturing, facilities, separating, treating, processing, transportation, pipelines, and well-site reclamation. Prerequisites: BUAD 305. Prerequisite or corequisite GEOL 101 and GEOL 105; or instructor permission.

**BUAD 375. Innovation, Creativity, and Entrepreneurship: Toolkit (ICE: Toolkit). (3 Credits)**

This course helps students identify and frame business and other societal problems that are characterized by complexity, uncertainty, volatility, and ambiguity. Students learn to think problems through by understanding the situation and framing problems in new ways that might alter how they generate and evaluate solutions. Prerequisite: ACC 201; BUAD 275; or instructor permission.

**BUAD 380. Commercial Lending & Credit Analysis. (3 Credits)**

The study of the principles of commercial lending to corporate customers by commercial banks. The course will examine the 5 "C's" of credit, (Character, Capacity, Collateral, Conditions, and Capital), as well as the complete commercial lending function with emphasis on the analysis of corporate financial statements to determine the creditworthiness of commercial loan requests. Special emphasis will be placed on asset-based lending facilities, valuation of collateral, the collection of credit information and its analysis, and the risk-based pricing of commercial loans. Prerequisite: BUAD 360.



**BUAD 382. ICE: Make. (3 Credits)**

An introduction to prototyping - the stage of innovation where ideas come to life. Building prototypes is a low-cost and risk-averse way to get ideas into the hands of the appropriate people. This is an intensive, hands-on learning experience that will equip students to prototype products, services, interactions, and environments. Students learn methods that innovators use to quickly build prototypes, learn best practices for testing those ideas in the field, and collecting real user feedback to iterate efficiently. Prerequisite: BUAD 275.

**BUAD 384. Sales II. (3 Credits)**

An extension of Sales I that focuses on the habits and tools professional sellers in the marketplace. Students engage in significant amounts of presentation practice and skill building. In addition to practice, students will be involved in "real" selling experiences at various times during the semester. Prerequisite: BUAD 343.

**BUAD 392. Independent Study. (1-6 Credits)****BUAD 397. Special Topics. (6 Credits)**

Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 402. Commercial Bank Management. (3 Credits)**

The study of the various risks banks face, not only in day-to-day operations, but potential long term exposure to outside uncontrollable forces including regulatory challenges and changes. Topics such as asset-liability management, interest rate volatility, reserve management, capital adequacy and others are covered. Also covered will be a commercial bank's interaction with the Federal Reserve. This course will be augmented with cases and the American Bankers Association's computer simulation game BANKEXEC. Prerequisite: BUAD 360.

**BUAD 406. ICE: Field. (3 Credits)**

For students who have a business concept that they envision pursuing after graduation that they have analyzed and vetted in other courses. The primary focus is to aid those students to get as close to launch as possible, or if already launched to get as close as possible to accelerated growth. Prerequisite: BUAD 275.

**BUAD 410. Water Law. (3 Credits)**

A comprehensive case law study of water, addressing the historical development of the riparian and prior appropriation doctrines, groundwater allocation issues, Federal and Indian water rights doctrines, public rights in water and water as a shared resource both intrastate and interstate, together with a brief review of certain environmental laws that specifically address water issues. Prerequisite: BUAD 210.

**BUAD 415. Portfolio Management. (3 Credits)**

A study of portfolio management with an emphasis on customizing asset allocation strategies and tactics for the individual and institutional investors. Several financial portfolio optimization models will be studied. The trade-off between risk and return on investments will also be emphasized. Also covered is how asset derivatives and hedges can be applied to either reduce risk, increase profitability, or both. Prerequisite: BUAD 360.

**BUAD 420. Oil and Gas Law. (3 Credits)**

A comprehensive study of oil and gas law & regulations. The course addresses the historical development of the law as it relates to the conservation of oil and gas, the rights and duties of operators and landowners, implied covenants, titles and conveyances, contracts, pooling and unitization, and other oil and gas development issues. Students also learn about the oil and gas regulatory scheme at the federal, state, and local levels. This course analyzes laws and regulations in light of recent technologic advances, such as the emergence of horizontal drilling and hydraulic fracturing. Prerequisites: Admission into The Energy Management Program; BUAD 210, BUAD 305, BUAD 320; or instructor permission.

**BUAD 425. Marketing Research. (3 Credits)**

The focus of this course is the collection, analysis, and interpretation of marketing data for reporting research information necessary to make informed marketing decisions. Students develop skills in defining research problems, designing surveys, experiments, and observational studies, managing data collection, performing data analysis, and communicating results. Prerequisites: completion of Base Curriculum; BUAD 270; or instructor permission. BUAD 335 and BUAD 345 recommended.

**BUAD 428. Sales III. (3 Credits)**

Students continue to learn the SPIN Selling Model while mentoring students in the first sales class. Also included are leadership models, including Covey's Seven Habits of Highly Effective People. Prerequisites: BUAD 343 and BUAD 384.

**BUAD 460. Advanced Managerial Finance. (3 Credits)**

The study of financial decision-making theory and practice which deals with major issues in the managing the inflows and outflows of a firm's funds from the chief financial officer's (CFO) perspective. Other topics include financial analysis, forecasting financial needs, sources and use of funds, efficient allocation of funds within the firm, firm and security valuation techniques, risk/return decisions, capital budgeting, optimal capital structure composition, and the firm's relationships with investors, financial markets, and financial institutions. Prerequisite: BUAD 360.

**BUAD 461. Investments. (3 Credits)**

A study of the many investments available for individual portfolios. Emphasis is placed on the risks inherent in investments and the methods and techniques of analysis used in selecting securities for investments. Prerequisite: completion of Base Curriculum; BUAD 360; or instructor permission.

**BUAD 482. Hospitality Operations Management. (3 Credits)**

An integration of management functions learned in previous classes into a workable approach to profitable resort operations. Students are encouraged to take this course during their last semester; graduating seniors are given priority in enrollment. Prerequisite: completion of Base Curriculum; BUAD 331; BUAD 332; BUAD 334; BUAD 337; BUAD 360; or instructor permission. Class will be held at Crested Butte Mountain Resort.

**BUAD 491. Strategic Management. (3 Credits)**

The formal analysis of an organization's macro and industry environment; its mission and goals; and strategy formulation, implementation, and control. This is a capstone course which integrates the student's knowledge from the areas of accounting, finance, marketing, and management. Students are encouraged to take this course during their last semester; graduating seniors are given priority in enrollment. Prerequisites: completion of Base Curriculum; BUAD 185; BUAD 333 or 350; BUAD 360; and senior standing.

**BUAD 492. Independent Study. (1-6 Credits)**

A singular investigation into a unique problem to be determined jointly by the researcher and the advisor. Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 494. Innovation, Creativity, and Entrepreneurship: Launch (ICE: Launch). (3 Credits)**

This course provides real world, hands on learning on what it's like to actually start an organization. Students talk to customers, partners, competitors, as they encounter the chaos and uncertainty of how a startup actually works. Prerequisite: Base curriculum; BUAD 275; BUAD 375; or instructor permission.

**BUAD 495. Prospect Economics and Evaluation. (3 Credits)**

Synthesizes previous coursework, focusing on the application of advanced concepts in finance, economics, law, regulatory schemes, mergers and acquisitions, negotiations, contract drafting, geology, engineering, title, leasing and environmental, social, and political issues. Prerequisites: BUAD 305, BUAD 320, BUAD 321, BUAD 360, GEOL 240 prerequisite or corequisite; or instructor permission.

**BUAD 497. Special Topics. (1-6 Credits)**

Prerequisite: completion of Base Curriculum; or instructor permission.

**BUAD 499. Internship in Business Administration. (1-6 Credits)**

A course designed specifically for junior- and senior-level students. Internships provide guided, counseled, and progressive experience under a dual-tutelage program of a businessperson and an academician. An academically monitored activity to assure quality experience. Graded Satisfactory/Unsatisfactory only. Prerequisite: completion of Base Curriculum; or instructor permission.

## Chemistry (CHEM)

**CHEM 100. Contemporary Chemistry (GT-SC2). (3 Credits)**

An introductory course which addresses the basic facts and principles of chemistry, as well as the history of chemistry, practical aspects of chemistry, and relevance of chemistry. Topics covered in the course are dependent on the instructor and contemporary events. This course is designed for non-science majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

**CHEM 101. Introduction to Inorganic Chemistry (GT-SC2). (3 Credits)**

A survey of inorganic chemistry, with an emphasis on chemical principles, atomic theory, periodic law, chemical equilibrium, equations, solutions, and descriptive chemistry of the elements. This course is designed for non-majors without a background in chemistry or mathematics and may not be counted toward the Chemistry Major or Minor. GT-SC2

**CHEM 111. General Chemistry I (GT-SC2). (3 Credits)**

An introductory course designed for science majors focusing on principles and applications of chemistry. Previous experience with chemistry is expected. Topics covered are stoichiometry, bonding models, intermolecular forces, and periodic trends. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test score of 280 or above; or corequisite MATH 140 and ACT math score of 21 or above or SAT math score of 540 or above or Accuplacer Advanced Algebra and Functions test score of 245 or above; or instructor permission. GT-SC2

**CHEM 112. General Chemistry Laboratory I (GT-SC1). (1 Credit)**

An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 111. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Corequisite: CHEM 111. GT-SC1

**CHEM 113. General Chemistry II. (3 Credits)**

A continuation of CHEM 111. Topics covered are thermodynamics, kinetics, equilibrium, electrochemistry, and nuclear chemistry. Prerequisite: CHEM 111 with a minimum grade of C-.

**CHEM 114. General Chemistry Laboratory II. (1 Credit)**

A continuation of CHEM 112. An introduction to basic laboratory techniques of inorganic chemistry correlating with CHEM 113. Experiments emphasize techniques, instrumentation, and solution chemistry. Laboratory notebookkeeping and the safe handling and disposal of laboratory chemicals are also stressed. Additional course fee applies. Prerequisite: CHEM 112. Corequisite: CHEM 113.

**CHEM 121. General Chemistry for Engineers. (3 Credits)**

A single semester general chemistry course designed for engineering students. Previous experience with chemistry is expected. Topics include atomic structure, bonding models, stoichiometry, states of matter, intermolecular forces, thermodynamics (including calorimetry, enthalpy, entropy and Gibbs free energy), and equilibrium. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer university-level mathematics test score of 65 or above.

**CHEM 197. Special Topics. (1-6 Credits)**

Special Topics.

**CHEM 231. Introduction to Organic Chemistry and Biochemistry. (3 Credits)**

A descriptive survey course which introduces the essential topics and applications of organic chemistry and biochemistry. The course is designed for non-majors who need the second semester of a one-year chemistry core that includes general, organic, and biochemistry. This course may not be counted for credit toward the Chemistry Major or Minor. Prerequisite: CHEM 101 or CHEM 113.

**CHEM 234. Introductory Organic and Biochemistry Laboratory. (1 Credit)**

An introductory laboratory to accompany CHEM 231. Experiments focus on reactions of organic functional groups, organic synthesis, and the chemistry of biological molecules. This course may not be counted for credit toward the Chemistry Major or Minor. Additional course fee applies. Prerequisite or corequisite: CHEM 231.

**CHEM 292. Independent Study. (1-6 Credits)****CHEM 297. Special Topics. (1-6 Credits)**

Special topics.

**CHEM 302. Chemical Information Literacy and Communication. (3 Credits)**

In this course designed for chemistry majors, students learn about the organization of the chemical literature, important resources for navigating the literature of chemistry, and methods for selecting the most appropriate resources. Students will work on effective written, oral and graphical communication for chemistry and the sciences. Prerequisites: COM 202, CHEM 113 and CHEM 114.



**CHEM 306. Analytical Chemistry (with laboratory). (4 Credits)**

A lecture/laboratory course involving principles, techniques and calculations involved with quantitative analysis of substances. Includes solution chemistry, gravimetric, volumetric, redox, and pH determinations. Additional course fee applies. Prerequisites: CHEM 113 and CHEM 114.

**CHEM 331. Organic Chemistry I. (3 Credits)**

First semester course of a two semester organic chemistry sequence. This course is an in depth study of saturated and unsaturated hydrocarbons. Topics include their naming, electronic structure, bonding, reactivity, stereochemistry, and reaction mechanisms Prerequisite: CHEM 113.

**CHEM 332. Organic Chemistry II. (3 Credits)**

A continuation of CHEM 331. This course discusses spectroscopic analysis, physical, and chemical properties of organic functional groups. Emphasis includes synthesis, mechanisms, and reactions of aromatic compounds, carbonyl containing compounds, and amines. Prerequisite: CHEM 331.

**CHEM 334. Organic Chemistry Laboratory I. (1 Credit)**

An accompanying laboratory course for CHEM 331, serving as an introduction to basic macro-and micro- scale organic techniques used to separate, isolate, and characterize organic compounds. Methods utilized include distillation, extraction, chromatography, Infrared (IR) spectroscopy. Additional course fee applies. Prerequisite: CHEM 114. Corequisite: CHEM 331.

**CHEM 335. Organic Chemistry Laboratory II. (1 Credit)**

This lab is a continuation of CHEM 334, with an expansion in scope that allows incorporation of more complex synthetic problems. The lab will employ the use of thin layer chromatography (TLC) to follow reaction progress along with NMR spectroscopy to determine reaction outcomes. Additional course fee applies. Prerequisite: CHEM 334. Corequisite: CHEM 332.

**CHEM 397. Special Topics. (1-6 Credits)**

Special Topics

**CHEM 406. Instrumental Analysis (with laboratory). (4 Credits)**

A lecture/laboratory course examining the theory and techniques of instrumental methods of quantitative analysis, including spectrophotometric methods, electrochemical methods, and chromatography. Additional course fee applies. Prerequisite: CHEM 306

**CHEM 451. Physical Chemistry I. (3 Credits)**

A detailed study of thermodynamics, phase equilibria, kinetic theory and chemical kinetics. Prerequisites: CHEM 113, MATH 251, and PHYS 201

**CHEM 452. Physical Chemistry II. (3 Credits)**

A continuation of CHEM 451, which examines quantum chemistry, atomic, and molecular structure and spectra, photochemistry, and statistical mechanics. Offered in alternate years. Prerequisites: CHEM 451.

**CHEM 454. Physical Chemistry Laboratory. (2 Credits)**

An experimental-techniques course in physical chemistry (including computer-assisted instruction), with emphasis on thermodynamics, chemical kinetics, quantum chemistry, statistical mechanics, and spectroscopy. Offered in alternate years. Additional course fee applies. Corequisite: CHEM 452 or PHYS 452.

**CHEM 461. Advanced Inorganic Chemistry. (3 Credits)**

Inorganic chemistry based on principles of bonding, structure, and reaction mechanisms. Chemistry of representative and transition elements and their compounds are covered. Offered in alternate years. Prerequisites: CHEM 113, CHEM 302, and MATH 251.

**CHEM 471. Biochemistry I. (3 Credits)**

Overview of the aqueous environment and its effects on solutes, including biomolecules. Other subject matters include the chemistry of proteins, carbohydrates, and lipids; the mechanisms and kinetics of enzymes; and the stoichiometry and chemistry underlying core metabolic processes, energy production, cellular respiration and the regulation of these processes. Prerequisites: BIOL 150 and CHEM 332

**CHEM 472. Biochemistry II. (3 Credits)**

A continuation of CHEM 471. The course integrates the study of metabolic processes and regulation to the synthesis of lipids and other biologically important molecules. Topics include membranes and molecular transport, biosignaling and receptors, hormonal regulation of metabolism, amino acid and nucleic acid synthesis, and nitrogen metabolism. Plant biochemistry, including photosynthesis and carbohydrate production are introduced as well. Prerequisite: CHEM 471

**CHEM 474. Biochemistry Laboratory. (2 Credits)**

Biochemical techniques laboratory course involving analytical experiments with proteins, nucleic acids and other biological molecules. Basic spectrophotometric techniques are introduced and utilized in biochemical research applications. Molecular separations using a variety of chromatographic techniques to purify and characterize enzymes from both native tissues and recombinant enzymes produced from bacterial systems are performed. Additional course fees apply. Prerequisite/ Corequisite: CHEM 471

**CHEM 494. Research Problem in Chemistry. (1-4 Credits)**

An advanced, supervised laboratory or literature research experience involving methods of chemical research in an area of analytical, physical, organic, or biochemistry. A research paper and oral presentation of research results is required. Prerequisite: CHEM 302.

**CHEM 497. Special Topics. (1-6 Credits)**

Special Topics

## Communication Arts (COM)

**COM 119. Introduction to Film. (3 Credits)**

Students are introduced to the aesthetics of narrative and documentary motion pictures through the study of the basic elements of cinema. Topics may include story structure, cinematography, editing, sound, and lighting.

**COM 121. Introduction to Theatre (GT-AH1). (3 Credits)**

This course will include a general survey of Western theatre from Classical Greece to contemporary America. Students will learn the diverse practice of the art of theatre by studying theatre history, dramatic literature, and the practical components of acting, directing, design and production. GT-AH1

**COM 151. Introduction to Mass Media (GT-AH2). (3 Credits)**

An examination of media-related industries (broadcasting, journalism, advertising, public relations and online communications), and the issues related to those industries that affect contemporary public discourse. GT-AH2

**COM 197. Special Topics. (1-6 Credits)**

**COM 202. Academic Writing and Inquiry (GT-CO2). (3 Credits)**

Students expand on the process and techniques begun in Academic Writing. Primary focus is on analytical written communication and on advocacy oral communication. Also included throughout the course is the reading of relevant academic professional writing, which promotes student awareness of the role of written and oral communication in academic and professional life. Prerequisite: ENG 102 with a minimum grade of "C-." GT-CO2

**COM 205. Communication Arts I. (3 Credits)**

This course is a study of the theory and associated terminology of visual communication including the application of concepts to film, theatre, and convergent media. Topics include aesthetics, design elements, mimesis, performance, semiotics and introduction to the primary techniques of the various communication arts. Prerequisite: ENG 102 with a minimum grade of C-.

**COM 216. Dramatic Literature and Script Analysis. (3 Credits)**

This course introduces students to the diverse genre of dramatic literature in Western and Eastern theatre. Students study the origins of tragedy, comedy, melodrama, the rise of Realism and Anti-Realism, as well as the sub-genres within those general categories. Eastern traditions of text such as Kabuki, Noh, and Bunraku are also studied. Students learn how to read a play on a deeper level for content, themes, historical and sociopolitical influences, as well as the emerging and changing aesthetics of each genre. Prerequisite: ENG 102.

**COM 231. Technical Production I. (4 Credits)**

A study of how things are done behind the scenes in theatre and film and why they are done that way, including the basic customs and traditions of production work and the philosophy, aesthetics, and process of production. Intensive hands-on development of skills in the construction of sets, costumes, lights, sound, and props; the operation of rolling units, lights, flies, and sound; and production assistant duties.

**COM 235. Fundamentals of Acting. (3 Credits)**

An introduction to the principles, processes, and techniques of acting. The study is designed to balance theory and performance; to explore in detail the psychological, perceptual, and conceptual linkages to the strategies, techniques, and skills of the actor; and to develop a significant sense of self-discipline on the part of the actor. Topics include warm-up and awareness skills, basic body and voice integration techniques, the theories of Stanislavski, character analysis, and performance process

**COM 241. Media Writing. (3 Credits)**

An analysis and practice of the major forms of media writing, including print, broadcast and web-based publication, with an introduction to the ways that production varies the writing of each. Prerequisite: ENG 102 with a minimum grade of "C-."

**COM 261. Introduction To Audio Communication. (3 Credits)**

This course introduces the basic concepts, functions and technology of audio production as they relate to the elements of narrative and storytelling. Prerequisite COM 119, COM 121, or COM 151; or instructor permission.

**COM 264. Introduction to Production and Theory. (3 Credits)**

An introduction to the theory and practice of media production including critical and aesthetic theories. Topics may include scriptwriting, producing, directing, cinematography, sound recording, editing, and standards of operation for production facilities and equipment. Prerequisites: COM 205, COM 261, and sophomore standing; or instructor permission.

**COM 274. Public Relations Communication. (3 Credits)**

A study of the use of communication to establish credibility, trust, and confidence between and among communities, employees, public agencies, civic organizations and business institutions.

**COM 284. Sophomore Portfolio. (1 Credit)**

A course in which students familiarize themselves with the requirements for the Communication Arts program and related capstone project, formulate specific goals, and prepare strategies through which those goals can be achieved. Students will develop an awareness of field-specific expectations required of them in professional or graduate-level work, and develop a plan for creating a portfolio that reflects that awareness. A part of the course consists of formally applying for admission to the Communication Arts program. Prerequisite or corequisite: COM 205 or instructor permission.

**COM 292. Independent Study. (1-6 Credits)****COM 297. Special Topics. (1-6 Credits)**

Special Topics

**COM 298. Practicum. (1-4 Credits)**

Entry-level supervised experiences in theatre, organizational communication and journalism/mass media. Prerequisite: instructor permission.

**COM 305. Communication Arts II. (3 Credits)**

An exploration of the philosophical and theoretical foundations of human communication, concentrating specifically on textual analysis and interpretation. Using a wide range of media, students will investigate how the particular method of communication informs, alters, and shapes the messages being consumed, and how those messages both constitute and affect self-expressive acts. PREREQUISITES: COM 205 and admission to the Communication Arts Program; or instructor permission.

**COM 306. Scriptwriting. (3 Credits)**

An introduction to the fundamental tools and skills required to craft a script for performance on stage or in film/video. Students are expected to produce play scripts and screenplays of varying lengths; they are also expected to read and respond to one another's writing. Some history of playwriting and study of prevailing models of scriptwriting are also included. Prerequisites: COM 205 or ENG 205, with a minimum grade of C, or instructor permission.

**COM 310. Introduction to Performance Studies. (3 Credits)**

An interdisciplinary course exploring the human desire to perform in both aesthetic and everyday settings. It explores the links between the arts and literature, anthropology, communication, sociology, and philosophy. Critical reading, written analysis, and performance of literary texts are essential elements of the course.

**COM 317. Studies in Theatre and Performance. (3 Credits)**

An introduction to performance studies research and artistic practice through readings, discussion and creative work. Prerequisites: junior standing and instructor permission. Repeatable for a maximum of six credits among different topic areas.

**COM 323. Media/ Arts Management. (3 Credits)**

An introduction to the basic principles and structure of management as it applies to Communication Arts. Particular focus is given to management of small and mid-size nonprofit media and arts organizations, and to the interrelationship between those two areas. Prerequisite: junior standing or permission of the instructor.

**COM 324. Advanced Acting. (3 Credits)**

An advanced-level course that focuses on specific areas of actor training, including methods of voice and movement training; the requirements and techniques of different styles of acting including classical, Elizabethan, Restoration/18th Century, Commedia, and Advanced Contemporary acting styles; and advanced textual analysis required of actors by specific theatrical works. Repeatable for a maximum of six credits among different topic areas. Prerequisite: COM 235 or instructor permission.

**COM 330. Technical Production II. (3 Credits)**

An intermediate-level study of lighting and sound production for theatre and film. Instruction is provided in the proper rigging of light and sound equipment, use of control consoles and software, optics, basic electrical theory, the nature of light, and acoustics. The design and aesthetic use of light and sound are also explored. Prerequisite: COM 231 or instructor permission.

**COM 331. Scenography in Film and Theatre. (3 Credits)**

A study of designing visually for the stage and screen, with an emphasis on a unified look and a single intense effect. A strong emphasis on script analysis as a basis for design. Additional information on visual research for theatre and film including location scouting and contextual research into the background of the story. Hands-on development of skills in generating graphic communication of design ideas is included. Prerequisite: COM 231 or instructor permission.

**COM 346. Multimedia Communication. (3 Credits)**

An exploration of the theory and application of multimedia communication principles through projects that use common interactive multimedia, animation, non-linear editing, web authoring, and desktop-publishing programs. Prerequisites: COM 205, or instructor permission.

**COM 351. Media Theory and Research. (3 Credits)**

An examination of media from a theoretical, organizational perspective. Topics covered include departmental functions and duties, programming, formats, regulations and finances. Also, in the context of media theory, empirical data is explored. Prerequisite: COM 241 and COM 274, or instructor permission.

**COM 352. Advanced Cinema Studies. (3 Credits)**

An in-depth study of the aesthetics and theory of cinema through the examination and critical analysis of the technical and creative elements of selected iconic Hollywood and international motion pictures. Prerequisite: Junior standing.

**COM 361. Multi-Camera Studio Production. (3 Credits)**

Through the instruction in the theories and practices of studio-based media production, students receive training in the operation of studio equipment and technology. Students will practice the various job duties required in a studio production environment. Topics may include media writing, directing, floor directing, technical directing, camera operating, lighting, and audio. Prerequisite: COM 264 or instructor permission.

**COM 362. Advanced Audio Production. (3 Credits)**

An in-depth study of audio design and production for film, radio, television and live theatre. Prerequisite COM 261.

**COM 371. Small Group and Conflict Management. (3 Credits)**

An exploration of various concepts and types of conflict and the role of argumentation in managing and/or resolving conflict. The study examines the theory and practice of communication within small groups, as well as problem solving and decision making as common contexts in which argument occurs and conflict arises, and a continuum from formal to informal modes of conflict management/resolution is discussed and practiced by the students. Examples of specific areas covered include formal debate, negotiation, and arbitration. Prerequisite: COM 202.

**COM 372. Issues Management. (3 Credits)**

An exploration of the communication practices and strategies used by organizations to react to current events, publicity, and society. Emphasis is placed upon persuasion, media relations, and information campaigns. Prerequisite: junior standing.

**COM 377. Intercultural Communication in the Digital Age. (3 Credits)**

A theoretical and practical survey of intercultural communication. Topics may include: the interpersonal dimensions of intercultural communication online and offline, the distinctive cultural orientations, behaviors, expectations, and values that affect intercultural communication situations, including strategic and computer-mediated communication. Prerequisite: Junior standing or instructor permission.

**COM 385. Experimental Media Production. (3 Credits)**

The essential theory and practice of experimental filmmaking, scanning all modes of making that defy traditional cinema techniques and focus on our individual creative voices. Topics may include: lyrical and structural films, in-camera editing, and the long take. Prerequisite: COM 264 with a minimum grade of "C."

**COM 389. Media Production: Narrative. (3 Credits)**

An introduction to the theory and practice of the field-based production of narrative films. Topics emphasized may include fictional story, cinematography, lighting, sound, editing, and production management. Prerequisite: COM 264 with a minimum grade of "C."

**COM 390. Media Production: Documentary. (3 Credits)**

An introduction to the theory and practice of producing nonfiction works, including conventional documentary forms and autobiographical or experimental works. Topics may include actual story, cinematography, lighting, sound, editing, and production management. Prerequisite: COM 264 with a minimum grade of "C."

**COM 392. Independent Study in Communication Arts. (1-6 Credits)**

A detailed study in a specific area of communication and theatre, emphasizing individualized approaches toward development of creativity and scholarship. Prerequisites: junior or senior status and 10 credits in Communication and Theatre.

**COM 397. Special Topics. (1-6 Credits)**

Special Topics

**COM 398. Practicum. (1-4 Credits)**

Supervised applications and experiences in communication and theatre. Students assist, analyze, manage, and participate in various aspects of practical situations or job training. Prerequisites: instructor permission and completion of one of the following: COM 241, COM 261, or COM 298.

**COM 405. Communications Arts III. (3 Credits)**

A multi-disciplinary and multi-media course offering significant historical, theoretical, and practical content by which to explore and discuss how meaning is conveyed in communication. Special emphasis is given to the nature of oral communication in oral societies and to the nature and function of myth, symbol, sign, and inferential reasoning. Prerequisites: COM 305 or instructor permission.

**COM 406. Advanced Screenwriting and Producing. (3 Credits)**

Students are immersed in advanced screenwriting projects and pitching for independent feature film, television drama and situation comedy. Producing content may include such topics as contract law, releases, copyright, fair use, ethics, location and talent management, production management, and other administrative subject matter pertaining to film and television production. Prerequisite: COM 306 with a minimum grade of "C".

**COM 423. Directing. (3 Credits)**

A comprehensive introduction to the theory and practice of directing for the stage. Includes an exploration of play selection, character and script analysis, conceptualization of production, actor coaching approaches, staging techniques; as well as the actual direction and presentation of scenes and plays. Prerequisites COM 231, COM 235, COM 310 and junior standing; or instructor permission.

**COM 474. Campaign Planning in Advertising and Public Information. (3 Credits)**

An analysis of the many facets of information campaign planning. It explores concepts like persuasion and audience behavior, researching attitudes and effectiveness, campaign objectives and strategies, media choices, and relevant social and ethical issues. In addition, students are expected to build their own information campaigns. Prerequisite: COM 274.

**COM 484. Communication Arts Seminar. (2 Credits)**

A capstone course in which students complete their individual Communication Arts portfolios, based upon their cumulative work through the COM program and guided by their specific career or graduate school goals. The seminar provides an opportunity for students to work individually, in small groups, and with the instructor to evaluate the overall effectiveness of their finished portfolios, and revise accordingly, utilizing the critical techniques, cultural awareness, and technical skills students have developed throughout the COM program. Prerequisite: COM 305

**COM 490. Advanced Media Production. (3 Credits)**

Students are immersed in advanced project work. Topics may include cinematography, lighting, grip, electrical, special effects, visual effects, sound effects recording, sound design, and animation. Prerequisite: COM 361, COM 385, COM 389 or COM 390 with a minimum grade of "C."

**COM 492. Independent Study. (1-6 Credits)**

A detailed study in a specific area of communication and theatre, emphasizing individualized approaches toward development of creativity and scholarship. Prerequisites: junior or senior status and 10 credits in Communication and Theatre.

**COM 497. Special Topics. (1-6 Credits)**

Special topics in Communication Arts.

**COM 499. Internship in Communication Arts. (1-12 Credits)**

## Computer Science (CS)

**CS 120. Professional Computer Skills. (3 Credits)**

A comprehensive study of the essentials of software used by professionals, emphasizing applications of spreadsheets to fundamental data organization, presentation, analysis and decision making applications.

**CS 140. Game Programming for Beginners. (3 Credits)**

For the complete beginner, an introduction to computer programming by writing basic animations and arcade games. Standard programming issues such as language constructs, problem solving and debugging are combined with game specific considerations such as animation, scoring, collision detection, game levels and working with multiple moving objects. The course uses industry-standard software such as Python.

**CS 150. Computers in Society. (3 Credits)**

An introduction to the use of computing devices and their impact on society. Topics include: how computers work, the history of computing, philosophical issues in computing, the economics of software development, intellectual property issues, privacy and security, applications of computing, legal issues, the digital divide, the role of computing in government, and computer-assisted collaboration.

**CS 160. Introduction to Web Design. (3 Credits)**

An introduction to creating web pages and sites with XHTML and CSS as well as using site building software and commercial plugin capabilities. This course is designed for students without a background in computer science.

**CS 170. Information Security and Hacking. (3 Credits)**

An introduction to the principles and concepts of information security and hacking. The course uses real world examples to illustrate attacks on computer systems and networks. Topics include vulnerabilities, threats and attackers, data protection and encryption and the nature of malware. Basic hacking concepts are introduced along with defensive measures and counterattacks.

**CS 190. Computer Science I. (3 Credits)**

An introduction to software development taught in Python. Topics include control structures, I/O, functions, strings, lists, files, other data structures and basic algorithms that use them. Emphasis is placed on good problem-solving practices, testing and debugging.

**CS 191. Computer Science II. (3 Credits)**

A continuation of CS 190 taught in C++. Students develop applications of increasing sophistication. Topics include control structures, I/O, functions, strings, arrays, files, objects and classes, elementary searching and sorting algorithms. Emphasis is placed on software engineering and an introduction to object-oriented programming. Prerequisite: CS 190 with a minimum grade of "C-" or score of at least 75% on the Western CS 191 entrance exam or CU Partnership status.

**CS 192. Independent Study. (1-3 Credits)****CS 195. Database Management Systems. (3 Credits)**

An introduction to the principles and practice of relational database design, implementation and manipulation. Topics include Structured Query Language (SQL), relational models, elementary database design as well as database management with a programming language such as Java. Prerequisite: CS 190 with a minimum grade of "C-".

**CS 197. Special Topics. (1-6 Credits)**

Special topics.

**CS 220. Data Analytics. (3 Credits)**

Introductory knowledge discovery using computational, statistical, and informatics methods. Topics include analysis of any data that is in digital form, including text, symbolic data or image data, and finding patterns in science, the arts, and society. Prerequisite: CS 190 with a minimum grade of "C-" and MATH 140, MATH 141, MATH 151 or an Accuplacer AAF Test score of 245 or above.

**CS 235. Computers Networks. (3 Credits)**

An investigation of the transmission of data and information between computer systems. Topics include simple data communications, protocols, error control, local-area networks, wide-area networks such as the Internet packet-switching networks, and several networking models. Various data communication hardware and software are also examined. Prerequisites: CS 191 with a minimum grade of "C-".



**CS 250. Web Applications Development I. (3 Credits)**

A course studying web site design, focusing on HTML5 and CSS for page structure and style, the embedded JavaScript language for interactivity, and a web application server language for database access. The student learns to implement the essentials of an interactive, database driven website. Prerequisite: CS 191

**CS 280. Data Structures. (3 Credits)**

A continuation of CS 191 taught in C++. Students use the Standard Template Library to solve moderately difficult problems. Topics include multi-dimensional arrays, vectors, stacks, queues, hash maps, associative arrays, linked lists, trees and heaps. Emphasis is placed on object-oriented design. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 292. INDEPENDENT STUDY. (1-3 Credits)****CS 297. Special Topics. (1-6 Credits)**

Special topics

**CS 303. Machine Learning. (3 Credits)**

A study of computer systems that learn. Topics include decision trees, concept learning, neural networks, reinforcement learning, linear and non-linear models, clustering, validation, feature selection, support vector machines and hidden Markov models with applications to the arts and sciences. Prerequisite: CS 190 with minimum grade of "C-".

**CS 310. Programming Projects with X. (3 Credits)**

A project-based course focusing on medium-sized projects in a given programming language using tools and environments appropriate to the selected language. Students gain proficiency in the language by doing projects from a variety of subjects such as artificial intelligence, graphics, machine learning, compilers, and Human-Computer Interaction. This course contains individual and group work. May be repeated with a different implementation language. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. Only one of the following courses, CS 317, MATH 317, or BIOL 317, may be taken for credit. Prerequisites: MATH 151, MATH 213 and CS 190.

**CS 320. Programming Languages. (3 Credits)**

An investigation of the theory, usage, and implementation of programming languages. Emphasis is on the theoretical basis for programming languages and practical examples of their use. Basic language paradigms are developed: imperative, functional, object-oriented, and logic. Other topics include type systems and language translation. Languages studied include C, C++, Java, Lisp, Haskell, Prolog, and Python. Prerequisite: CS 280 with a minimum grade of C-.

**CS 330. Operating Systems and Architecture. (3 Credits)**

A study of how hardware and operating systems work in a multiprocessing computer system. The Intel architecture including the instruction set, memory hierarchy, and exception handling are covered. The Windows and Linux operating systems functions and programming interfaces are studied to understand modern computing environments. Prerequisite: CS 191

**CS 340. Computer Graphics. (3 Credits)**

A presentation of the design and use of computer-graphics systems (hardware and software) and construction of two- and three-dimensional graphics. Applications of computer graphics in business, industry, education, and communications are emphasized. Prerequisite: CS 190 with a minimum grade of "C-".

**CS 350. Web Applications Development II. (3 Credits)**

A study of client-server applications designed around the World Wide Web. Students design and implement interactive applications which provide access to centralized resources such as databases and mail servers from web browsers. Students utilize JavaScript and server-based technologies to construct web-based programs that communicate with servers. Technologies such as Ajax, XML, JSON, and commonly used JavaScript libraries are included. Prerequisite: CS 250 with a minimum grade of "C-".

**CS 360. System Security. (3 Credits)**

A study of system level hacking. Topics include workstation and server vulnerabilities, security and protection mechanisms. The nature of system attacks combined with standard intrusion detection systems will demonstrate the challenge of correctly preventing, diagnosing and responding to attacks. Prerequisite: CS 330

**CS 365. Big Data Analytics. (3 Credits)**

An intensive study of big data and informatics applications for digital data. Topics include text analysis using classic works and social media, numeric analysis using economic and scientific data and symbolic analysis using genomic data. Emphasis is on programming solutions to complex problems. Prerequisite: CS 220 and MATH 151 with minimum grade of "C-".

**CS 370. Systems Programming in C. (3 Credits)**

A study of C programming in a UNIX environment. Topics include the C language, the system call interface for file I/O, process management, interprocess communication and threads, command line utilities for file system navigation, file editing, compiling, execution and scripting. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 380. The Internet of Things. (3 Credits)**

A hands-on introduction to the theory and programming of wireless embedded systems - the Internet of Things. Topics include sensors, actuators, state machines, scheduling, wireless communications, time synchronization, localization, fault tolerance, and security related to cyber-physical systems. Prerequisite: CS 330 or CS 370 with minimum grade of "C-".

**CS 390. Software Entrepreneurship. (3 Credits)**

A hands-on and project-based course on startup entrepreneurship for software technologies. Students develop and test product ideas, identify market segments, develop customer personas, create minimum viable products and pitch their ideas. Prerequisites: CS 250 and CS 280 with minimum grades of "C-".

**CS 391. Computer Science Seminar. (3 Credits)**

An advanced topic in computing, selected by the instructor from areas of computer science not usually included in the regular curriculum, conducted in a lecture, seminar or individualized format. Student involvement through presentations is emphasized. May be taken under different topics for a total of three credits. Prerequisite: CS 191 with a minimum grade of "C-".

**CS 392. Independent Study. (1-3 Credits)**

A singular investigation into a unique problem agreed upon by the student and the advisor. Independent Studies (CS 192, CS 292, CS 392, and CS 492) may be repeated for a total of up to 12 credits.

**CS 397. Special Topics. (1-6 Credits)**

Special topics

**CS 410. Systems Analysis and Design. (3 Credits)**

The fundamental concepts of systems analysis and design are studied in the context of computerized information systems. Topics include high-level system construction tools, system design methodology, data representation languages such as XML, server-based system design, web services, system security, and system description languages such as UML. Also addressed is the human element in system design: working with users and domain experts to develop system requirements, and understanding the challenges of large scale system projects. Each student completes a number of systems design projects during the term. Prerequisite: CS 310 with a minimum grade of C-.

**CS 412. Software Engineering. (3 Credits)**

An introduction to the fundamental principles of software engineering. Formal software development techniques and high-level software tools are emphasized. Topics include object-oriented design and programming, software testing, quality and formal methods for software design. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 415. Software Engineering II. (3 Credits)**

A continuation of study of the software lifecycle. Topics include methods and tools for the implementation, integration, testing and maintenance of large software systems, software development, test environments and quality assurance, team organization and management. Technical presentation methods and practice are emphasized. There is a significant group project. Prerequisite: CS 412 with a minimum grade of "C-".

**CS 435. Mobile Development. (3 Credits)**

An introduction to mobile application development using the Android platform. Topics include development tools, the application life-cycle, interfaces, asynchronous tasks, events, data storage and services. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 440. Distributed Computing for Machine Learning and Data Analysis. (3 Credits)**

A programming intensive introduction to distributed computing with attention to applications in machine learning and data analysis. Topic includes distributed sequential analysis methods, distributed Markov model-based methods, and distributed support vector machine-based methods. Prerequisite: CS 303 or CS 365 with a minimum grade of "C-".

**CS 450. Ethical Hacking and Malware. (3 Credits)**

Application of computer hacking principles to determine vulnerabilities in computer systems and to design preventative processes. Each stage of the attack process from reconnaissance to final objective will be used to analyze attack methods and determine the best method to detect and remediate an attack using an incident response process. Prerequisite: CS 330

**CS 460. Network Security. (3 Credits)**

A study of network and web hacking. Topics include web vulnerabilities, cryptographic tools, web security and protection mechanisms. The nature of network attacks using sample data sets combined with standard intrusion detection systems will demonstrate the challenge of correctly diagnosing and responding to attacks. Prerequisite: CS 235 and CS 330

**CS 470. Algorithms. (3 Credits)**

A continuation of CS 280 taught in a language such as Python or C++. Students design and develop more complex algorithms. Topics include complexity analysis, advanced sorting and searching, graph algorithms, greedy algorithms, intractability and heuristics. Emphasis is placed on math foundations and algorithm design, testing, and efficiency. Prerequisite: CS 280 with a minimum grade of "C-".

**CS 480. Computer Science Application Project. (3 Credits)**

Students develop a comprehensive application project with a supervising faculty member. A summary paper is written or public presentation of the project is made to the CS faculty and students. Prerequisite: 18 credits of Computer Science course work, including nine upper-division credits, and instructor permission.

**CS 490. Workshop in Computer Science. (1-6 Credits)**

A series of organized meetings dealing with a topic of current interest. Offered periodically in a variety of computer-related subjects. Only three credits of this title can be applied toward a Computer Science Minor.

**CS 492. Independent Study in Computer Science. (1-3 Credits)**

A singular investigation into a unique problem agreed upon by the student and the advisor. Independent Studies (CS 192, CS 292, CS 392, and CS 492) may be repeated for a total of up to 12 credits.

**CS 495. Senior Project. (3 Credits)**

A hands-on and project-based course on the design and construction of sizeable software products. Topics include requirements, software architecture, professional tools for design, testing and project management. Students participate in and manage development teams. Prerequisite: CS 412 with a minimum grade of "C-".

**CS 497. Special Topics. (1-6 Credits)**

Special topics

**CS 499. Internship or Field Experience in Computer Science. (1-12 Credits)**

Students participate in a supervised internship or field experience with a cooperating university or corporation, in the computer science field. A summary paper is written or public presentation of the field experience is made before the CS faculty and students, and a review from the supervisor is prepared. Prerequisite: 18 credits of Computer Science course work, including nine upper-division credits, and instructor permission.

## Economics (ECON)

**ECON 197. Special Topics. (1-6 Credits)****ECON 201. Macroeconomics (GT-SS1). (3 Credits)**

An introduction to the methods, models, and approaches used by economists to analyze and interpret events and policies related to the overall operation of the economy. The course endeavors to make sense of unemployment, inflation, recessions, debt and deficits, economic growth, the expanding role of the Federal Reserve, and policies to provide stability to the economy. Additional attention is given to the making of economic policy in an era of globalization. Finally, students are exposed to multiple schools of thought regarding macroeconomic reasoning. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; pass MATH 099; or Accuplacer Advanced Algebra and Functions test score of 235 or higher, or university-level math requirement with a minimum grade of "C-." Prerequisite or corequisite: ENG 102. GT-SS1

**ECON 202. Microeconomics. (3 Credits)**

The theory of microeconomics makes use of the tools of marginal cost-benefit analysis to provide a framework for the economic analysis of decision-making. The focus is on the choices of individual firms and consumers, and the resultant outcomes in individual markets. The social implications of the functioning of competitive markets are examined, as well as the causes of market failure and the potential roles of government in correcting them. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; pass MATH 099; or Accuplacer Advanced Algebra and Functions test score of 235 or higher, or university-level math requirement with a minimum grade of "C-."



**ECON 215. Environmental Economics. (3 Credits)**

A presentation of the analytical tools and approaches used by economists to examine and assess environmental issues, conflicts, and policies. Students are asked to use market analysis, externality analysis, cost-benefit analysis, instrument choice models, and market and non-market valuation techniques to investigate issues such as air and water quality, global warming, toxic substances, wilderness designation, and sustainable development plans. Prerequisites: MATH 105, MATH 113, MATH 140, MATH 141, or MATH 151 with a minimum grade of C-.

**ECON 216. Statistics for Business and Economics. (3 Credits)**

An introduction to descriptive statistics and statistical inference, with application in business, including hypothesis testing, confidence intervals, and simple regression analysis. Prerequisite: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-."

**ECON 297. Special Topics. (1-6 Credits)****ECON 301. Intermediate Macroeconomics. (3 Credits)**

An analysis of competing theories about the overall functioning of economies including both growth and stabilization policies. Alternative models are examined at the levels of assumptions, mechanics, dynamics, and policy implications. Theories are examined within their historical context and the sets of problems faced by the theorists. Students are asked to engage, analyze, interpret and provide a course of action for real-world cases. Prerequisites: ECON 201; ECON 202; and MATH 140, MATH 141, or MATH 151 with a minimum grade of C-.

**ECON 302. Intermediate Microeconomics. (3 Credits)**

Intermediate Microeconomics extends the analysis of individual economic behavior and the functioning of markets learned in ECON 202 by incorporating the more sophisticated microeconomic models used in more advanced economic analysis. Topics include the theories of the consumer and the firm, the functioning of market, and the impact of market structure on price formation. Prerequisites: ECON 202; MATH 140, MATH 141, or MATH 151 with a minimum grade of C-; ECON 201 recommended.

**ECON 303. International Economics and Globalization. (3 Credits)**

An exploration of economic, political, and social effects of globalization. This is examined from the perspectives of trade, development, finance, and the environment. The first half of the course focuses on the impacts of international trade. This includes preferential trading relations, protectionism, global trade agreements, competitiveness, and possible conflicts between trade and social objectives. The second half of the course focuses on international monetary relations and regimes. This includes understanding the balance of payments, exchange rate determination, currency crises, and international debt. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201; ECON 202 recommended.

**ECON 315. Labor Economics. (3 Credits)**

The central questions in the field of labor economics are how wages are determined, and why a market economy provides such a vast range of possible rewards to human labor. To answer them, this course examines the role of market forces (the supply of and demand for labor) as well as that of social, political, and economic institutions. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202; ECON 201 recommended.

**ECON 316. Econometrics. (3 Credits)**

The application of advanced statistical methods and modeling to an empirical understanding of economic issues. Combines elements of statistical reasoning with economic theory and provides an excellent opportunity to combine concepts learned in previous economics courses. Topics covered include multiple regression analysis, model specification, dummy variables, multicollinearity, heteroscedasticity, autocorrelation, limited dependent variables, simultaneity, time series, forecasting, and methodological issues. Prerequisites: ECON 201 or ECON 202; and ECON 216 or MATH 213.

**ECON 317. Economics and Public Policy. (3 Credits)**

An examination of the field of public economics, the branch of economics concerned with the reasons for market failure (monopoly, public goods, externalities, information asymmetry) and the potential for government policies to correct them. The application of the tools of economic analysis to understanding the causes of and potential solutions to social problems of current interest are emphasized. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202; ECON 201 recommended.

**ECON 319. Industrial Organization. (3 Credits)**

A study of the branch of economics that analyzes the performance of industries in their role as producers of goods and services. Provides tools for analyzing and evaluating interactions between market structure (the number and size of firms in an industry), firm conduct, and industry performance. The role of government, through antitrust and other regulation, in improving the efficiency of industries and thus the economic system as a whole, is also considered. In addition, the theoretical tools of industrial analysis are used to perform case studies of actual industries. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202.

**ECON 333. Game Theory. (3 Credits)**

Game theory is the systematic study of strategic interactions that are present not just in economics and business but in politics, law, computer science, dating, sports and more. The main goal of the course is to introduce students to the basic concepts and tools of game theory and to apply these tools to real-life situations. Topics can include: strategic form games, extensive form games, rational choice, Nash equilibrium, incomplete information, signaling, repeated games, and reputations. Prerequisite: Econ 201, Econ 202 or Econ 215.

**ECON 350. History of Economic Thought. (3 Credits)**

An examination of the development of economic thought and economic methodology from the pre-capitalist era to the present, with emphasis on placing the development of economic theory into its historical and political context. Major topics include the early classical school (Smith, Ricardo, Marx), the rise of modern neoclassical economics, and critical responses to mainstream theory. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201; and ECON 202.

**ECON 361. Money, Banking, and Financial Markets. (3 Credits)**

A survey of the core topics relating to the monetary sector of the economy. This includes an examination of the role and nature of money, financial institutions and markets, banking structure and regulation, determinants of interest rates, central bank policy, exchange rates, and the international monetary system. Attention is also given to particular monetary episodes such as the Great Depression, the Latin American debt crisis, the collapse of the Mexican Peso, and the Asian monetary collapse. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 201.

**ECON 370. Natural Resource Economics. (3 Credits)**

A study of the efficient and equitable use of society's scarce natural resources. This course discusses the application of economic theory to natural resource problems, such as externalities and resource extraction. Particular attention will be placed on Western United States issues, including water, energy, mineral extraction, forestry and public land use. Prerequisites: MATH 140, MATH 141, or MATH 151 with a minimum grade of "C-"; ECON 202 or ECON 215.

**ECON 392. Independent Study. (1-4 Credits)****ECON 397. Special Topics. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 476. American Economic Development. (3 Credits)**

An inquiry into sources and character of American economic development. A survey is provided of several key moments in American political economy such as the market revolution, reconstruction, populism, progressivism, the Great Depression, the New Deal, and globalization. Students are asked to engage the ideas, social movements, and institutions that have shaped the modern American economy. Prerequisite: Instructor permission.

**ECON 492. Independent Study. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 497. Special Topics. (1-6 Credits)**

Prerequisite: overall GPA of 2.500 or higher, or department chair permission.

**ECON 498. Income Distribution, Poverty and Wealth. (3 Credits)**

A seminar-style examination of the causes and consequences of historical trends in income and wealth distribution in the United States, concentrating especially on the trend toward increasing inequality that began in the 1970s. Topics include: empirical analysis of distributional data; causal analysis based on both microeconomic and macroeconomic analysis; the roles of institutional change, social attitudes, and government policy; and both positive and normative evaluations of the economic and social consequences. This course fulfills the Economics Capstone Requirement.

**ECON 499. Internship in Economics. (1-6 Credits)**

The Economics Internship gives Economics majors who have completed 18 credits of economics the opportunity to apply their analytical skills in the service of businesses, government, and the community. Prerequisite: 18 credits of Economics courses including ECON 201; ECON 202; ECON 216 or MATH 213; and instructor permission.

## Education (EDUC)

**EDUC 000. Education Gateway Course. (0 Credits)**

Students explore the professional opportunities and practices of the teaching discipline. Designed to provide participants a variety of designated experiences with K-12 students so they are able to make informed decisions about becoming teachers. Students facilitate field experiences with school-age students both at the elementary and secondary levels. Students attend two one-hour long seminars and participate in 10 hours of subsequent field experiences. This course is required for admission to the Teacher Licensure Program. Graded Satisfactory/Unsatisfactory only.

**EDUC 102. Learning & Teaching. (3 Credits)**

An introduction to the theories, visions, and ideals of learning and teaching. Students draw upon various concepts, images, and frameworks to reflect upon their classroom experiences and consider their understanding of what it means to be a good student, good teacher, and informed citizen in a society that values education.

**EDUC 197. Special Topics in Education. (1-6 Credits)****EDUC 202. Education and Schooling in the U.S.. (3 Credits)**

Addresses the relationship between education and schooling as an institution. Students consider the historical foundations and ongoing debates surrounding education in the United States. Also addresses major landmarks, policies, and structural factors that have shaped and continue shaping today's schools.

**EDUC 210. Science Methods for Elementary Teachers. (1 Credit)**

Examines beliefs and current thinking about teaching and learning science. Students consider children's ideas about the natural world and ways of engaging young learners in the cultural, knowledge-generating practices of science.

**EDUC 295. Independent Study. (1-3 Credits)****EDUC 297. Special Topics in Education. (1-6 Credits)****EDUC 316. Introduction to Language Acquisition for Linguistically Diverse Students. (3 Credits)**

An introduction to theory and understanding of first and second language acquisition for teaching K-12 students from linguistically diverse cultures and backgrounds. Students develop an awareness of the historical, legal, social and educational background surrounding linguistically diverse education. The primary focus is on research based oral language assessment and development to provide meaningful instruction. Methods include those appropriate for the beginning English language learner, as well as those at other levels on the language acquisition continuum. Prerequisites: EDUC 000 and EDUC 102.

**EDUC 326. Diversity & Education. (3 Credits)**

Provides an introduction to the diversity that characterizes student populations in most U.S. public school classrooms today in light of radically changing population demographics during the past several decades. Students develop understandings of historical, cultural, social, political, linguistic, and pedagogical issues requisite for embracing diversity, equity, and inclusivity in public school classrooms and other educational settings. Ideas and methods for working with culturally and linguistically diverse students are addressed.

**EDUC 340. Application of Pedagogy and Practice. (3 Credits)**

A foundation course in educational pedagogy based on current research and widely accepted teaching strategies. Includes an integrated variety of research-based approaches to teaching and learning, such as cooperative learning and differentiated instruction, which are framed within professionalism standards for teachers. A major component of the course is a rigorous and structured field experience in local schools as preparation for residency. Prerequisite: Admission to the Teacher Licensure Program.

**EDUC 392. Independent Study. (1-3 Credits)**

A course for qualified, upper-level students with specialized interests in a particular area of advanced study in Teacher Education.

**EDUC 397. Special Topics in Education. (0.5-6 Credits)**

**EDUC 400. Foundations for Literacy: Phonology and Linguistics. (3 Credits)**

A study and application of scientifically-based methods of teaching and reinforcing fundamental reading skills. Cognitive processes of literacy, including phonology, morphology, orthography and etymology. Focus placed on English language structure as it affects decoding and encoding. Additionally, methods for diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students are covered. Prerequisite: admission to the Teacher Education Program.

**EDUC 401. Assessment for Prevention and Intervention. (3 Credits)**

This is an in-depth application of assessment techniques and instruments in coordination with state standards, No Child Left Behind and Individuals with Disabilities Education Act, 2004. Includes standardized testing and knowledge of literacy including five essential components of reading: phonemic awareness, phonics, vocabulary, fluency, and comprehension. Analysis of data to design and monitor instruction and intervention for universal, targeted, and intensive needs of diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students. Prerequisite: admission to the Teacher Education Program.

**EDUC 402. Reading Comprehension, Vocabulary, and Fluency. (3 Credits)**

A study and application of scientifically-based methods of teaching and reinforcing reading comprehension, vocabulary fluency, oral and written language skills. Cognitive processes of literacy, including phonology, morphology, orthography, etymology, semantics, syntax, discourse, pragmatics and English language structure as it affects meaning. Additionally, methods for diverse groups of students, including students with disabilities, students from culturally and linguistically diverse populations, and high-achieving students are covered. Prerequisite: admission to the Teacher Education Program.

**EDUC 403. Instruction and Assessment in Content Area. (3 Credits)**

An introduction to the concepts, methods, techniques, and assessment practices used to effectively teach secondary and K-12 students. Emphasis is placed on structures for lesson and unit planning, implementation of the Colorado State Standards, literacy and math integration, research based instructional strategies, content specific technologies, and management techniques. Prerequisite: admission to the Teacher Education Program.

**EDUC 404. Creating Positive Learning Environments. (3 Credits)**

An investigation into the rationales and practices for developing a classroom community that is inclusive, respectful, and conducive to learning for all students. Invites nuanced consideration of diversity within school contexts and the teacher's role in nurturing positive and productive relationships with students, families, and the broader community.

**EDUC 405. Data-driven Instructional Practices. (3 Credits)**

An in-depth application of standards-based instruction and assessment practices. Students design curriculum maps and plan standards-based lessons and units for diverse student populations. Students are taught to integrate literacy, math, and technology into their standards-based instructional plans, to use assessment data to drive standards-based curriculum that measure student knowledge, understanding, and skills, and to reflect on and evaluate their own performance. Prerequisite: admission to the Education Department.

**EDUC 406. Content Area Literacy. (3 Credits)**

An application of current research on brain based learning, reading and writing and its integration in the content area. Students implement the essential components of reading: phonemic awareness, phonics, vocabulary, fluency, comprehension, motivation, and engagement within the content area. In addition, there is a focus on content area study and test taking skills. Prerequisite: admission to the Teacher Education Program.

**EDUC 407. Maximizing Learning through 21st Century Skills. (3 Credits)**

Foster a deeper understanding of the 21st Century environment schools need to cultivate in order to maximize learning. This course prepares teachers to create technology-rich learning environments that enhance student growth and achievement. Prerequisite: Admission to the Teacher Education Program.

**EDUC 408. Teaching Writing with the Brain in Mind. (3 Credits)**

An in-depth application of cognitive processes associated with various kinds of learning. Within the context of writing assessment and instruction, students learn to pay attention to these learning processes so that their own classroom students can master content standards. Students learn to employ a wide range of teaching techniques to match the intellectual, emotional and social level of each classroom student and choose alternative teaching strategies, materials and technologies to achieve different curricular purposes. Students apply expert content knowledge to enrich and extend student learning and to recognize educational diversity and the effects on student learning in order to develop and apply individual educational plans. Prerequisite: admission to the Teacher Education Program.

**EDUC 409. Secondary Student Teaching. (3 Credits)**

Student teaching in a 7-12 school setting on the average of 24 hours per week, over the course of the academic year, in collaboration with mentor teachers. This course must be repeated twice for credit. Additional course fee applies. Prerequisite: admission to the Teacher Education Program.

**EDUC 410. K-12 Student Teaching. (3 Credits)**

Student teaching in a K-12 school setting on the average of 24 hours per week, over the course of the academic year, in collaboration with mentor teachers. This course must be repeated twice for credit. Additional course fee applies. Prerequisite: admission to the Teacher Education Program.

**EDUC 413. Mathematical Investigations. (3 Credits)**

An application of the research-based practices for instruction in math. Focus is placed on the foundations for assessing and teaching math by addressing basic skills, critical thinking skills, conceptual understanding, real life applications, and diverse learner needs. Students implement and review specific assessment practices, teaching structures, intervention strategies, and technology applications within a standards based framework of instruction. Prerequisite: admission to the Teacher Education Program.

**EDUC 417. Teaching and Assessing Writing with the Linguistically Diverse Student in Mind. (3 Credits)**

An application of cognitive processes associated with various kinds of learning. Within the context of writing assessment and instruction, students learn to employ a wide range of teaching techniques to match the cultural, academic, social and language proficiency level of each classroom student. Students apply expert content knowledge and knowledge of cognitive academic language proficiency to enrich and extend student learning.

**EDUC 420. Application of Classroom Strategies to Engage All Learners. (3 Credits)**

Study and apply effective research-based strategies for high levels of attention and engagement for all learners. Prerequisite: Admission in Teacher Education.

**EDUC 424. Differentiation: Applying Learner-Centered Instruction. (3 Credits)**

This course provides participants with an understanding of the components of differentiated instruction (content, process, and product). Participants explore skills and resources needed to effectively manage a differentiated classroom and extend their learning into the application of strategies, assessments, and management systems within the context of teaching academic content. Prerequisite: Admission to the Education Department.

**EDUC 428. Teaching English Learners. (3 Credits)**

An introduction to theory, research and teaching methods on second-language learning and research-based strategies for working with culturally and/or linguistically diverse learners. Considerable attention is paid to how to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers.

**EDUC 429. Instruction for English Learners. (3 Credits)**

Provides an overview of the theory and research on second-language learning and research-based strategies for working with culturally and linguistically diverse learners in general education settings for K-12 teachers. The content and standards covered in this course are essential for teachers who work with culturally and linguistically diverse students. Considerable attention is paid to how to work respectfully and productively with English learners, their families, community members, teachers/colleagues, administrators and special service providers.

**EDUC 458. Elementary Student Teaching. (3 Credits)**

Student teaching in an elementary school setting (grades K-6) on the average of 24 hours per week, over the course of the academic year, supervised by a mentor teacher. This course may be taken twice for credit.

**EDUC 459. Elementary Culturally and Linguistically Diverse Student Teaching. (3 Credits)**

Student teaching in an elementary school setting, with special attention given to work with linguistically diverse students. The student teaching experience averages 24 hours per week over the course of the academic year and is supervised by a mentor teacher. Additional course fee applies.

**EDUC 492. INDEPENDENT STUDY. (1-3 Credits)**

A course for qualified, upper-level students with specialized interests in a particular area of advanced study in Teacher Education.

**EDUC 493. Research Problems. (1-4 Credits)****EDUC 497. Special Topics in Education. (1-6 Credits)****EDUC 499. Internship. (1-6 Credits)**

## Engineering (ENGR)

**ENGR 131. Introduction to Engineering Design. (3 Credits)**

An interactive course to introduce students to the elements of engineering design. Learning objectives include a hands-on design experience, building teamwork and communication skills, understanding engineering methodology and engineering ethics. The goal for the semester is an open-ended design problem that students must solve as part of a team effort. This provides the practice that students need to become more skilled in the process of technical design as it is practiced in the workplace. Intro to design aims to build students' confidence in applying fundamental problem-solving concepts in order to solve complex, open-ended problems. Prerequisite or corequisite: MATH 141

**ENGR 161. Computer-Aided Design. (3 Credits)**

Introduces CAD software and relevant concepts, including orthographic projection, sections, engineering drawing, geometric dimensioning and tolerancing, and an introduction to manufacturing methods. Prerequisite: MATH 151

**ENGR 197. Special Topics. (1-6 Credits)**

COMPUTER AIDED DESIGN: Introduces CAD software and relevant concepts, including orthographic projection, sections, engineering drawing, geometric dimensioning and tolerancing, and an introduction to manufacturing methods. Prerequisites: Restricted to Mechanical Engineering majors. FABRICATION: This course is designed to provide students with the application of machine speeds, machine feeds, materials, tooling, tapping, and boring, in the manufacturing processes. Prerequisites: Restricted to Mechanical Engineering majors.

**ENGR 224. Materials Science. (3 Credits)**

Provides an overview of the structure, properties and processing of metallic, polymeric and ceramic materials. Specific topics include perfect and imperfect solids, phase equilibria, transformation kinetics, mechanical behavior and material degradation. Approach incorporates both materials science and materials engineering components. Prerequisites: CHEM 121 or CHEM 111, 112, 113 and 114; and PHYS 200 (all require minimum grade of C or higher).

**ENGR 265. Engineering as a Profession. (1 Credit)**

An introduction to the profession of mechanical engineering. Specific topics addressed through the semester include career opportunities in mechanical engineering, internship search skills, resume writing skills, expectations for professional behavior in the classroom and in industry, and current events/ethics topics relevant to the field. The class format may include additional evening/weekend activities. Prerequisite: ENGR 131 or instructor permission

**ENGR 297. Special Topics. (1-6 Credits)**

Provides an overview of the structure, properties and processing of metallic, polymeric and ceramic materials. Specific topics include perfect and imperfect solids, phase equilibria, transformation kinetics, mechanical behavior and material degradation. Approach incorporates both materials science and materials engineering components. Prerequisites: Requires prereq course of CHEM 121 or CHEM 111, 112, 113 and 114, and PHYS 200 (min grade C).

**ENGR 363. Mechanics of Solids. (3 Credits)**

Covers shear force and bending moment, torsion, stresses in beams, deflection of beams, matrix analysis of frame structures, analysis of stress and strain in 2-D and 3-D (field equations, transformations), energy methods, stress concentrations and columns. Prerequisites: MATH 252 and PHYS 250 (all require minimum grade of C or higher)



**ENGR 397. Independent Study. (1-6 Credits)**

**MECHANICS OF SOLIDS:**Covers shear force and bending moment, torsion, stresses in beams, deflection of beams, matrix analysis of frame structures, analysis of stress and strain in 2-D and 3-D (field equations, transformations), energy methods, stress concentrations and columns. Prerequisites: Requires prereq courses of PHYS 250 or ENGR 250; and MATH 252 (all require min grade C). **FLUID MECHANICS:**Examines fundamentals of fluid flow with application to engineering problems. Topics covered include fluid statics and kinematics, Bernoulli equations, laminar and turbulent viscous boundary layers, laminar and turbulent pipe flow, and conservation equations for mass, momentum and energy. Prerequisites: Requires prereq of PHYS 250 or ENGR 250; MATH 358; PHYS 201. All require C or higher.

## English (ENG)

**ENG 099. Basic Writing. (3 Credits)**

Provides students with practice in generating and developing writing about academic topics and preparation for ENG 102 Academic Writing. For students who do not meet the College Level Entry Standards set by the Colorado Commission on Higher Education. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only.

**ENG 100. Supplemental Academic Writing. (1 Credit)**

Provides co-requisite, supplemental instruction for students enrolled in ENG 102. Students will practice employing rhetorical knowledge; using writing processes; developing critical reading and writing strategies; and using effective written communication to demonstrate comprehension of content knowledge. Prerequisites: an assessment equivalent to ACT English score between 15-17; a SAT Evidence-Based Reading and Writing score between 430-469; or an Accuplacer Next Generation Reading score between 224-253 and Accuplacer Next Generation Writing score between 236-245; and a high school GPA of 2.75 or higher. Co-requisite ENG 102. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in English.

**ENG 102. Academic Writing (GT-C01). (3 Credits)**

Provides students the opportunity to practice strategies for developing writing projects on unfamiliar topics in unfamiliar formats to become more effective and efficient writers. Writers learn to practice strategies for making writing more comprehensible for readers and to use a wide range of writing processes for getting started, developing, organizing, and polishing writing projects. Prerequisites (one of the following): ENG 099; ACT English score of 18 or higher to demonstrate writing proficiency and ACT Reading score of 17 or higher to demonstrate reading proficiency; SAT Evidence-Based Reading and Writing score of 470 or higher to demonstrate writing proficiency and SAT Critical Reading score of 430 or above to demonstrate reading proficiency; Accuplacer Next Generation Writing test score of 246-300 and Accuplacer Next Generation Reading test score of 254-300 or higher; or combination of ACT, SAT, and Accuplacer scores to fulfill both reading and writing proficiencies; or co-requ

**ENG 148. Film and Culture. (3 Credits)**

A focus on the development of film and its cultural impact, with special emphasis on the relationship between film as a visual medium and literature as a verbal medium. After examining a selection of short stories and novels and the film adaptations based upon them, students are given the opportunity to write some film analysis of their own.

**ENG 150. Introduction to Literature (GT-AH2). (3 Credits)**

An introduction to literature with focus on a specific theme, form, or topic. Prerequisites (one of the following): ENG 099; ACT English score of 18 or higher to demonstrate writing proficiency and ACT reading score of 17 or higher to demonstrate reading proficiency; SAT Evidence-Based Reading and Writing score of 470 or higher to demonstrate writing proficiency and SAT Critical Reading score of 430 or above to demonstrate reading proficiency; Accuplacer Next Generation Writing test score of 246-300 and Accuplacer Next Generation Reading test score of 254-300; or combination of ACT, SAT and Accuplacer scores to fulfill both reading and writing proficiencies; open only to first and second-year students who have completed fewer than 60 credits. GT-AH2

**ENG 197. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered.

**ENG 205. Introduction to Creative Writing. (3 Credits)**

An introduction to the basic techniques of writing fiction and poetry. Models of each are studied, and students write and share pieces in both of these literary forms. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 220. Grammar and the English Language. (3 Credits)**

A study of English grammar focusing on standard English. Students are also introduced to the history of the English language. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 230. Environmental Literature (GT-AH2). (3 Credits)**

A study of environmental literature. Students analyze the formal and thematic characteristics of the literature. To inform critical interpretations, students read relevant cultural and environmental theory. The theme or topic is announced each semester. Prerequisite: ENG 102 with a minimum grade of C-. GT-AH2

**ENG 232. Borderlands: Representing Race, Class, Gender, and Sexuality. (3 Credits)**

A focus on literature representing literal and metaphoric borders and crossings. Students examine how culture and ideology inform representations of the interconnections among race, class, and gender. Examples include literatures of migration, mixed identities, and racial, gender, and sexual crossings. Prerequisite: ENG 102 with a minimum grade of "C-."

**ENG 237. Women and Literature. (3 Credits)**

Critical study of selected topics, themes, or issues about women as they are interpreted in popular and classic literary works. Specific titles to be announced each time the course is offered. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 238. Literary Culture of the American West. (3 Credits)**

A study of traditional and nontraditional forms of Western literature. Specific titles to be announced each time the course is offered. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 240. Writing Center Workshop. (2 Credits)**

Students investigate methods of the writing process and study personal communications of tutoring. Strategies include studying the learning styles of all students. Prerequisite: instructor permission.

**ENG 250. Critical Approaches to Literature. (3 Credits)**

Students study a variety of genres as a basis of learning to write literary analysis. Focus is on an understanding of the varied perspectives from which a text can be approached, and how readers construct meaning based not only upon the text itself, but also the context in which it is studied. The critical approach as well as theme or topic may vary. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 254. Popular Genre Fiction: Sci Fi Fantasy. (3 Credits)**

A focus on works that adhere to a specific popular genre announced on a rotating basis and selected from such sub-genres as science fiction, fantasy, mysteries, romance, westerns, or horror. Readings explore the relationship of genre tropes to the craft of storytelling. Course may be repeated for credit when taken with a different emphasis. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 255. Ancient World Literature (GT-AH2). (3 Credits)**

A study of ancient texts and their relation to their own time, and to ours. Since an understanding of these writings is important for reading English literature, the focus of the course is on Western texts central to that tradition. However, students may also read selected works from non-Western cultures in order to give them a taste of the diversity of the ancient world. Works studied may include selections from the Bible (Hebrew Scriptures and New Testament), Homer's writings, poetry and theatre of Classical Greece, Chinese poetry from the Book of Songs, a selection from the Mahabharata, and Roman poetry, particularly Virgil and Ovid. Prerequisite: ENG 102 with a minimum grade of C-. GT-AH2

**ENG 270. Folklore. (3 Credits)**

A study of one or more areas of folklore with a focus on American folklore. Possible areas include folksong, folk tales and legends, customs and festivals, dance and drama, proverbs, traditions, beliefs, recipes, and games. Prerequisite: ENG 102 with a minimum grade of C-.

**ENG 292. Independent Study. (1-3 Credits)****ENG 297. Special topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered.

**ENG 300. Creative Writing: Fiction. (3 Credits)**

Models are studied, and students read and respond to one another's writing. This course may incorporate narrative theory. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 301. Creative Writing: Poetry. (3 Credits)**

Instruction is given on the techniques and terminology of poetry writing. Models are studied, and students read and respond to one another's writing. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 302. Technical Writing. (3 Credits)**

A study of technical writing demands and techniques, with an emphasis on the professional setting. This course covers technical communication by examining and practicing written documents and presentations for multiple rhetorical situations. Professional etiquette and communication for the workplace, client-customer communication, and user-oriented instructions are core to this curriculum. This course will emphasize collaboration, different technological mediums, presentation skills, technical accuracy, and critical thinking. A research project is required. Prerequisite: ENG 102 with a minimum grade of "C-."

**ENG 303. Creative Writing. (3 Credits)**

A workshop approach to help writers develop a portfolio of essays suitable for publication in outdoor, environmental, and other appropriate magazines. To enhance their essays, writers read and analyze theoretical and published environmental texts. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 305. Creative Writing: Non-Fiction. (3 Credits)**

Models are studied, and students read and respond to one another's writing. Prerequisite: ENG 205 with a minimum grade of C.

**ENG 331. Literature and Ethnicity: Studies in:. (3 Credits)**

A focus on United States literatures reflective of specific identities and cultures. Students examine format and thematic characteristics of a particular literature. To enhance critical understanding, students read and analyze relevant theoretical approaches to race, ethnicity, and culture. A specific focus is announced each time the course is taught. Examples include Native American, African American, and Borderlands literature. Course may be repeated once for credit with a different title, but may be counted only once toward the major. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 334. Poetry: Studies in:. (3 Credits)**

An in-depth study of poetry as a genre through selections of British, American, and world literature. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 335. Drama: Studies in:. (3 Credits)**

An in-depth study of drama as a genre through selections of British, American, and world literature. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 336. Prose: Studies in:. (3 Credits)**

A focus on prose fiction, including such genres as short stories, novellas, and novels. Depending upon the instructor's specific emphasis, examples of any one or more of these genres may be selected for the term. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 337. Women Writers. (3 Credits)**

Analysis of the poetry, drama, or fiction of women writers. Emphasis is on 19th century, 20th century, or contemporary writers. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 352. Children's Literature. (2 Credits)**

A survey of traditional and modern literature providing an opportunity to discuss topics such as reader-response theories, critical literacy, objective and subjective criticism, censorship, and the use or misuse of literature in primary and middle-level education.

**ENG 358. Global Literatures: Studies in: The Underworld. (3 Credits)**

A study of literatures from around the globe that considers the artistry, culture, and diverse social conditions of various countries. A specific focus is announced each time the course is offered. Possible topics may include Colonialism and Globalization, The Sacred Texts, and War and Revolution. Course may be repeated once for credit with a different title, but may be counted only once toward the major. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 370. Myth and Culture. (3 Credits)**

An introduction to the role of myth in literature and in our contemporary world. Examining myth from various perspectives, including the archetypal, the course focuses upon myth as a means for understanding aspects of our society's cultures. Offered in alternate years. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 371. Literary Theory and Criticism. (3 Credits)**

An introduction to some of the primary conversations structuring debates in literary theory and criticism. Students learn to identify central questions, assumptions, and conflicts in theoretical and critical texts. Students also gain an understanding of the ways that theory and criticism influence their immediate experiences in English courses. Prerequisites: ENG 250 with a minimum grade of C and at least one 300-level literature course, or instructor permission.



**ENG 372. British Literature: Medieval and Renaissance Texts. (3 Credits)**

A study of British Literature focusing on the major genres for the Anglo-Saxon, Middle English, and Renaissance periods, ending with the Metaphysical poets (800 A.D. to early 1600s). Prerequisite: ENG 250 with a minimum grade of C.

**ENG 373. British Literature: Milton through the Romantics. (3 Credits)**

A study of British works of poetry, fiction, drama, and essay produced from 1660 to 1830. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 374. British Literature: The Victorians to the Present Day. (3 Credits)**

A study of British works of poetry, fiction, drama, and essay produced from 1830 to the present day. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 384. American Literature Early to Civil War. (3 Credits)**

An exploration of authors and texts in American literature up to 1865. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 385. American Literature-Civil War to Present. (3 Credits)**

An exploration of authors and texts in American literature from 1865 to the present. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 392. Independent Study. (1-6 Credits)****ENG 396. Writing Center Assistantship. (1-3 Credits)**

Students apply knowledge obtained in ENG 240 in directed field experiences in Writing Center tutoring. Prerequisite: ENG 240.

**ENG 397. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 405. Advanced Writing. (3 Credits)**

An opportunity to deepen writing practiced at the junior level, with increased attention to voice and style. This course seeks to develop an awareness of the broader community of writers that includes those with not only similar but also differing writing goals. Prerequisites: ENG 250 with a minimum grade of C and at least two 300-level writing courses.

**ENG 445. Literary Magazine Submission and Production. (3 Credits)**

Focus alternates between literary magazine submissions and literary magazine production. Submission discussion includes aesthetics and techniques for revising and polishing work for submission. During the production focus students participate in the editorial production of a fiction anthology including acquisition and proofreading of manuscripts. Prerequisite: ENG 250 with a minimum grade of C; ENG 300, ENG 301, ENG 303, or ENG 305 with a minimum grade of C; or instructor permission.

**ENG 463. Major British Authors: Cont. Lit. & Film. (3 Credits)**

An in-depth study of selected, significant authors that approaches works from similar or cross-historical periods of British literature. Course may be repeated once for credit when taken with a different emphasis. Prerequisite: ENG 250 with a minimum grade of C and junior standing.

**ENG 464. Major American Authors. (3 Credits)**

An in-depth study of selected, significant authors that approaches works from similar or cross-historical periods of American literature. Course may be repeated once for credit when taken with a different emphasis. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 475. Theories of Reading and Writing Discourse. (3 Credits)**

A focus on composition and writing center theory and its practical applications. In addition to taking the course, students work with a faculty member in a lower-division English course or in the Writing Center in order to implement theoretical material in teaching situations. The course may be taken twice for credit. Only three credits may count toward a major or minor in English or toward the Writing or Professional Writing Certificate. Graded Satisfactory/Unsatisfactory only. Prerequisite: instructor permission.

**ENG 492. Independent Study. (1-6 Credits)**

An opportunity for individual study about topics in English, to be selected by the students, in cooperation with their advisors and with the permission of the regular faculty member supervising the study. May be taken for a maximum of three credits in one semester. Maximum credit toward the English major is six credits. Prerequisites: 12 credits of English; ENG 250 with a minimum grade of C.

**ENG 493. Senior Seminar I: Studies in: Social Justice. (3 Credits)**

Students comprehensively engage in a given topic and the critical conversations pertaining to it. The research component of the course allows students to participate in and extend scholarly dialog. A specific focus is announced each time the course is offered. Prerequisites: ENG 250 with a minimum grade of C and ENG 371.

**ENG 494. Senior Seminar: Studies in: Planning Ahead. (3 Credits)**

The Senior Seminar serves as the Standard Major's capstone experience and focuses on announced thematic topics that allow students to demonstrate competencies developed in the major. The theme or topic is announced for each spring. Prerequisite: ENG 394 and senior standing; or instructor permission.

**ENG 497. Special Topics. (1-6 Credits)**

A study of a particular topic of interest to students of English to be announced each time the course is offered. Prerequisite: ENG 250 with a minimum grade of C.

**ENG 499. Internship in English. (1-6 Credits)**

Supervised practical experience in English for advanced students. Prerequisite: junior or senior standing and instructor permission.

## Environment and Sustainability (ENVS)

**ENVS 100. Introduction to Environment and Sustainability (GT-SS2). (3 Credits)**

An interdisciplinary, historical analysis of the development of environmental problems, movements, and philosophies. Students apply historical lessons to critically examine sustainable solutions locally and globally. GT-SS2

**ENVS 197. Special Topics. (1-6 Credits)****ENVS 200. Writing the Environment. (3 Credits)**

Students develop communication skills through presentations and writing on a variety of environmental issues appropriate to a wide variety of audiences. Through environmental essays, writing for nonprofit websites, grant proposals, and other forms of environmental writing, students are introduced to a broad range of skills needed for effective communication. Focus throughout the course on the analysis of arguments and texts further develops students' analytical and communication skills. Prerequisite: ENVS 100; COM 202 is recommended.

**ENVS 292. Independent Study. (1-3 Credits)**

**ENVS 297. Special Topics. (1-6 Credits)****ENVS 301. Science of Sustainability and Resilience. (3 Credits)**

A holistic inquiry into how humans might live the next chapter of our history, guided by the ecological principles of sustainability and resilience. Environmental problems and their possible solutions are analyzed critically and quantitatively; field experiences on campus and in the community involve students directly in the application of these principles. Themes include sustainable agriculture, green building, renewable energy, and conservation and restoration. Prerequisites: BIOL 130, BIOL 135, PHYS 125

**ENVS 350. U.S. and Western Environmental Politics. (3 Credits)**

An historical and contemporary investigation of U.S. environmental policies with an applied focus on the impact of national policy on the ecosystems and cultures of the American West. Reciprocally, this course traces how public lands agencies, social movements, historical land uses, and diverse cultures in the West shape U.S. environmental policy. Students combine analysis and discussion of major U.S. policies, prominent theories and issues, and student-led environmental service projects to better understand environmental challenges. Prerequisites: ENVS 100, ENVS 200 or COM 202, ECON 370.

**ENVS 360. Global Environmental Policy. (3 Credits)**

A critical examination of key perspectives, economic and political processes, policy actors, and institutions involved in global environmental issues. Students analyze ecological, cultural, and social dimensions of international environmental concerns and governance as they have emerged in response to increased recognition of global environmental threats, globalization, and international contributions to understanding of these issues. The focus of the course encourages students to engage and evaluate texts within the broad policy discourse on globalization, justice, and the environment. Prerequisites: ENVS 100; ECON 201, ENVS 200 or SCI 202; junior standing or instructor approval.

**ENVS 370. Water Policy and Politics. (3 Credits)**

Study of the history, politics and institutions related to water policy and administration with comparative reference to different regions of the United States and internationally. Attention is given to the industrial development of the East and the created water resources of the arid West as a way to understand changing social sentiments toward water and water policy. The course also examines water pollution laws and water management. Prerequisites: ENVS 100; ECON 201 or ENVS 200 or SCI 202; junior standing or instructor approval.

**ENVS 373. The Water Planet. (3 Credits)**

An advanced water science course specifically designed for students interested in water related environmental science and policy. Topics include the physical and chemical properties of natural fresh waters and the movement and reservoirs of fresh water within the water cycle. The course includes several hands-on exercises and field experiences where students investigate and analyze natural waters in the Gunnison Basin. Prerequisites: GEOL 101; GEOL 105 and one of the following: CHEM 101 or CHEM 111

**ENVS 375. Seminar in Water Topics. (3 Credits)**

An occasional offering that may include water topics in politics and policy, ethics and philosophy, or science. Prerequisite: ENVS 200 and ENVS 301, or instructor permission.

**ENVS 376. The Colorado Water Workshop. (1 Credit)**

A three-day annual conference bringing students together with a variety of water users, managers, ranchers, environmentalists, regulators and others involved in water issues for presentations and discussion on matters ranging from specific municipal or water district projects to major basin-wide planning for the great rivers of the West to global issues of water use and protection. Topics vary from year to year. Prerequisite: ENVS 350 and ENVS 370, or instructor permission.

**ENVS 390. Environmental Monitoring. (4 Credits)**

A field-work based study of local (Gunnison Basin) environmental problems. Numerous monitoring techniques are implemented based on principles of biology, chemistry, and geology. The emphasis is on collaborative and integrative group projects dealing directly with real-world environmental problems. Prerequisites: ENVS 301 and one of the following: ECON 216, MATH 213, or SOC 211.

**ENVS 392. Independent Study. (1-6 Credits)****ENVS 397. Special Topics. (1-6 Credits)****ENVS 399. Environment and Sustainability Internship. (1-6 Credits)****ENVS 400. Applied Sustainability. (3 Credits)**

A field-based, collaborative, problem-solving experience that addresses a current issue in environmental sustainability. Implementing frameworks such as resilient and systems thinking, students collect information, analyze results, write a report, publicly present their findings, and begin to implement solutions informed by their analysis. Students learn basic skills for transforming their ENVS education into compelling environmental professional career possibilities. Prerequisites: ENVS 350 and ENVS 390.

**ENVS 410. Environmental Ethics. (3 Credits)**

A seminar on the complexities of environmental issues from a philosophical perspective. The course also offers a survey of the evolution of environmental moral philosophy as well as in-depth analysis of major thinkers in the field. Students confront ethical concerns from both historical and personal perspectives, with an emphasis on the ability to critically evaluate and apply these perspectives to their work in environmental fields. Prerequisite: ENVS 301 and 350; or PHIL 335.

**ENVS 420. Natural History of the Gunnison Basin. (3 Credits)**

An overview of place-based natural history, current ecological research, and current environmental issues facing the region. Prerequisites: ENVS 100 and instructor permission.

**ENVS 430. Watersheds of the World. (3 Credits)**

This field course is designed to provide students with an introduction to important science and policy issues in selected watersheds throughout the world. Students receive an overview of place-based natural history, current ecological research, and current environmental issues and policy facing the region. Examples include the local and global effects of resource extraction, tourism, air and water pollution, land use changes, and global climate change. This is an expedition course (approximately 3 weeks) and is experiential in nature. Prerequisites: ENVS 100 and instructor permission.

**ENVS 492. Independent Study. (1-6 Credits)****ENVS 497. Special Topics. (1-6 Credits)****ENVS 499. Internship in Environmental Studies. (1-6 Credits)**

An opportunity to apply skills and knowledge from course work to an employment setting. Prerequisite: approval from an Environmental Studies advisor and the Program Director.

## Exercise and Sport Science (ESS)

### ESS 100. Intercollegiate Athletics: Basketball. (1 Credit)

Basketball open to members of the intercollegiate basketball team. May be taken one time for credit. Prerequisite: Coach/instructor permission

### ESS 101. Intercollegiate Athletics: Cross Country. (1 Credit)

Intercollegiate Athletics: Cross Country Open to members of the intercollegiate cross country team. May be taken one time for credit. Prerequisite: Coach/ instructor permission

### ESS 102. Intercollegiate Athletics: Football. (1 Credit)

Football Open to members of the intercollegiate Football team. May be taken one time for credit. Prerequisite: Coach/ instructor permission

### ESS 103. Intercollegiate Athletics: Indoor Track. (1 Credit)

Indoor Track Open to members of the intercollegiate Indoor Track team. May be taken one time for credit. Prerequisite: Coach/ instructor permission

### ESS 104. Intercollegiate Athletics: Outdoor Track. (1 Credit)

Open to members of the intercollegiate Outdoor Track team. May be taken one time for credit. Prerequisite: Coach/ instructor permission.

### ESS 105. Intercollegiate Athletics: Volleyball. (1 Credit)

Open to members of the intercollegiate Volleyball team. May be taken one time for credit. Prerequisite: Coach/ instructor permission.

### ESS 106. Intercollegiate Athletics: Wrestling. (1 Credit)

Open to members of the intercollegiate athletic wrestling team. May be taken one time for credit. Prerequisite: Coach/instructor permission.

### ESS 107. Intercollegiate Athletics: Soccer. (1 Credit)

Open to members of the intercollegiate athletic soccer team. May be taken one time for credit. Prerequisite: coach/instructor permission.

### ESS 108. Intercollegiate Athletics: Swimming. (1 Credit)

Open to members of the intercollegiate athletic swimming team. May be taken one time for credit. Prerequisite: coach/instructor permission.

### ESS 112. Select Activities in Recreation, Exercise, and Sport Science. (1 Credit)

A specific activity is offered as student interest, facilities, faculty, and equipment are available.

### ESS 131. Physical Conditioning. (1 Credit)

Off-season conditioning activities for intercollegiate athletes. Students develop the knowledge of how to improve and maintain fitness relevant to their sport during the off-season. Prerequisite: Instructor Permission.

### ESS 132. Weight Training. (1 Credit)

The theory and practice of weight training. Information is presented concerning physiological and bio-mechanical adaptations accompanying resistive training, reasonable methods of improving athletic performance, and methods of resistance training that can lead to improved quality of life.

### ESS 135. Mountain Bike Riding. (1 Credit)

Students develop general knowledge of and proficiency in the activity, equipment, safety procedures, and terminology of the fundamental skills of mountain bike riding.

### ESS 160. Swimming (Beginning). (1 Credit)

An introduction to swimming designed to equip the students with the basic watersafety skills and knowledge needed to be reasonably safe while in, on, or about the water.

### ESS 161. Swimming (Intermediate). (1 Credit)

Satisfactory completion of these skills leads to the Red Cross Intermediate and Swimmer's Certificate.

### ESS 170. Lifeguard Training. (2 Credits)

Provides the individual with the knowledge and skills designed to save one's own life or the life of another in the event of an emergency, with certification by the American Red Cross.

### ESS 172. Water Safety Instruction. (3 Credits)

Satisfactory completion of these skills leads to the Red Cross WSI Certificate.

### ESS 181. Foundations of Exercise and Sport Science. (3 Credits)

An introduction to the field of exercise and sport science. An overview of philosophical, historical, and scientific foundations, current trends and issues, professional opportunities, and skills and competencies required for careers in a wide variety of physical activity settings.

### ESS 185. Lifetime Wellness. (3 Credits)

Provides conceptual and experiential components designed as a basis for developing a healthier lifestyle.

### ESS 197. Special Topics. (1-6 Credits)

### ESS 201. Essentials of Human Anatomy and Physiology (with Lab). (4 Credits)

An introduction to basic anatomy and physiology of all human systems. Lab and lecture are integrated. Prerequisite: Sophomore standing.

### ESS 210. Skill Development and Analysis: Net and Wall Games. (1 Credit)

Skill development and analysis in net and wall games, including tennis, volleyball, pickleball, handball, and badminton. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

### ESS 211. Skill and Development and Analysis: Invasion Games. (1 Credit)

Skill development and analysis for invasion games, including soccer, lacrosse, team handball, speedball, basketball, ultimate Frisbee, and flagball. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

### ESS 212. Skill Development and Analysis: Target and Fielding Games. (1 Credit)

Skill development and analysis for target and fielding games including bowling, archery, golf (traditional and disc), softball, and bocce. Learning and application of content in a developmental model. History, scoring, rules, terminology, equipment, and safety considerations included.

### ESS 213. Skill Development and Analysis: Dance. (1 Credit)

Skill development and analysis for a variety of dance forms including fitness, folk, country, social, and ballroom. Learning and application of content in a developmental model. History, terminology, music choices, and safety considerations included.

### ESS 221. Methods of Coaching Football. (2 Credits)

The fundamental principles and play of football, including a basic defensive and offensive game plan, the fundamentals and techniques involved in coaching football, a basic outline of coaching the quarterback, the moral and ethical responsibilities of the coach to game participants, administration, etc., as well as coaching philosophy and interpretation of the rules.

### ESS 223. Methods of Coaching Basketball. (2 Credits)

A study of individual fundamentals and techniques, as well as team offensive and defensive patterns and strategies involved in coaching basketball.

**ESS 225. Methods of Coaching Wrestling. (2 Credits)**

An introduction to all phases of wrestling. Fundamental movements and techniques, rule interpretations, and approved coaching ethics are covered.

**ESS 227. Methods of Coaching Track and Field. (2 Credits)**

The techniques and fundamentals of each track and field event. The course also includes the important phase of practical track meet management.

**ESS 229. Methods of Coaching Volleyball. (2 Credits)**

Lecture and discussion with research assignments and practicum work. An understanding of basic offenses (6-0 and 4-2), basic defensive coverage and rotations, service reception, and serving sets are presented.

**ESS 275. Motor Development and Learning. (3 Credits)**

An application of the knowledge of motor development and learning to physical activity across the lifespan. This class introduces the physiological, perceptual, and cognitive, as well as the affective changes that occur in motor development and learning across the lifespan. Prerequisite: ENG 102 with a grade of C- or above.

**ESS 276. Emergency Response. (3 Credits)**

Students are provided essential knowledge and skills needed to develop CPR and advanced first-aid capabilities. For students who might be required to provide first aid frequently and for special interest groups. Exercise and Sports Science majors have first option for this course.

**ESS 282. Principles of Sport and Fitness Management. (3 Credits)**

A focus on the administration of programs within the sport and fitness industries. Topics include administrative theories and concepts, personnel, communication and problemsolving, fiscal management, budgeting, ethical considerations, and program evaluation. Prerequisite: ENG 102 with a grade of C- or above, ESS 181, or instructor permission.

**ESS 290. Curriculum Development and the Learning Environment. (3 Credits)**

A comprehensive overview of materials, suggested teaching methods, procedures, techniques, well-directed and well-selected activities, and ways of evaluating physical education in K-12 schools.

**ESS 292. Independent Study. (1-6 Credits)****ESS 297. Special Topics. (1-6 Credits)****ESS 298. Fitness Instruction. (3 Credits)**

Students develop knowledge and skills to plan and implement group fitness classes as well as personal training sessions. Topics include: risk management, exercise plans, group fitness instruction, personal training, fitness pedagogy, training special populations, cardiovascular fitness, resistance training, flexibility training, and core stability. Prerequisite: ESS 201 or BIOL 372.

**ESS 320. Psychology of Sport and Physical Activity. (3 Credits)**

A variety of issues and research areas in the psychology of sport and physical activity are addressed. Topics covered include an overview of the development of sport and exercise psychology, personality theories, exercise and mood, exercise adherence, goal setting, motivation, psychological interventions for athletes, and cohesion theories. Prerequisite: minimum junior standing.

**ESS 330. Exercise Physiology. (3 Credits)**

An emphasis on the theory and principles of exercise physiology to health, physical fitness, and athletic performance in diverse populations. Prerequisites: ESS 201 or both BIOL 372 and BIOL 373; minimum Junior standing.

**ESS 331. Exercise Physiology Lab. (1 Credit)**

Basic laboratory techniques of exercise physiology correlating with ESS 330. Laboratory experiences include aerobic and anaerobic exercise, body composition, strength, flexibility, and body composition and other indicators of exercise. Prerequisites: completion of the College Mathematics course requirement; Corequisite: ESS 330.

**ESS 340. Mental Training for Peak Performance. (3 Credits)**

An application of theories and concepts of sport psychology. This course focuses on application of specific psychological skills necessary for high level performance and assisting students in teaching others those same skills. Prerequisite: ESS 320 or instructor permission.

**ESS 346. Psychology of Coaching. (3 Credits)**

Psychological factors involved in coaching and leadership are explored in this course. Relevant theory and research, as well as practical applications, are discussed. Topics include expert coaching characteristics and behaviors, leadership and motivational styles, the coach-athlete relationship, stresses of coaching, reinforcement strategies, ethics in coaching, and issues related to youth sport coaching. This course is designed for current and future coaches, individuals in leadership roles, as well as anyone interested in the coach's experience. Prerequisites: ESS 320, minimum junior standing or instructor permission.

**ESS 350. Assessment & Technology in Physical Education. (2 Credits)**

Planning, administering, and evaluating standards-based accountability systems in physical education. Multiple assessment strategies for psychomotor, cognitive, and affective learning objectives, using current technologies, are presented. Students evaluate, select and/or construct assessment tools to match specific learning outcomes in the K-12 physical education curriculum. Prerequisites: ESS 181 or ESS 185; and ESS 290 and completion of the University mathematics requirement.

**ESS 353. Coordinated School Health and Physical Activity Programs. (2 Credits)**

Overview of coordinated school health programs with a heavy focus on local wellness policy, comprehensive school health education and the role of physical activity and physical education in schools. Includes 6-8 hours of required field experience. Prerequisites: EDUC 000 and junior standing.

**ESS 355. Psychology of Injury. (3 Credits)**

Psychological factors involved in sport-related injuries and the rehabilitation process. Course content includes relevant theory and research as well as practical applications. Topics include: stress, responses to injury, mental skills used to manage injury (i.e., goal setting, motivation, and confidence), social support, potential psychological problems faced during rehabilitation, and returning to sport after injury. Prerequisites: ESS 320, minimum junior standing or instructor permission.

**ESS 360. Nutrition for Wellness and Performance. (3 Credits)**

A focus on concepts geared to promote peak performance based upon nutritional intake. An understanding of macronutrient ingestion along with other essential nutrients is gained and applied in detail to the healthy and chronically diseased populations. This includes an understanding of the metabolic effect of food. The pros and cons of select supplements are discussed and applied to real-life scenarios. Prerequisites or co-requisites: ESS 330 and ESS 331.

**ESS 363. Inclusive Physical Activity. (3 Credits)**

Students develop knowledge and skills necessary to work with diverse populations in physical activity settings. Content includes planning, instructional design & delivery, assessment, coordination of resources, and advocacy for inclusive physical activity programming. Prerequisites: ESS 185 or ESS 275; and minimum junior standing.



**ESS 365. Topics in Physical Activity. (3 Credits)**

Interdisciplinary study of the role of physical activity under a variety of conditions and settings, and for a variety of populations. Content focuses on current research and practice as it relates to the topic under consideration. Topics will rotate annually. Can be repeated up to three times for credit if a different topic is selected. Prerequisites: ESS 181, ESS 185; ESS 201 or BIOL 372; junior/senior standing.

**ESS 370. Essentials of Strength Training and Conditioning. (3 Credits)**

Exercise prescription and conditioning in the form of resistance training, including the use of free weights, machines, Olympic lifts, and plyometrics. Muscular adaptations to anaerobic and aerobic training, testing and evaluation, exercise techniques, and resistance training program design. Design, implementation, and demonstration of appropriate resistance training routines and proper lifting technique for a variety of populations. Content knowledge aligns with requirements for completion of certification as a Certified Strength and Conditioning Specialist (CSCS) from the National Strength and Conditioning Association (NSCA). Prerequisite: ESS 330 or instructor permission.

**ESS 380. Biomechanics. (3 Credits)**

Investigation and analysis of human movement. Basic mechanical principles of force, motion, and aerodynamics as related to fundamental physical skills and their application to exercise, sport, and physical activity. Prerequisites: ESS 185; ESS 201 or BIOL 372; completion of the University Mathematics course requirement.

**ESS 382. Management of Sport and Fitness Facilities. (3 Credits)**

A study of principles, guidelines and recommendations for planning, construction, and the use and maintenance of indoor and outdoor sports, physical education, recreation, and fitness facilities. Prerequisite: Junior Standing.

**ESS 385. Physical Activity Programming. (3 Credits)**

Topics include an overview of physical activity epidemiology, evidence-based physical activity interventions, behavior change theories, best practices, including use of technology, to increase physical activity among specific populations, and principles in program design, implementation, and evaluation. Students will design and administer a physical activity awareness or educational campaign for a target population. Prerequisite: ESS 185.

**ESS 392. Methods of Secondary Activities. (3 Credits)**

For students planning to obtain licensure in physical education. A variety of curriculum models (e.g., tactical, sport education, social responsibility) are used to present individual, dual and team sport activities. Lesson and unit plans are developed, implemented and assessed in keeping with Colorado and NASPE standards as they relate to secondary physical education. Prerequisites: 2 of the following: ESS 210, 211, 212, 213; ESS 290, minimum junior standing; Prerequisite or corequisite: ESS 350

**ESS 395. Methods of Elementary Activities. (3 Credits)**

Units covered may include apparatus and tumbling, dance, and games. Each unit breaks down into sub-units, and progressions are emphasized. Lesson and unit plans are developed, implemented, and assessed in keeping with national standards and as they relate to elementary physical education. Competencies in the basic skills of each unit are also tested. Prerequisites: two of the following: ESS 210, 211, 212, 213; ESS 290; and minimum junior standing; Prerequisite or corequisite: ESS 350.

**ESS 396. Methods of Alternative Physical Education. (3 Credits)**

Units covered may be: Nordic skiing, rock climbing, orienteering, camping, mountain biking, and adventure activities. Lesson and unit plans are developed, implemented, and assessed in keeping with national standards as they relate to secondary physical education. Prerequisites: ESS 290 and minimum junior standing.

**ESS 397. Special Topics. (1-6 Credits)****ESS 405. Practicum in Exercise and Sport Science. (1 Credit)**

Pre-professional experience in a physical activity setting. Such experiences include observing and participating in the professional activities associated with the particular setting. Students work with an Exercise and Sport Science faculty member to select an approved practicum experience, and are required to develop an approved learning contract. May be repeated once for credit (in a different setting). Prerequisites: ESS 181, ESS 185, junior or senior standing.

**ESS 410. Assessment and Exercise Prescription. (3 Credits)**

Students work with assessment formats, appraisal techniques, and metabolic calculations to gain information needed to construct exercise prescriptions designed to meet individual needs for different segments of the population. Prerequisites: ESS 331 and ESS 298 or instructor permission.

**ESS 411. Wellness Elevated I. (3 Credits)**

An opportunity for students to further their knowledge, skills, and abilities in exercise assessment, prescription, programming, implementation and outcome evaluation. Students will develop professional skills of healthcare documentation, communication and program analysis. A commitment of 6 hours per week, clinic time, in addition to weekly class meetings is required. Prerequisite: ESS 410.

**ESS 412. Exercise Biochemistry. (3 Credits)**

Essential concepts of biochemistry – molecular biology, basic chemistry, metabolism, and transcription regulation – as applied to the human during exercise. Prerequisites: ESS 330 and ESS 331.

**ESS 430. Topics in Clinical Exercise Physiology. (3 Credits)**

A study of diseased populations, including, but not limited to, exercise therapy in cardiac and cancer patients. Course content focuses on the etiology and pathophysiology of disease, electrocardiogram and diagnostic stress test interpretation, specialized exercise prescription, and other topics at the discretion of the instructor. Prerequisites: ESS 330 and ESS 331.

**ESS 431. Wellness Elevated II. (3 Credits)**

An opportunity for students to further their expertise in clinical exercise physiology. Students will gain direct experience in exercise assessment, prescription, programming, implementation and outcome evaluation in special population groups. Students will need to commit to 6 hours per week of clinical time (i.e., Wellness Elevated) as well as weekly meeting times. Prerequisite or co-requisite: ESS 430.

**ESS 440. Topics in Sport & Fitness Management. (3 Credits)**

A focus on various managerial functions within sport and fitness management through the study of various theoretical perspectives, the provisions of pre-professional experiences, and distinct topics at the discretion of the instructor. Topics rotate annually. The course may be repeated up to three times if a different topic is offered. Prerequisite: Junior standing or instructor permission.

**ESS 450. Risk Management in Physical Activity Settings. (3 Credits)**

A focus on risk assessment and management for physical activity professionals. Topics covered include risk assessment, standard of care, negligence, forms to limit liability, constitutional law as relevant for physical activity professionals, development of a risk management plan, and risk reduction strategies. Prerequisites: junior or senior standing.

**ESS 490. Sociology of Sport and Physical Activity. (3 Credits)**

A focus on the social organization of sport and physical activity and their relationship to the institutional structure, cultural patterns, and dynamics of American society. Students use different sociological approaches/theories to analyze sport and physical activity and to analyze current issues and problems in sport and physical activity settings. Prerequisite: minimum junior standing.

**ESS 492. Independent Study. (1-4 Credits)**

For qualified upper-level students who have specialized interests in a particular area of advanced study in Exercise and Sport Science.

**ESS 495. Senior Seminar in Exercise and Sport Science. (3 Credits)**

A capstone course required for all ESS majors addressing issues, ethical considerations, problem-solving and decision-making, leadership and communication in the discipline. Students integrate content from their course of study, write and speak in discipline-specific formats, and complete a comprehensive self-assessment in preparation for graduate school, internship, or entry-level job. Prerequisites: ESS 181, ESS 185, senior standing. Students are encouraged to take this course during their final semester.

**ESS 496. Field Experiences. (1-6 Credits)**

Directed field experiences in teaching, coaching, and laboratory settings. Guidelines for the field experiences are provided and agreed upon at the beginning of the course.

**ESS 498. Internship in Exercise and Sport Science. (3-12 Credits)**

An opportunity for in-depth work at a professional site in an area of exercise and sport science. The internship must meet standards of the department and the University, including completion of a pre-internship checklist. Prerequisites: Satisfactory grade in ESS 405, overall GPA of 2.750, department advisor permission, and senior standing.

## Geography (GEOG)

**GEOG 110. World Regional Geography (GT-SS2). (3 Credits)**

A survey of the major regions of the contemporary world-defined according to a combination of biophysical, cartographic, cultural, religious, linguistic, political, and economic criteria. Emphasis is given to understanding regional characteristics and processes, and to relationships between events and processes occurring in different regions. Current events of major importance are incorporated where appropriate. GT-SS2

**GEOG 120. Introduction to Human Geography (GT-SS2). (3 Credits)**

A thematic study of cultural landscapes and the processes by which people create and modify them. Topics of discussion range from ancient to modern, rural to urban, local to international, and include themes as diverse as the origins and spread of agriculture, migration and immigration, urban morphologies and social interactions, ethnicity, development and underdevelopment, and environmental concerns. GT-SS2

**GEOG 197. Special Topics. (1-6 Credits)****GEOG 222. Our Digital Earth. (3 Credits)**

Using primarily on-line data and sources of maps, aerial photographs and satellite images, students develop and apply understanding of basic principles and techniques of map interpretation, communication with maps, and the appropriate use and interpretation of aerial photographs and satellite images. The course emphasizes both the skilled use of these standard tools of geographic analysis and visualization and communication of data and analysis with free on-line mapping tools and location-enabled mobile phone applications.

**GEOG 250. Geography of North America (GT-SS2). (3 Credits)**

A survey of the major biophysical, cultural, and economic regions of the United States and Canada. Major themes of human geography including demography, migration, land use change, and ecological concerns are addressed in appropriate regional contexts. Prerequisite: GEOG 120 or sophomore standing. GT-SS2

**GEOG 292. Independent Study. (1-6 Credits)****GEOG 297. Special Topics. (1-6 Credits)****GEOG 340. Introduction to Geographic Information Systems. (3 Credits)**

An introduction to the concepts and techniques of Geographic Information Systems (GIS). Topics covered include fundamentals of mapping, data formats, data acquisition, and quantitative analysis of spatial data. The laboratory component emphasizes practical applications of GIS to contemporary problems including but not limited to watershed analysis, land-use planning, environmental assessment, and market analysis. Prerequisites: GEOG 222 or GEOL 105; college-level mathematics requirement with a minimum grade of C-; junior standing or instructor permission.

**GEOG 351. Geography of Latin America and the Caribbean. (3 Credits)**

A thematic study of the physiographic and cultural regions of Latin America and the major historical and contemporary geographic processes that characterize the region. Major topics of discussion include climate and physiography, environmental concerns and human rights, the nature of Latin American cities, pre-Hispanic and modern agriculture, and the nature of contemporary economic processes in the region. Prerequisite: GEOG 120 or sophomore standing.

**GEOG 360. 'Natural' Disasters. (3 Credits)**

This course examines a variety of natural processes which have the potential to inflict dramatic damage and loss of life and a wide range of social, economic, political, and other factors that tend to increase exposure to those events and reduce the abilities of certain populations to respond to them—causing natural processes to become disasters. Prerequisite: GEOG 120 or instructor permission.

**GEOG 392. Special Topics. (1-6 Credits)**

An opportunity for detailed study and/or research by advanced students. Prerequisites: GEOG 110 and GEOG 120.

**GEOG 397. Special Topics. (1-6 Credits)****GEOG 460. Geospatial Analysis. (3 Credits)**

Students enhance their understanding of concepts, skills, and techniques learned in an earlier GIS course by applying additional training in advanced vector and raster analysis, utilization of satellite imagery, and geospatial analysis methods to inform analysis of landscape change processes such as wildfire, deforestation, urbanization, reforestation, drought, flooding, climate change, and agricultural intensification. Prerequisite: GEOG 340.

**GEOG 492. Geography Independent Study. (1-6 Credits)****GEOG 497. Special Topics. (1-6 Credits)****GEOG 499. Internship in Geography. (1-3 Credits)**

Provides the opportunity for advanced students to apply skills and knowledge gained from course work to an applied setting typical of those in which geographers are employed. Prerequisite: junior standing and completion of all other geography requirements.



# Geology (GEOL)

## **GEOL 101. Physical Geology (GT-SC2). (3 Credits)**

An introductory class that emphasizes the environmental aspects of geology. The course covers the basic principles of physical geology, such as minerals, rocks, plate tectonics, earthquakes, volcanoes, and origin of landscapes by mass wasting, rivers, glaciers, ground water, and nearshore processes. Throughout this course, focus is on the effect of geology on human society through the study of geologic hazards, energy resources, and mineral resources. GT-SC2

## **GEOL 105. Physical Geology Laboratory (GT-SC1). (1 Credit)**

An introduction to identification of minerals and rocks and a discussion of their genesis followed by a study of landscapes formed by mass wasting, rivers, glaciers, ground water, and nearshore processes. Many of these principles are observed on local field trips. Additional course fee applies. Prerequisite or corequisite: GEOL 101. GT-SC1

## **GEOL 197. Special Topics. (1-6 Credits)**

### **GEOL 201. Historical Geology (with laboratory). (4 Credits)**

A study of the interpretation of the geologic history, structure, and evolution of the Earth with emphasis on methods and concepts rather than factual information. Colorado geologic history and various principles are observed during three or four field trips. Topics and concepts such as geophysics, continental drift, and plate tectonics are integrated into discussions of Earth history. Additional course fee applies. Prerequisites: GEOL 101 and GEOL 105.

### **GEOL 220. Field Geology of Western North America. (1 Credit)**

An illustration of basic geologic principles using field trips to classic localities throughout western North America. Field trips change each year depending on student interest. Past field trips have gone to the Grand Canyon as well as other locales. A student may earn a maximum of two credits under this course number. Prerequisite: GEOL 201 or instructor permission.

### **GEOL 240. Introduction to Petroleum and Mining Geology. (3 Credits)**

A survey of the physical and chemical processes responsible for the distribution of hydrocarbon and mineral resources in the Earth's crust and techniques for hydrocarbon and mineral resource exploration, assessment, and development. Includes field trips to oil and gas and mining operations in Colorado and Utah. Prerequisites: GEOL 101 and GEOL 105.

## **GEOL 297. Special Topics. (1-6 Credits)**

### **GEOL 300. Geology Field Trip. (1-6 Credits)**

Provides students exposure to varied geologic terranes and settings. The course normally consists of preparatory lectures and the actual field trip, followed by a paper, talk, or examination. Students may earn a maximum of six credits under this course title. Prerequisite: GEOL 201.

### **GEOL 302. Geoscience Writing. (2 Credits)**

An introduction to the proper methods and accepted formats of written, graphical, and oral communication in the geological sciences. These skills are addressed through critical evaluation and discussion of the geological literature, by writing reports, review papers and research proposals, and giving oral presentations. Prerequisites: ENG 102 with a grade of C- or above and GEOL 201. Corequisite: GEOL 310.

## **GEOL 305. Mineralogy (with laboratory). (4 Credits)**

An introduction to the study of minerals. Important topics include the crystallography, crystal chemistry, and optics of important rock and ore forming minerals. Emphasis is placed on the crystal chemistry and stability of major silicate mineral groups. The laboratory emphasizes the field identification of minerals and the application of optics to the identification of minerals in thin section. Additional course fee applies. Prerequisites: GEOL 101, GEOL 105, MATH 141. Prerequisite or corequisite: CHEM 111 and CHEM 112.

## **GEOL 310. Stratigraphy and Sedimentation (with laboratory). (4 Credits)**

A study of the basic principles and origins of sedimentary rock units. Topics studied include sub-division of the geologic column and geologic time, depositional systems, stratigraphic nomenclature and rules, principles of correlation including a review of modern geophysical, geochemical, and chronostratigraphic methods, biostratigraphy, and event stratigraphy. Laboratory includes measurement of sections, examination of depositional systems in the field, and surface and subsurface stratigraphic techniques, including geophysical-log interpretation and computer mapping. Additional course fee applies. Prerequisites: ENG 102 with a minimum grade of C-, GEOL 201.

## **GEOL 311. Igneous and Metamorphic Petrology (with laboratory). (4 Credits)**

A study of igneous and metamorphic rocks, including their classification, field relations, tectonic setting, phase petrology, mineralogy, and geochemistry. The laboratory emphasizes both field identification of rocks and the use of petrographic microscopes. Several field trips are included. Additional course fee applies. Prerequisite: GEOL 305. Prerequisite or corequisite: CHEM 113 and CHEM 114

## **GEOL 320. Geomorphology (with laboratory). (4 Credits)**

A study of the processes that create the landforms we see at the Earth's surface. In particular, processes associated with modern and ice-age climate are studied including erosion and weathering, soil formation, flooding, glaciation, and mass wasting. The laboratory emphasizes field-observation and data-collection techniques, and the interpretation of aerial photographs. Additional course fee applies. Prerequisites: GEOL 101 and GEOL 105; CHEM 101 or CHEM 111.

## **GEOL 335. Introduction to Engineering Geology. (3 Credits)**

An introduction to the fundamentals, methods, and techniques used in engineering geology. This course explores investigation methods, and characterization of the engineering properties of geological materials. We investigate the mechanics of soil and rock as engineering materials. This class introduces the specific field methods used in engineering geology for assessment of foundations, slopes, dams, tunnels, and other earth structures. Prerequisites: GEOL 345, and either PHYS 170 or PHYS 200.

## **GEOL 343. Exploration Geophysics (with laboratory). (3 Credits)**

Current geophysical techniques used in the exploration for, and development of, petroleum resources. Topics include: potential fields methods, thermochronology, refraction and reflection seismic theory and application, an introduction to quantitative geophysics, microseismic, and forward and reverse modeling. Laboratory projects use industry standard geophysical data and software to solve problems in petroleum exploration and development. Additional course fee applies. Prerequisite: GEOL 310, Prerequisites or Corequisites: GEOL 345; and either PHYS 170 or PHYS 200.

**GEOL 345. Structural Geology (with laboratory). (4 Credits)**

A study of the deformation of the Earth's crust. The course begins with a study of the forces and movements within the crust which cause folding and faulting of rocks and a description of the resulting structures. These topics are followed by an analysis of the regional tectonic patterns of the Earth's surface and theories for their origin. Additional course fee applies. Prerequisite: GEOL 201 with a minimum grade of C- and MATH 141.

**GEOL 346. Subsurface Geology (with laboratory). (4 Credits)**

An advanced undergraduate course in subsurface structural and stratigraphic methods pertinent to petroleum, groundwater, environmental, and tectonics investigations. Traditional and computer-assisted techniques are used. Students gain experience in integrating surface geology with subsurface well and geophysical data, understanding and managing subsurface data types, the principles and application of petrophysics, subsurface mapping methods, core and cuttings description and interpretation, and case studies of oil and gas fields. Field exercises emphasize the integration of surface and subsurface data. Additional course fee applies. Prerequisite: GEOL 343. Prerequisite or corequisite: GEOL 345.

**GEOL 352. Applied Geophysics (with laboratory). (3 Credits)**

The theoretical and practical application of physics to geology with an emphasis on the shallow subsurface. Exercises emphasize the interpretation of real-world data and cover the topics of seismic, potential fields, heat flow, electrical, wireline, and ground penetrating radar methods. Students gain proficiency in the use of several advanced analysis and modeling software packages and the application of geophysics to solving problems in stratigraphy, structure, hydrology, environmental geology, mining, and oil and gas. Prerequisites: GEOL 345, and either PHYS 170 or PHYS 200.

**GEOL 360. Isotope Geochemistry. (3 Credits)**

A study of the distribution and movement of chemical elements and isotopes in the geologic environment. Topics include nucleosynthetic processes and the isotopic abundances of the elements; geochronology using radioactive decay schemes, including U-Pb, Rb-Sr, Sm-Nd, K-Ar, U-series isotopes, and cosmogenic isotopes; trace element partitioning; and the use of stable isotopes in geothermometry and ore petrogenesis. Examples illustrate the use of radiogenic and stable isotopes in petrology and their application to study of the Earth and Solar system and the evolution of the crust and mantle. Additional course fee applies. Prerequisites: Geol 305 with a "C-" or better and Chem 113 and 114.

**GEOL 362. Environmental Geochemistry. (3 Credits)**

An advanced geology course covering the low-temperature chemistry of the near-surface geologic environment. Topics include equilibrium thermodynamics, natural-water geochemistry, the carbonate system, mineral weathering, basic organic geochemistry and the evolution of Earth's atmosphere. Students gain quantitative problem solving skills through comprehensive problem sets and the collection and analysis of real-world geochemical data. Prerequisite: Geol 305 with a "C-" or better and Chem 113 and 114.

**GEOL 392. GEOLOGY INDEPENDENT STUDY. (1-4 Credits)****GEOL 397. Special Topics. (1-6 Credits)****GEOL 401. Career Pathways in Geology. (1 Credit)**

Exploration of post-baccalaureate degree options. Students will receive guidance in finding and applying to graduate degree programs and job opportunities. This combined on line and face-to-face course will also provide a comprehensive review of material required by the Association of State Board of Geology (ASBOG) for the Fundamentals of Geology Exam (FGE). The FGE is the first step to becoming a licensed professional geologist. When available guest speakers will meet with students to discuss their career paths and experiences. Prerequisites: minimum junior standing or instructor permission.

**GEOL 411. Research in Volcanology and Petrology (with laboratory). (3 Credits)**

An examination of the physical volcanology, petrology, and petrogenesis of volcanic rocks. A strong emphasis is placed on fieldwork and the description of the volcanic rocks of the Gunnison Basin and adjacent regions. The course is topical in nature and emphasizes individual and/or group research projects through study of the geologic literature, the collection of geologic data, and the presentation of results. Prerequisite: GEOL 311.

**GEOL 420. Research in Geomorphology (with laboratory). (3 Credits)**

An advanced study of geomorphology. Topics may include fluvial, glacial, mass movement, neotectonic, and eolian processes and landforms as well as weathering and soils. The course is topical in nature and emphasizes individual and/or group research projects through study of the geologic literature, the collection of geologic data, and the presentation of results. Prerequisites: GEOL 320, GEOL 345, and GEOG 340.

**GEOL 430. Hydrogeology. (3 Credits)**

A study of the occurrence, movement and chemical properties of surface water and groundwater. Topics include the hydrologic cycle, surface-water hydrology, principles of ground water flow, groundwater flow to wells and natural water chemistry. Laboratory assignments focus on quantitative analysis and modeling of surface and groundwater data. Additional course fee applies. Prerequisites: GEOL 310, CHEM 111, and MATH 151. Prerequisite or corequisite: PHYS 170 or PHYS 200.

**GEOL 435. Research in Structure and Tectonics (with laboratory). (3 Credits)**

Advanced study of structural geology and tectonic processes, rheology and rock failure/deformation, and the relationships between plate boundaries, structural deformation and basin formation and fill. A strong emphasis is placed on field relations and structural analysis of outcrop and subsurface data. The course is topical in nature and requires individual and/or group research projects through the study of the geologic literature, the collection and analysis of geologic data, and the presentation of results. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345.

**GEOL 450. Field Geology. (4 Credits)**

An emphasis on field observation, proper geologic mapping techniques on both maps and aerial photos and interpretation and synthesis of field data into a report. Different geologic terrains in Colorado or other states are examined. Ideally, this course should be taken during the Summer semester, immediately prior to the senior year. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345; or instructor permission.

**GEOL 452. Advanced Field Geology. (2 Credits)**

A study of advanced geological field techniques and special field problems that concentrate on the interpretation of rock types and structures, their distributions, and the collection of field data. Students will interpret field data and make connections between their field observations and the tectonic evolution of the Western United States. Additional course fee applies. Prerequisite: GEOL 450 with a minimum grade of "C-".

**GEOL 455. Petroleum Geology (with laboratory). (4 Credits)**

The petroleum system and modern exploration techniques including detailed study of petroleum source rocks, their deposition, thermal maturation and the chemical and physical characteristics of hydrocarbons, hydrocarbon migration, accumulation and retention, reservoir types and properties. Current techniques used in hydrocarbon exploration and resource assessment are taught through laboratory projects using real-world data and industry standard software tools. Additional course fee applies. Prerequisite: GEOL 346.

**GEOL 456. Petroleum Geology of Unconventional Resources (with laboratory). (4 Credits)**

The geology of unconventional resources, the identification and mapping of resource plays, a survey of current industry development and resource estimation techniques, and an introduction to play and project economics. Unconventional and emerging petroleum plays including shale reservoirs for oil and gas, heavy oil and bitumen deposits, coal bed methane, and hybrid reservoirs are emphasized. Projects include play mapping and analysis, rock mechanics, reservoir stimulation and EOR techniques, decline curve analysis and forecasting, and integrate sustainability and environment/stakeholder management best practices. Prerequisite: GEOL 346.

**GEOL 465. Research in Basin Analysis (with laboratory). (3 Credits)**

A study of sedimentary processes and environments, including the tectonic origin of sedimentary basins. This includes the most common terrestrial and marine depositional systems and their relationships. A strong emphasis is placed on field relations and research on the sedimentary rocks of Western Colorado and the Colorado Plateau. The course is topical in nature and requires individual and/or group research projects through the study of the geologic literature, the collection of geologic data in the field, and the presentation of results. Additional course fee applies. Prerequisites: GEOL 310 and GEOL 345.

**GEOL 493. Independent Study in Geology. (1-4 Credits)**

Advanced undergraduates can engage in independent research projects under the direction of a faculty member. Topics may include any research specialty in geology or geophysics depending on the mutual interests of the student and faculty.

**GEOL 495. Geology Seminar. (1 Credit)**

A seminar where advanced undergraduate students can develop critical reading and thinking skill through discussion and presentation of research literature. Topics are chosen from the current research literature. A student may earn a maximum of four credits under this course title. Prerequisite: GEOL 305, GEOL 310, GEOL 320, or GEOL 345.

**GEOL 497. Special Topics. (1-6 Credits)**

## Headwaters Regional Studies (HWTR)

**HWTR 100. First Year Seminar. (1 Credit)**

An introduction to Western's interactive educational experience and the diverse learning environments of the Gunnison Valley. Through a multidisciplinary study of the Headwaters region, this course provides students with skills for success in higher education and access to resources in the campus community. A discussion-based seminar, course may include regular convocations, community service projects, workshops, and field experiences. Academic themes include an introduction to the liberal arts, community sustainability, and the social, natural, and cultural surroundings of the region. First year students are required to attend Orientation and are expected to enroll in the first year seminar.

**HWTR 200. This Is The Headwaters. (1 Credit)**

A fall offering that gives students a broad cross-disciplinary overview of the Headwaters Region surrounding the College, with some field trips out into the region and an opportunity to look into some of the issues impacting the region.

**HWTR 398. Headwaters Conference. (1 Credit)**

An annual two-day gathering on campus each fall, bringing together writers and scholars, local community leaders and activists, artists, government officials, and other interested citizens from the colleges and communities of the Headwaters Region to consider challenges and opportunities confronting the region. Students attend and participate in the conference and write a paper about the experience in the context of their own lives and future plans. Students attend and participate in the conference, complete applied research projects throughout the month following the conference, and write a paper about the experience in the context of their own lives and future plans. Student may take the course four times for additional credit. Prerequisite: junior standing or instructor permission.

## History (HIST)

**HIST 101. World History to 1500 (GT-HI1). (3 Credits)**

A survey of the cultural, political, religious, artistic, technological and philosophical journeys of human beings, from the prehistoric age, the birth of civilization and emergence of agriculture to the establishment of great empires and the impact of the great religious and philosophical revolutions of the ancient and medieval world. GT-HI1

**HIST 102. World History Since 1500 (GT-HI1). (3 Credits)**

A continuation of HIST 101 and a survey of the transformation of human development as a result of modernization. Students consider the rise and fall of empires and shifting regional influences as a result of the emergence of the transatlantic region. Europe's revolutionary transformation and its impact on the world; the rise of global interaction and conflict; the colonial and post-colonial eras and the resulting tensions and achievements of these events are examined within the context of modernity. GT-HI1

**HIST 126. U.S. History to 1865 (GT-HI1). (3 Credits)**

A survey of American history from its European beginnings to the Civil War, providing description and analysis of the historical development of politics, economics, society, and foreign policy. Attention is given to the people and forces that influenced these developments. GT-HI1

**HIST 127. U.S. History Since 1865 (GT-HI1). (3 Credits)**

A survey of American history from the Civil War to modern times, providing description and analysis of the major developments and trends in politics, economics, society, and foreign policy. Attention is given to the people and forces that influenced and shaped the American experience. GT-HI1

**HIST 197. Special Topics. (1-6 Credits)****HIST 200. Historical Inquiry. (3 Credits)**

Students examine the ways scholars have studied, interpreted, debated and represented the past through time. This course introduces students to History as not only a discipline of study and scholarship but as an inquiry into human experience and a public pursuit. Students develop the research and writing skills required in the field of History across a variety of formats and topics. It is recommended students complete this course no later than sophomore year.

**HIST 254. A History of Africa (GT-HI1). (3 Credits)**

A survey of sub-Saharan African history from earliest times to the present, with particular emphasis on social, cultural, economic, and political responses to imperialist or other outside influences. GT-HI1

**HIST 257. History of East Asia. (3 Credits)**

A study of the civilization of China and Japan. The course offers a survey covering ancient, medieval, and modern developments, including cultural, religious, political, military, and economic factors.

**HIST 258. History of Southeast Asia. (3 Credits)**

A survey of the history of Southeast Asia, which includes the countries of Myanmar, Thailand, Singapore, Malaysia, Indonesia, the Philippines, Cambodia, Laos and Vietnam. Each regional discussion is organized by cultural, social, and political themes. This course stresses the influence of India and China on the region; cultural exchange in the region through warfare, trade, and religion; Western encroachment and colonialism; nationalistic movements in reaction to colonialism and oppression. The class ends with the effects of WWII.

**HIST 260. Latin American History (GT-HI1). (3 Credits)**

A survey of the major events and themes of Latin American History from pre-Columbian times through the modern era with special emphasis on the interaction of New and Old World cultures and the impact of colonization and the construction of national identity after independence into the modern era. GT-HI1

**HIST 297. Special Topics. (1-6 Credits)****HIST 301. The Ancient World. (3 Credits)**

Studies of the Ancient World. This course is a rotating topic which may include studies of the Egyptians, Romans, Maya, Greeks, or specific African and Asian cultures. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 309. Modern Germany. (3 Credits)**

Examines the cultural and political forces which led to the creation of Germany and then shaped its behavior through two world wars. Topics include the role of nationalism, the failure of liberalism, the causes of racism, and the nature of the Nazi regime. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 311. The Medieval World. (3 Credits)**

Studies of the medieval world. This course is a rotating topic which may include studies of the Black Death and Europe, the Byzantines, Shogun Era in Japan, Irish and Scots, the 'Vikings' or specific African and Asian cultures. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 312. Renaissance and Reformation. (3 Credits)**

A course which covers the Babylonian Captivity of the Roman Catholic Church; the artistic, literary, and political developments of Renaissance Italy and Northern Europe; the subsequent emergence of the Protestant Reformation; and the religious wars which engulfed Europe. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 313. Early Modern Europe: Topics. (3 Credits)**

An in-depth study into themes and or regions of early modern European history (15th-18th centuries). This course examines the political, cultural, military, social, environmental, and economic evolutions of the era. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 315. France and the Revolution. (3 Credits)**

A study of the origins, character, and significance of the French Revolution. This course begins with an examination of the relation of the Old Regime to the failure of absolutism and concludes with a discussion of the general nature of revolution and social change. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 317. Modern Europe: Topics. (3 Credits)**

An in-depth study into themes of modern European history (19th-20th centuries). This course examines themes of political, cultural, military, social, environmental, and economic evolutions of the 20th century. Class may be taken twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 327. Colorado History. (3 Credits)**

A study of the history of Colorado from prehistoric times to the modern era, emphasizing the Native American and Spaniard, mining, cattle, transportation and farming frontiers, and problems of the 20th century involving water, energy, and growth. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 330. Colonial American. (3 Credits)**

A study of the indigenous peoples of North America and European expansion into the region including the French in Canada, Spanish in Florida and the English establishment of the Thirteen Colonies. Topics include colonial development, westward expansion, and conflicts with the indigenous populations, the role of women in the colonies, and social, intellectual, political and military activities from 1607 to the French Indian War in 1754. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 333. American Revolution and the Early Republic. (3 Credits)**

A study of the economic, social and political causes of the American Revolution. Focused attention is given to the Articles of Confederation, Hamiltonian and Jeffersonian America, the Constitutional Convention, Bill of Rights, Jeffersonian and Jacksonian Democracy, Louisiana Purchase and the Lewis and Clarke expedition and the early national era. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 336. U.S. Civil War and Reconstruction. (3 Credits)**

A study of the causes of the Civil War with emphasis on the differing worlds of the North and the South and the social, intellectual and economic movements of the time. The military actions of the war are examined and the legacy of the war considered. The challenges and issues of the post war years of Reconstruction are explored. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.



**HIST 340. Emergence of the Modern U.S.. (3 Credits)**

A study of U.S. history from the end of Reconstruction in 1877 to the Great Depression in 1929. Topics include industrialization, immigration, the Progressive movement, the causes and impact of World War I and the exciting but troubled 1920s all leading to the Great Depression. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 343. Depression and World War II. (3 Credits)**

An exploration of the ramifications that the economic collapse had on America's social, economic, cultural, and political life. The United States' entrance into the World War II is also discussed, with major focus on the changes that took place, both internally and abroad, because of the conflict. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 346. Recent American History. (3 Credits)**

A history of the United States since 1945 with emphasis on the Cold War, the Eisenhower years, the turbulent decade of the 1960s, and the transformations of the 1970s and 1980s. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 348. History of the Trans-Mississippi West. (3 Credits)**

A history of the Trans-Mississippi West from 1800 to the present time, emphasizing the Native Americans, Spanish settlement, and Westward Expansion. Manifest Destiny, mining and cattle frontiers, settlement of the Great Plains and the Rocky Mountains, closing of the western frontier, and the New West of today. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 349. History of the Hispanic Southwest. (3 Credits)**

Students examine the historical development of Hispanic settlement and culture in the American Southwest from its inception to the present day. Students study the interaction of Hispanic communities with nomadic and settled indigenous peoples and with Anglo ranchers, settler and commercial interests. From the 16th century settlements to the Mexican-American War and the territory's incorporation into the United States to the development of the Chicano identity in the 20th century, students analyze the American Southwest, as a patria chica of success and failure, achievement and potential. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 350. Environmental History of the Borderlands. (3 Credits)**

Students examine the process of historical development of the Borderlands region between Mexico and the United States and consider its implications for the region's environment. Settlement patterns, a blending of cultural and ethnic identities, economic development and integration and emerging social tensions have resulted in an environmental transformation of the region with far-reaching implications for both nations north and south of the Rio Grande/Bravo. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 351. History of Russia. (3 Credits)**

A study of Russia which may include topics such as the development of Kievan Rus, the invasion and occupation of the Golden Horde, the Romanov line, Revolutionary Russia and the Soviet Union. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 355. African History: Topics. (3 Credits)**

This course examines a particular topic, era or region in African History thus course content will vary. Rotating topics may include colonialism, conflict, or a country or regional study. Students may take this course twice for credit. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 360. Mexico. (3 Credits)**

A broad survey of Mexican history from pre-Columbian times to the present, with particular emphasis on social, cultural, political and economic issues. This course also examines Mexico's relations with Europe during the colonial and early national periods and with the United States during the 19th and 20th centuries. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 365. Latin American Revolutions. (3 Credits)**

Beginning with an examination of theories of revolution, students explore how the theoretical relates to events in Latin American history. Students examine the development of revolutionary consciousness and the role of women, indigenous peoples and the rural and urban masses in revolutionary movements throughout the region. Students consider the influence of revolution on Latin American artistic expression. Finally, students investigate specific historical case studies of Latin American revolutions. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 366. Modern Latin America. (3 Credits)**

This class examines the modern era of Latin America tracing the transition of the region from colonies into free and independent nations. Students follow the development of Latin America through the nineteenth and twentieth centuries and explore the political, social, economic, and cultural changes that occurred throughout the region. The course explores how and why this region has changed and how Latin America has dealt with the challenges of the last 200 years. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 367. Latin American History: Topics. (3 Credits)**

This course examines a particular topic, theme or region in Latin American History thus course content will vary. Topics may rotate between women and gender, film and history, travel accounts, environmental history or a country or regional study. Students may take this course twice for credit. Prerequisites: minimum sophomore status or instructor permission. HIST 200 recommended.

**HIST 370. Public History. (3 Credits)**

This course explores the ways historians have engaged the public with the past. It provides an introduction to the theory and practice of interpreting history in institutions such as museums, archives, historical societies, and in historic preservation projects, digital projects, and oral histories. The course examines theoretical constructs including memory, heritage, community and commemoration and explores how academic history and public history complement and enrich one another. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 371. Oral History Workshop. (3 Credits)**

An examination of the theory and practice of the field of oral history. Through the course of the semester, students will examine the field of oral history, learn how to conduct oral history interviews, and produce an oral history. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 372. Monuments and Museums. (3 Credits)**

Students explore the interconnected concepts of memory, change and time through the examination of monuments, memorials and museums. Through readings, discussions and field experiences students consider the representation of past events in public spaces and the ways in which such places can both shape a shared sense of the past and become sites of contention and representations of power. Students trace the evolution of museums and the nature of preservation, interpretation and scholarship of collections and exhibits. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 373. History of the National Parks Service. (3 Credits)**

Students study the history and development of the National Parks Service of the United States exploring the social, political and economic attitudes towards Wilderness, preservation and conservation. Students trace the development of the guiding principles of the NPS and the evolution of the National Parks system over time while examining the development of national parks systems outside of the United States. This seminar also includes a number of weekend field trips to regional National Parks and National Historic Sites during the semester. Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 397. Special Topics. (6 Credits)**

Prerequisites: minimum sophomore standing or instructor permission. HIST 200 recommended.

**HIST 399. Internship in History. (1-3 Credits)**

History majors and minors obtain archival, museum and public history experience through direct, supervised contact with archivists, curators and professionals from related areas. Graded Satisfactory/Unsatisfactory only. Maximum 6 credits can be applied to the major. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 402. Engaging the Past. (3 Credits)**

Students explore the myriad of ways human beings engage with the Past. Through examination of the development and role of historical inquiry to how we preserve, restore, remember, reenact, manipulate and silence the past, students develop an understanding of how we interpret and analyze the Past as individuals, as communities and as Historians. The role of the historian in society and the ethical considerations which guide the Historian's work are woven through the course content. History majors should take this course during or after their second semester of their junior year. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits. Prerequisites: HIST 200 and junior standing or instructor permission.

**HIST 497. Special Topics. (1-6 Credits)**

## Honors (HNRS)

**HNRS 100. Gateway. (3 Credits)**

Through the Gateway students are introduced to different ways of knowing thereby laying the foundation for the further development of a liberal arts education. Students enhance their capacity for informed analysis, responsible evaluation and effective argument construction leading to the ability to base actions and decisions upon the former. The students are encouraged to recognize value in varying epistemologies and engage in an active and intellectual exchange of ideas as part of an academic community formed via students' and instructors' co-investigation of various topics and disciplines. The course culminates with student-chosen and directed group presentations. Prerequisites: admission to the Honors Program and participation in the Honors Orientation program.

**HNRS 101. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

**HNRS 197. Special Topics. (1-6 Credits)****HNRS 200. Honors Forum. (2 Credits)**

An application of the core values of the Honors Program including citizenship and community, experiential learning, interdisciplinarity, risk taking and autonomy. Students together develop a research question and engage in active community service-based investigations to complement the exchange of ideas and research to address their question. Students determine an appropriate vehicle for a public presentation of their work and must demonstrate coherent understanding of the selected research question rather than presenting a collection of separate insights. Prerequisites: HNRS 100, and sophomore standing.

**HNRS 201. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.



**HNRS 202. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

**HNRS 297. Special Topics. (1-6 Credits)****HNRS 301. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

**HNRS 302. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

**HNRS 303. Honors Field Experience. (1-2 Credits)**

Honors students develop field experiences outside the classroom to complement courses without specified field experiences or to develop a more in-depth project for disciplinary based field experiences. Through formal arrangement between the instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to develop a specific field experience related to the course material. Honors students who successfully complete both the Field Experience and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Field Experience project form in consultation with supervising faculty and the Honors Director.

**HNRS 304. Introduction to the Great Conversation. (1 Credit)**

An introduction to the ongoing discussion of the timeless and universal ideas that are the foundation of Western Civilization. Students pursue the study of these ideas through guided reading of selections taken from the range of Western intellectual history. Prerequisites: HNRS 100, and junior standing, or instructor permission.

**HNRS 305. Place as Text. (2,3 Credits)**

Provides Honors students with opportunities to integrate experiences of theory and observation with place, time and self through a site-specific active learning experience. Students participate in a series of orientation sessions and complete associated assignments in preparation for a site visit. The class travels to a selected site and explores the concept of "extending text" and mapping the site from a variety of multi and interdisciplinary perspectives. Modeled on the National Collegiate Honors Council City as Text program. Students may take this course twice for credit. Prerequisite: junior standing.

**HNRS 397. Special Topics. (6 Credits)****HNRS 400. Oxford Tutorial. (1 Credit)**

Honors students come together as autonomous learners in a supportive academic community to investigate a mutually decided upon theme or topic relating to a liberal arts education and constructive citizenship. Students are expected to illustrate a mastery of the goals promoted by the Honors Program and a liberal arts education including the rigorous application of analysis resulting in a coherent and integrated understanding of the selected theme or topic. Provides an opportunity to engage in larger philosophical inquiry and debate. Prerequisite: HNRS 200, HNRS 304 and senior standing or instructor permission.

**HNRS 401. Honors Colloquium. (1 Credit)**

A complement to courses offered outside of the Honors program. Through formal arrangement between a course instructor and the Honors Program, the instructor and student develop an additional course project(s) to allow the Honors student enrolled in the class deeper engagement with the course material. Honors students who successfully complete both the Colloquium and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Colloquium project form in consultation with supervising faculty and the Honors Director.

**HNRS 402. Service Learning in Honors. (1-2 Credits)**

Service Learning in Honors complements college course offerings by adding a hands-on service learning component with a community organization or community project. Through formal arrangement between an instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to help provide specific disciplinary insights on issues affecting local communities, providing students with an opportunity to apply concepts, theories, and methods to practical real-world issues. Students gain familiarity with social problems and social responses, learn about communities as informed citizens, and gain expertise about the relationship between their roles as students and citizens. Honors students who complete both the Service Learning and the course to which it is linked receive Honors credit for both. Service Learning may be taken more than once. Prerequisite: Completion of the Honors Service Learning project form in consultation with supervising faculty and the Honors Dir

**HNRS 403. Honors Field Experience. (1-2 Credits)**

Honors students develop field experiences outside the classroom to complement courses without specified field experiences or to develop a more in-depth project for disciplinary based field experiences. Through formal arrangement between the instructor and the Honors Program, the instructor meets with Honors students enrolled in the class to develop a specific field experience related to the course material. Honors students who successfully complete both the Field Experience and the course to which it is linked receive Honors credit for both. May be taken more than once. Prerequisite: Completion of the Honors Field Experience project form in consultation with supervising faculty and the Honors Director.

**HNRS 492. Independent Study. (1-6 Credits)**

An opportunity for Honors students to undertake detailed study and/or research into a unique topic or issue stemming from the Honors Core curriculum under supervision of the Honors Director and appropriate regular faculty. May be taken for a maximum of three credits in one semester. Maximum credit toward Honors Program is three credits. Prerequisites: minimum junior standing and/or Honors Director approval.

**HNRS 494. Thesis Preparation. (1 Credit)**

An introduction to the process of developing a thesis project. Students undertake initial research on a potential thesis topic, develop a research plan and write a thesis proposal in preparation of writing an Honors thesis.

**HNRS 495. Thesis. (2-3 Credits)**

The student is required to complete a written thesis based on advanced study in a self-designed research project and present his/her findings to the Honors Council in a public forum. The project must be supervised by a faculty member from a field of study relevant to the student's thesis. Prerequisites: junior or senior standing; good standing in the Honors Program; and successful completion of at least nine hours in Honors, including HNRS 100.

**HNRS 497. Special Topics. (1-6 Credits)**

## Latin American Studies (LAS)

**LAS 400. Latin American Studies Senior Portfolio. (0 Credits)**

A culminating experience to the minor in Latin American Studies in which students develop a portfolio of their best work from courses taken in the minor, and write a reflective essay indicating how those projects represent their learning in the program. The portfolio and essay will be assessed by the LAS Council members, and the Coordinator's signature is required as evidence of completion of the requirement. A grade of Satisfactory/Unsatisfactory will be reported to the Registrar once the portfolio has been evaluated by the Coordinator. Prerequisite: senior standing and prior completion of all, or co-enrollment in any remaining LAS requirements.

## Mathematics (MATH)

**MATH 098. Beginning Algebra. (3 Credits)**

An introduction to algebra with a review of basic arithmetic. Includes decimals, fractions, percentages, ratios, proportions, signed numbers, algebraic expressions, factoring, exponents and radicals, linear equations, and graphs. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only.

**MATH 099. Intermediate Algebra. (3 Credits)**

A review of the arithmetic of fractions and decimals, percentage problems, signed numbers, arithmetic, and topics of basic algebra, including simplifying algebraic expressions, solving and graphing linear equations, basic factoring, working with algebraic fractions, and solving rational and quadratic equations. This course is designed for students who need a review of the basic algebra skills necessary to complete the required mathematics course MATH 140. Credit does not count toward graduation. Graded Satisfactory/Unsatisfactory only. Prerequisite: ACT math score of 16 or above; SAT math score of 440 or above, MATH 098; or Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 265 or above.

**MATH 102. College Algebra Skills. (1 Credit)**

A review of the math skills necessary to succeed in MATH 140, College Algebra. Prerequisites: an assessment equivalent to ACT math score between 17-20; a SAT Math score between 450-530; an Accuplacer Advanced Algebra and Functions test score of 235 or above; or a Compass Algebra score between 26-44; and a high school GPA of 2.75 or higher. Co-requisite MATH 140. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in Math.

**MATH 103. Statistical Thinking Skills. (1 Credit)**

A review of the math skills necessary to succeed in MATH 113, Statistical Thinking. Prerequisites: an assessment equivalent to ACT math score between 16-20; a SAT Math score between 440-530; an Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 230 or above; and a high school GPA of 2.75 or higher; or MATH 098. Co-requisite MATH 113. Note: this course is intended for those qualified students wanting to complete the Supplemental Academic Instruction (SAI) program in Math.

**MATH 105. Mathematics for the Liberal Arts (GT-MA1). (3 Credits)**

Topics may include practical applications such as personal finance and numbers in the media, along with aesthetic applications such as connections between mathematics and art or music. GT-MA1

**MATH 113. Statistical Thinking (GT-MA1). (3 Credits)**

A course introducing the ideas of statistical analysis. Topics include data visualization and summarization, parameter estimation, and hypothesis testing. This course emphasizes practical aspects of data analysis and makes extensive use of spreadsheets and real data. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Quantitative Reasoning, Algebra, and Statistics test score of 240 or above; or co-requisite MATH 103 (SAI). GT-MA1

**MATH 140. College Algebra (GT-MA1). (3 Credits)**

An integration of the essential algebraic manipulations, solving equations and inequalities, polynomial functions, exponential and logarithmic functions, and techniques of graphing. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Elementary Algebra and Functions test score of 245 or above; or co-requisite MATH 102 (SAI). GT-MA1

**MATH 141. Precalculus (GT-MA1). (4 Credits)**

This course explores the theory and applications of trigonometry, and includes an introduction to vector and matrix analysis. Topics may include the unit circle, triangle trigonometry, trigonometric functions, polar coordinates, complex numbers, vector geometry, and applied matrix techniques. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above. GT-MA1

**MATH 151. Calculus I (GT-MA1). (4 Credits)**

A study of differential calculus, including limits, continuous functions, Intermediate Value Theorem, tangents, linear approximation, inverse functions, implicit differentiation, extreme values and the Mean Value Theorem. This course also introduces Integral calculus including anti-derivatives, definite integrals, and the Fundamental Theorem of Calculus. Prerequisite: ACT math score of 27 or above; SAT math score of 630 or above; or MATH 141 with a minimum grade of C-. GT-MA1

**MATH 197. Special Topics. (1-6 Credits)**

**MATH 200. Discrete Mathematics. (3 Credits)**

A study of the discrete mathematics necessary for computer science. Topics include logic, set theory, Boolean algebra, functions and relations, graphs, propositional and predicate calculus, proofs, mathematical induction, recurrence relations, combinatorics and discrete probability. Computer science applications are emphasized. Prerequisites: MATH 151 and CS 191 with minimum grades of "C-".

**MATH 209. Mathematics for Elementary School Teachers I. (3 Credits)**

First of two courses designed for prospective elementary teachers. Emphasizes the real number system, arithmetic operations, and algebra. Explorations focus on representing, analyzing, generalizing, formalizing, and communicating patterns and structures. Content is presented using problem solving and exploration. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; MATH 140 with a minimum grade of C-; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above.

**MATH 210. Mathematics for Elementary School Teachers II. (3 Credits)**

Second of two courses designed for prospective elementary teachers. Emphasizes probability, data analysis, and geometry. Explorations focus on representations of data and two and three-dimensional shapes, their properties, measurements, constructions, and transformations. Prerequisite: MATH 209 with a minimum grade of C-.

**MATH 213. Probability and Statistics. (3 Credits)**

A course in the use of statistical techniques to draw knowledge from data. Topics include exploratory data analysis, descriptive statistics, t-procedures, ANOVA, chi squared procedures, regression, and non-parametric tests. Statistical software is used extensively to analyze real data sets. Prerequisite: ACT math score of 27 or above; or SAT math score of 630 or above; or MATH 141 with a minimum grade of C-; or instructor permission.

**MATH 220. Introduction to Advanced Mathematics. (3 Credits)**

Students develop and use elementary logic and set theory to construct deductive proofs with relations, functions, and some algebraic structures. Topics include indexing, equivalence relation theory, and cardinality. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 221. Foundations of Mathematics for Teaching I. (3 Credits)**

First of three courses designed for prospective elementary school teachers. This course emphasizes the real number system and arithmetic operations. Explorations focus on mathematical structures and subsets of real numbers, via patterns, relationships, and properties. Content is presented using problem solving and exploration. Prerequisite: ACT math score of 21 or above; SAT math score of 540 or above; MATH 099; or Accuplacer Advanced Algebra and Functions test score of 245 or above.

**MATH 222. Foundations of Mathematics for Teaching II. (3 Credits)**

Second of three courses designed for prospective elementary school teachers. This course emphasizes proportional relationships, algebra, probability, and data analysis. Explorations focus on representing, analyzing, generalizing patterns and the chances of future events. Content is presented using problem solving and exploration. Prerequisite: MATH 221 with a minimum grade of C-; or instructor permission. Co-requisite: MATH 140.

**MATH 232. Applied Calculus for the Managerial and Social Science. (3 Credits)**

An introduction to differential and integral calculus for students majoring in business, accounting or the social sciences. The calculus is presented using a variety of real-world business and economic applications, stressing marginality, elasticity, and accumulation. Prerequisite: ACT math score of 23 or above; SAT math score of 560 or above; Math 140 with a minimum grade of "C-"; or Accuplacer Advanced Algebra and Functions test with a score of 280 or above.

**MATH 251. Calculus II. (4 Credits)**

Topics include techniques of integration, area computations, improper integrals, infinite series and various convergence tests, power series, Taylor's Formula, polar coordinates, and parametric curves. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 252. Calculus III. (4 Credits)**

Topics include calculus of functions of several variables, differentiation and elementary integration, vectors in the plane and space. Prerequisite: MATH 251 with a minimum grade of C-.

**MATH 260. Applied Linear Algebra. (3 Credits)**

A course in the techniques and applications of linear algebra. The core topics include solving systems of linear equations, eigenvalues and eigenvectors, matrix decomposition, the pseudoinverse and least squares approximations, and the singular value decomposition. The theory is supplemented with extensive applications and computer programming. Prerequisite: MATH 141.

**MATH 266. Secondary Mathematics from an Advanced Perspective. (3 Credits)**

A course designed to help Secondary Licensure Emphasis majors understand the core mathematical content of high school mathematics courses before calculus. These concepts are treated from an advanced standpoint, emphasizing connections and extensions. Topics include number systems, polynomial and transcendental functions, analytic geometry, theory of equations, and measurement. Prerequisite: MATH 151 with a minimum grade of C-.

**MATH 275. Scientific Programming, Modeling, and Simulation. (3 Credits)**

Designed to develop programming skills appropriate for scientific and industrial applications. Topics may include numerical solution of differential equations, singular value decomposition, and fourier analysis. Emphasis is placed on modeling, algorithm development and data visualization. Prerequisite: CIS 190 and MATH 151 with a minimum grades of C-.

**MATH 292. Independent Study. (1-6 Credits)****MATH 297. Special Topics. (1-6 Credits)****MATH 300. Introduction to Mathematical Modeling. (3 Credits)**

Designed to teach the basic principles of mathematical modeling and applied mathematics. Techniques from calculus, statistics, and probability are utilized to model real-world problems. Analytic and numeric tools are used to implement the models, obtain predictions and investigate underlying mechanisms. Topics include dimensional analysis, curve fitting, simulations, differential and difference equations. Prerequisites: MATH 251 and MATH 213 with minimum grades of C-.

**MATH 313. Statistical Modeling and Simulation. (3 Credits)**

A study of statistical techniques used to model, simulate and understand complex data. The core topics include linear and nonlinear multivariate models, generalized additive models, tree-based models, and mixed effects models, as well as techniques for selection and regularization of models. Emphasis is placed on computational techniques appropriate to large data sets and data visualization. Prerequisites: MATH 213 or ECON 216; and MATH 260; and CS190.

**MATH 314. Applied Probability. (3 Credits)**

A study of the basic principles of probability theory and their applications. Topics include combinatorial analysis, conditional probabilities, discrete and continuous random variables, and measures of centrality and variance. Emphasis is placed on applications using probability distributions (including binomial, geometric, Poisson, uniform, exponential, and normal distributions) to assess and manage risk in the fields of finance, insurance, medicine, and quality control. Prerequisite: MATH 251 with a grade C- or better.

**MATH 317. Genome Analysis (with laboratory). (3 Credits)**

This course introduces students to the appropriate mathematical techniques to answer questions about information contained in genetic sequences. These techniques may include dynamic programming, motif similarity, Bayesian models, hidden Markov models, principal component analysis, and clustering. Students use standard genome query tools to annotate genomic DNA. MATH 317 and BIOL 317 cannot both be taken for credit. Prerequisite: MATH 213 and either MATH 151 or CS 190.

**MATH 323. Foundations of Mathematics for Teaching III. (3 Credits)**

Third of three courses designed for prospective elementary school teachers. This course emphasizes development of spatial reasoning in geometry and measurement. Explorations focus on representations of one-, two-, and three-dimensional shapes, their properties, measurements, constructions, and transformations. Content is presented using problem solving and exploration. Prerequisite: MATH 222 with a minimum grade of C-; or instructor permission.

**MATH 330. Topics in Geometry. (3 Credits)**

An introduction to modern geometries. Topics include synthetic, analytic, vector, and transformational approaches to geometry. Classification of geometries, axiomatics, and the application of geometry may also be included. Prerequisite: MATH 220 with a minimum grade of C-.

**MATH 354. Differential Equations. (3 Credits)**

A study of the theory and methods for solving ordinary differential equations. Prerequisite: MATH 251 with a minimum grade of C-.

**MATH 358. Introduction to Differential Equations and Linear Algebra. (4 Credits)**

An introduction to ordinary differential equations, systems of linear equations, matrices, determinants, vector spaces, linear transformations, and systems of linear differential equations. Only one of the following courses, MATH 358 or MATH 354, may be taken for credit. Prerequisite: MATH 251 with a minimum grade of "C-."

**MATH 360. Linear Algebra. (3 Credits)**

A study of systems of linear equations, matrix operations, vector spaces, properties of determinants, eigenvalues, eigenvectors, orthogonality and least-squares. Emphasis is placed on theoretical aspects and general vector space properties with proof. Prerequisite: MATH 260, MATH 220 with a minimum grade of "C-"

**MATH 366. Methods of Teaching Secondary Mathematics. (3 Credits)**

Secondary Licensure Emphasis majors learn to use the latest teaching techniques and technologies to prepare valid mathematics tests, to be able to effectively evaluate their students, to know the latest developments in secondary mathematics curriculum, and to become familiar with professional mathematics teaching organizations and their journals. Prerequisites: MATH 220 and MATH 266 with minimum grades of C-.

**MATH 370. History of Mathematics. (3 Credits)**

Acquaints the student with the historical development of mathematics. Includes an introduction to the proper methods and accepted formats of written, graphical, and oral communication in mathematics. Prerequisites: MATH 220 and MATH 251 with minimum grades of C-.

**MATH 375. Numerical Methods. (3 Credits)**

A study of techniques of computation for power-series calculation of functions; roots of equations; nonlinear simultaneous equations; matrices, determinants, and linear simultaneous equations; numerical integration; and differential equations. Prerequisites: MATH 251 and either CIS 275 or CIS 310 with minimum grades of C-.

**MATH 380. Introduction to Cryptography. (3 Credits)**

A presentation of the mathematical background to modern cryptography. Topics include symmetric and asymmetric cryptography, block ciphers, hashing, digital signatures, RSA and discrete-logarithm-based systems, and error correction. The course emphasizes rigorous mathematical formulations as well as programming algorithms. Prerequisite: MATH 151 or CS 191 with minimum grade of "C-".

**MATH 390. Introduction to Peer Tutoring in Mathematics. (1 Credit)**

Strategies for tutoring mathematics at the college level, with a focus on presenting mathematical concepts and procedures, reducing anxiety, and improving study skills. May be repeated for up to four credits. Graded Satisfactory/Unsatisfactory only. Prerequisite: MATH 151 with a minimum grade of "B-" and instructor permission.

**MATH 391. Seminar in Mathematics. (1 Credit)**

A selected topic from areas of mathematics not usually included in the regular curriculum. Student involvement through presentations is emphasized. May be taken under different topics for a total of two credits.

**MATH 392. Independent Study in Mathematics. (1-4 Credits)****MATH 397. Special Topics. (1-6 Credits)****MATH 414. Actuarial Mathematics. (3 Credits)**

A study of mathematical concepts useful in risk management, including multivariate probability and interest theory. Topics include the Central Limit Theorem, joint distributions, combinations of distributions, conditional and marginal probabilities, time value of money, annuities, and loans. Emphasis is placed on solving problems from the actuarial field, including applications to insurance and business. Prerequisites: MATH 252 with a minimum grade of "C-"; MATH 314 with a minimum grade of "C-".

**MATH 451. Analysis I. (3 Credits)**

An introduction to the theory of calculus. Topics include the usual topology of the reals, sequences, limits, continuity, differentiation, and Riemann integration. Prerequisites: MATH 220 and MATH 251 with minimum grades of C-.

**MATH 456. Introduction to Complex Analysis. (3 Credits)**

An introduction to the theory and applications of complex variables. Topics include analytic and elementary functions, integrals, series, residues, and conformal mapping. Prerequisites: MATH 220 and MATH 252 with minimum grades of C-.



**MATH 471. Abstract Algebra I. (3 Credits)**

An introduction to the theory of groups and rings. The fundamental group properties and concepts including cyclic groups, subgroups, direct products, symmetric groups, cosets, normal subgroups, and the group homomorphism theorems are discussed. Prerequisite: MATH 220 with a minimum grade of C-, and at least three upper-division mathematics credits.

**MATH 490. Workshop. (2 Credits)**

A study of a variety of mathematical topics generally dictated by student interest. The course may be taken for credit three times if the content of the workshop differs.

**MATH 492. Independent Study. (1-4 Credits)****MATH 495. Senior Seminar. (2 Credits)**

A capstone course for all mathematics majors. Each student selects an area of interest, researches the selected area, generates a reference list and research paper, and presents the paper to a seminar of faculty and students. Prerequisites: MATH 260 and either MATH 451 or MATH 471

**MATH 496. Senior Seminar Professional Experience. (1 Credit)**

Provides students an opportunity to prepare their Senior Seminar research for the mathematics community outside of Western. Graded Satisfactory/Unsatisfactory only. Prerequisite: Instructor permission. Co-requisite: MATH 495.

**MATH 497. Special Topics. (1-6 Credits)****MATH 499. Internship in Mathematics. (1-12 Credits)**

Students participate in supervised field experience with a cooperating firm in the mathematics field. The sponsoring faculty member provides evaluations after the field experience is complete. A formal paper is required of the student. Specific department requirements must be met to participate in this course. Prerequisite: 18 credits of Mathematics course work, including nine upper-division credits.

## Music (MUS)

**MUS 000. Concert and Convocation Attendance. (0 Credits)**

Designed to encourage concert and convocation attendance as a means of learning about music literature and style, performance practice, and topics of interest to musicians. Attending 75% of the posted events in each semester (as either listener or performer) qualifies as a 'Satisfactory' grade. Graded Satisfactory/Unsatisfactory only.

**MUS 100. Fundamentals of Music (GT-AH1). (3 Credits)**

An introduction to music literacy and theory. Students acquire basic skills of reading, writing, and performing music and gain an understanding of scales, intervals, chords, and transposition. The course is open to students with little or no musical background. GT-AH1

**MUS 101. Orchestra. (1 Credit)**

Open to all who play orchestral instruments and who wish to experience playing orchestral music. The course includes the study and performance of orchestral literature.

**MUS 102. Symphonic Band. (1 Credit)**

Open to all who play band instruments. The course includes the study and performance of symphonic band literature. Membership is open to Music majors and non-Music majors by audition.

**MUS 103. Pep Band. (0.5 Credits)**

Open to all who play band instruments, guitar, bass guitar, and piano. The course includes the study of popular music and performance at university athletic functions including football, basketball, and volleyball events.

**MUS 104. Concert Choir. (1 Credit)**

Open to anyone with singing experience. The Western Concert Choir studies and performs choral masterworks from all historical periods of music. Membership is open to Music majors and non-Music majors by audition.

**MUS 105. Opera. (1 Credit)**

Designed to provide experience in musical-dramatic activities. May be taken two times for credit. Prerequisite: admission by campus-wide audition.

**MUS 120. Introduction to Music Education. (1 Credit)**

An introductory course for the music major interested in music education K-12. This course provides students with an overview of the concepts, methods and techniques used in music education. Students learn the historical, philosophical, and practical conventions, of all areas of music education, including elementary music, choir orchestra, and band. Students examine different aspects involved in teaching music in public schools, goals of various music programs, and existing curricula including sample lesson plans. Included is an introduction to the Colorado standards for music education K-12 and technology used in music education. Prerequisite to the 300-level music education methods classes.

**MUS 121. Instrumental and Vocal Chamber Music. (0.5-1 Credits)**

Designed to give the student-musician rehearsal and performance experience in the area of ensemble and chamber music. Includes the Brass, Woodwind, Percussion, String, and Jazz Ensembles, as well as Chamber Singers, and additional small ensembles. Membership is open to Music majors and non-Music majors by audition. Credit is determined by the type of ensemble and amount of rehearsal time.

**MUS 128. Theory of Music Laboratory I. (1 Credit)**

Development of musicianship skills related to MUS 129. Students will study, sight read, and perform rhythms, melodies in major and minor keys, intervals, scales, and diatonic chord progressions. Students will also learn to take melodic, harmonic, and rhythmic dictation. (Offered spring) Prerequisite: MUS 100 or the equivalent. Corequisite: MUS 129.

**MUS 129. Theory of Music I. (3 Credits)**

A study of musical analysis, notation, and composition. This course concentrates on fundamentals such as major and minor scales, meter, rhythm, pitch intervals, key signatures, triads and inversions, chord building, harmonic progressions, figured bass interpretation, and voice leading. (Offered spring) Prerequisite: MUS 100 or the equivalent.

**MUS 130. Theory of Music Laboratory II. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 128 and MUS 129 and develop those areas of musicianship through voice performance and dictation. This course builds on knowledge of diatonic triads with the inclusion of inversions, 4-part harmonic contexts, and diatonic seventh chords. Sight singing exercises feature greater melodic leaps and syncopation. (Offered fall) Prerequisite: MUS 128 and MUS 129 with minimum grades of C. Corequisite: MUS 131.

**MUS 131. Theory of Music II. (3 Credits)**

A study of musical analysis, notation, and composition. This course builds on knowledge gained in MUS 128 and MUS 129 and introduces non-chord tones, diatonic seventh chords, small forms, and cadences. This course completes the comprehensive study of diatonic, common practice harmony. (Offered fall) Prerequisites: MUS 129 with minimum grade of C.

**MUS 140. Introduction to Music (GT-AH1). (3 Credits)**

A study of the elements of musical structure designed to form a basis for intelligent listening. Music is selected to illustrate representative styles of music from different historical periods and world cultures. Required of Music majors and minors during their freshman year. GT-AH1

**MUS 173. Piano class. (1 Credit)**

The first semester of a two-semester sequence in beginning piano designed for music majors and music minors who need the skills required to pass the piano proficiency exam. The sequence includes basic music reading at the piano, keyboard theory, and piano technique.

**MUS 174. Piano Class. (1 Credit)**

The second semester of a two-semester sequence in beginning piano designed for music majors and music minors who need skills required to pass the piano proficiency exam. Development of skills begun in MUS 173 prepares students for the piano proficiency as the final exam. Prerequisite: MUS 173 or assessment of equivalent skills.

**MUS 180. Piano. (1-2 Credits)**

Private instruction.

**MUS 181. Organ. (1-2 Credits)**

Private instruction. Prerequisite: at least four years of private piano study.

**MUS 182. Voice. (1-2 Credits)**

Private instruction.

**MUS 183. Violin. (1-2 Credits)**

Private instruction.

**MUS 184. Viola. (1-2 Credits)**

Private instruction.

**MUS 185. Cello. (1-2 Credits)**

Private instruction.

**MUS 186. Contra Bass. (1-2 Credits)**

Private instruction.

**MUS 187. Flute. (1-2 Credits)**

Private instruction.

**MUS 188. Oboe. (1-2 Credits)**

Private instruction.

**MUS 189. Clarinet. (1-2 Credits)**

Private instruction.

**MUS 190. Bassoon. (1-2 Credits)**

Private instruction.

**MUS 191. Saxophone. (1-2 Credits)**

Private instruction.

**MUS 192. Trumpet. (1-2 Credits)**

Private instruction.

**MUS 193. French Horn. (1-2 Credits)**

Private instruction.

**MUS 194. Trombone. (1-2 Credits)**

Private instruction.

**MUS 195. Baritone. (1-2 Credits)**

Private instruction.

**MUS 196. Tuba-Private Lessons. (1-2 Credits)**

Private instruction.

**MUS 197. Special Topics. (1-6 Credits)****MUS 198. Percussion. (1-2 Credits)**

Private instruction.

**MUS 212. Introduction to Music Technology. (1 Credit)**

Designed to acquaint students with music technology hardware (including MIDI-Musical Instrument Digital Interface) and a variety of software programs to enhance learning, teaching, and performing situations at all ages and levels. Students have the opportunity to work with available equipment. Offered in alternate years (Fall 2013). Prerequisite: MUS 100 or MUS 129 with a minimum grade of "C" or instructor permission.

**MUS 213. Woodwind Methods (with laboratory). (1 Credit)**

Designed to cover basic performing skills and teaching techniques for all woodwind instruments. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (spring 2010).

**MUS 214. Brass Methods (with laboratory). (1 Credit)**

Designed to cover basic performing skills and teaching techniques for all brass instruments. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (fall 2009).

**MUS 215. String Methods (with laboratory). (1 Credit)**

Instruction in violin, viola, violoncello and bass for the Music Education student. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (fall of even years).

**MUS 216. Percussion Methods (with laboratory). (1 Credit)**

An introduction to the basic percussion instruments with special attention given to standard and contemporary performance techniques and sound production. Emphasis is on application in the elementary, middle, and secondary schools. Offered in alternate years (spring of odd years).

**MUS 217. Voice Methods. (1 Credit)**

A study of tone production, breathing as applied to singing, attack and release, muscular control, posture, and vocal health. Special exercises adapted to individual needs of pupils and simple English songs are sung in the class. Emphasis is on basic skills and techniques for use with young voices in the elementary, middle, and secondary schools. Offered in alternate years (spring 2014).

**MUS 240. Perspective in Music: Jazz History/Music Media/Women in Music/other selected topics. (3 Credits)**

A study of a specific perspective or repertory of music and its relationship to other aspects of musical culture. Historical, sociological, and multicultural influences and implications, are also considered. The course may be taken two times (with different titles) for credit.

**MUS 245. History of Rock and Roll. (3 Credits)**

An introductory course emphasizing the history and development of Rock and Roll music. The growth and development of major historical periods of rock music and related styles will be explored through the study of historical, social, political and cultural influence. Music is selected to illustrate representative styles of music from different historical periods of Rock music and culture.

**MUS 250. Beginning Conducting: Choral and Instrumental. (2 Credits)**

A study of the basic techniques of conducting, score reading, beat patterns, rehearsal procedures, and style in the instrumental and vocal media. Emphasis is placed on physical exercises, coordination, and the development of fundamental baton techniques. Students conduct in class and observe rehearsal situations with the College ensembles. Offered in alternate even numbered years (fall term). Prerequisites: MUS 130 and MUS 131 with minimum grades of C.



**MUS 253. Theory of Music Laboratory III. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 130 and MUS 131 and develop those areas of musicianship through voice performance and dictation. Studies incorporate modulation using diatonic chords, modal mixture, chromaticism, and secondary dominants. Chromatic solfege is featured in melodic sight singing. (Offered Spring) Prerequisites: MUS 130 and MUS 131 with minimum grades of C. Corequisite: MUS 254.

**MUS 254. Theory of Music III. (3 Credits)**

A study of musical analysis, notation, and composition. This course builds on knowledge gained in MUS 130 and MUS 131 and introduces secondary dominants, modulation, chromaticism, extension of tertian harmony, and larger form structures. (Offered Spring) Prerequisites: MUS 130 and MUS 131 with minimum grades of C. Corequisite: MUS 253.

**MUS 255. Theory of Music Laboratory IV. (1 Credit)**

Designed to enhance and build on the musical skills and knowledge learned in MUS 253 and MUS 254 and develop those areas of musicianship through voice performance and dictation. This course focuses on compositional practices of the twentieth century and includes modal melodic dictation, rhythmic dictation and sight singing with changing meters, and atonal sight singing. (Offered Fall) Prerequisites: MUS 253 and MUS 254 with minimum grades of C. Corequisite: MUS 256.

**MUS 256. Theory of Music IV. (3 Credits)**

A study of musical analysis, notation, and composition. This course introduces styles and techniques associated with twentieth century composition. Studies include impressionism, set theory, serialism, post-1945 serialism, neotonality, minimalism, and transformational languages. (Offered Fall) Prerequisites: MUS 253 and MUS 254 with minimum grades of C. Corequisite: MUS 255.

**MUS 285. Pedagogy for the Applied Instrument or Voice. (2 Credits)**

The student becomes acquainted with the methods and materials to be used in the teaching of music students, in both private and class situations.

**MUS 290. Introduction to Improvisation. (1 Credit)**

An introduction to improvisation for singers and instrumentalists including improvisational experiences in a variety of styles (jazz, classical, and other), integration of music theory with improvisation, and methods of teaching improvisation. Required of majors in the Music Education Emphasis. Offered in alternate years (spring 2010). Prerequisites: MUS 130 and MUS 131 with a minimum grades of C, or instructor permission.

**MUS 292. Independent Study. (1-4 Credits)****MUS 297. Special Topics. (1-6 Credits)****MUS 301. Orchestra. (1 Credit)**

Open to all who play orchestral instruments and who wish to experience playing orchestral music. The course includes the study and performance of orchestral literature. Prerequisites: junior or senior standing; minimum of one semester of MUS 101; instructor permission.

**MUS 302. Symphonic Band. (0.5,1 Credits)**

Open to all who play band instruments. The course includes the study and performance of symphonic band literature. Membership is open to Music majors and non-Music majors by audition. Prerequisites: junior or senior standing; minimum of one semester of MUS 102; instructor permission.

**MUS 303. Pep Band. (0.5 Credits)**

Open to all who play band instruments, guitar, bass guitar, and piano. The course includes the study of popular music and performance at university athletic functions including football, basketball, and volleyball events. Prerequisites: junior or senior standing; minimum of one semester of 103; instructor permission.

**MUS 304. Concert Choir. (1 Credit)**

Open to anyone with singing experience. The Western Concert Choir studies and performs choral masterworks from all historical periods of music. Membership is open to Music majors and non-Music majors by audition. Prerequisites: junior or senior standing; minimum of one semester of MUS 104; instructor permission.

**MUS 305. Opera. (1 Credit)**

Designed to provide experience in musical-dramatic activities. May be taken two times for credit. Prerequisites: admission by campus-wide audition; junior or senior standing; minimum of one semester of MUS 105; instructor permission.

**MUS 306. Piano Ensemble. (1 Credit)**

Designed to acquaint the piano student with ensemble repertoire and performance traditions. Prerequisite: four credits of piano private study or equivalent performance background.

**MUS 311. Principles and Techniques of Composition. (3 Credits)**

A study of the basic principles of composition. Harmonic, contrapuntal, and formal structures of various stylistic periods are employed. Prerequisites: MUS 255 and MUS 256 with minimum grades of C.

**MUS 313. Music Production. (3 Credits)**

An introduction to current production software designed to give students experience utilizing digital audio recording techniques and electronic sequencers. Students utilize sequencing and sound design software to create electronic music, demonstrate signal flow analysis using real and virtual hardware, understand and demonstrate a variety of microphone-based recording techniques, and create projects using a digital audio workstation. Prerequisite: MUS 131 with a minimum grade of C.

**MUS 320. Scoring. (2 Credits)**

A study of techniques of arranging for instrumental and vocal ensembles. Prerequisite: MUS 256 with minimum grade of C.

**MUS 321. Instrumental and Vocal Chamber Music. (0.5-1 Credits)**

Designed to give the student-musician rehearsal and performance experience in the area of ensemble and chamber music. Includes the Brass, Woodwind, Percussion, String, and Jazz Ensembles, as well as Chamber Singers and additional small ensembles. Membership is open to Music Majors and non-Music Majors by audition. Credit is determined by the type of ensemble and amount of rehearsal time. Prerequisites: junior or senior standing; minimum of one semester of MUS 121; instructor permission.

**MUS 350. Advanced Conducting: Choral and Instrumental. (2 Credits)**

5A study of advanced techniques of conducting, score reading, musical style, materials, and repertoire in the instrumental and vocal media. Emphasis is placed on physical exercises and coordination of the mind and hands, as well as musical terms necessary for proper interpretation of musical scores. Students conduct in both class and laboratory situations with College ensembles. Offered in alternate years (spring 2015). Prerequisites: MUS 250 with minimum grade of C.

**MUS 352. History of Music I: Ancient to Baroque. (3 Credits)**

A study of the development of music from Ancient Greece to the Medieval, Renaissance, and Baroque eras. Emphasis is placed on acquaintance with the music literature of successive periods. Prerequisites: Music Major or Minor status; MUS 140.

**MUS 353. History of Music II: Classical to Modern. (3 Credits)**

A study of the development of music from the Classic and Romantic eras to the present. Emphasis is placed on acquaintance with the music literature of successive periods. Prerequisites: Music Major or Minor status; MUS 140.

**MUS 355. Counterpoint. (2 Credits)**

A study of contrapuntal techniques necessary to compose polyphonic music in two, three, four, or more parts. Prerequisites: MUS 255 and MUS 256 with minimum grades of C.

**MUS 360. Teaching General Music in Elementary Schools. (2 Credits)**

A study of the teaching of general music, working with children's voices, using instruments, and developing listening skills. Current approaches such as Dalcroze, Orff, Kodaly, and Suzuki are also addressed. Students survey elementary music texts and learn how to develop and plan a music program. Offered in alternate years (spring 2015). Prerequisites: MUS 120 and MUS 250 with a minimum grade of C.

**MUS 365. Methods and Philosophy of Teaching and Supervising Instrumental Music in the Public Schools: K-12. (2 Credits)**

A study of the supervision, organization, and administration of instrumental music in the public schools, K-12, providing background and experience with the philosophical, historical, and practical foundation of instrumental music in the public schools. Emphasis is placed upon contemporary methodology, all aspects of teaching and conducting activities in instrumental music, comprehensive musicianship through performance, and preparation for student teaching. Offered in alternate years (fall 2014). Prerequisites: MUS 250 with a minimum grade of C.

**MUS 370. Methods and Philosophy of Teaching and Supervising Vocal Music in the Public Schools: K-12. (2 Credits)**

An intensive study of materials and methods for teaching vocal and general music in the elementary and secondary school, plus objectives, organization, administration, curriculum content, guidance for student teachers, and background in contemporary trends in music education for all age levels, K-12. Offered in alternate years (spring 2015). Prerequisites: MUS 120 and 250 with a minimum grade of C.

**MUS 380. Piano. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 180; instructor permission.

**MUS 381. Organ. (1-2 Credits)**

Private instruction. Prerequisite: at least four years of piano study; junior or senior standing; minimum of one semester of MUS 181; instructor permission.

**MUS 382. Voice. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 182; instructor permission.

**MUS 383. Violin. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 183; instructor permission.

**MUS 384. Viola. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 184; instructor permission.

**MUS 385. Cello. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 185; instructor permission.

**MUS 386. Contra Bass. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 186; instructor permission.

**MUS 387. Flute. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 187; instructor permission.

**MUS 388. Oboe. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 188; instructor permission.

**MUS 389. Clarinet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 189; instructor permission.

**MUS 390. Bassoon. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 190; instructor permission.

**MUS 391. Saxophone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 191; instructor permission.

**MUS 392. Trumpet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 192; instructor permission.

**MUS 393. Trumpet. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 193; instructor permission.

**MUS 394. Trombone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 194; instructor permission.

**MUS 395. Baritone. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 195; instructor permission.

**MUS 396. Tuba. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 196; instructor permission.

**MUS 397. Special Topics. (1-6 Credits)****MUS 398. Percussion. (1-2 Credits)**

Private instruction. Prerequisites: junior or senior standing; minimum of one semester of MUS 198; instructor permission.

**MUS 400. Senior Recital / Senior Project. (0 Credits)**

Students demonstrate competency in an area of performance, research, composition, or music technology. Senior projects may include a research project, composition, music technology project, or non-credit internship. Graded Satisfactory/ Unsatisfactory only. Prerequisite: senior standing and consent of faculty advisor.

**MUS 424. Band Literature. (2 Credits)**

A study and analysis of the literature available to the concert band and the various types of large wind ensembles.

**MUS 426. Literature for the Applied Instrument or Voice. (2 Credits)**

An historical study of the standard repertoire for the applied instrument or voice.

**MUS 429. Diction for Singers. (2 Credits)**

A basic course in Italian, German, and French diction designed for voice students. Foreign language diction are studied in selected vocal repertoire.

**MUS 488. Composition. (3 Credits)**

Students write original compositions for solo or ensemble performing media.

**MUS 490. Workshop in Music. (1-6 Credits)**

A study of topics related to music study suitable for workshop format. Includes discussion, practice, and demonstration.

**MUS 491. Seminar in Research. (2 Credits)**

Senior students research and write papers in the area of music appropriate to their courses of study. Offered in alternate years (spring 2010).

**MUS 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits.

**MUS 497. Special Topics. (1-6 Credits)****MUS 499. Internship in Music. (1-12 Credits)**

An internship may be arranged in this course. Credit earned in this course may be applied to the major or minor with faculty approval. Consult advisor for details.

## Philosophy (PHIL)

**PHIL 100. Critical Thinking. (3 Credits)**

Develops students' capacity for critical, independent thought. Teaches students to analyze, critique, and respond to a wide variety of arguments, both formal and informal, in various media. Introduces students to the basics of logic and to techniques for identifying logical fallacies and invalid evidence. Encourages the practice of civil, reasoned debate.

**PHIL 101. Introduction to Philosophy (GT-AH3). (3 Credits)**

An introduction to the central philosophical questions that have historically spanned and conceptually founded Western civilization. The course surveys key thinkers, philosophical movements, and academic fields of the discipline. Questions regarding the meaning of existence, the freedom of the self, the nature of a just society, and the workings of human knowledge expose students to the pursuits of metaphysics, ontology, epistemology, philosophy of science, moral and political philosophy, and ethics. GT-AH3

**PHIL 135. Introduction to Ethics. (3 Credits)**

Introduces students to the study of ethics by surveying key ethical theories, by teaching basic principles of moral reasoning and evaluation, and by identifying and examining contemporary moral problems. Emphasizes practical ethics—the application of ethical theories and principles to real-life personal, professional, and public moral dilemmas.

**PHIL 197. Special Topics. (1-6 Credits)****PHIL 200. Symbolic Logic. (3 Credits)**

Introduces students to the systematic study of the form of arguments, including inductive reasoning, syllogistic logic, sentential logic, the logic of quantification, and modal logic. Teaches the basic conventions of propositional notation and acquaints students with the concerns of metalogic and philosophy of logic.

**PHIL 201. Epistemology. (3 Credits)**

An introduction to historical and contemporary approaches to epistemology, philosophical methodology, systems of classification, and methods of validation. Emphasis is placed on critical inquiry into the complex relationships among ways of knowing (such as empiricism, rationalism, idealism, and materialism), while focusing on the real-world implications of epistemology itself. Prerequisite: PHIL 101

**PHIL 297. Special Topics. (1-6 Credits)****PHIL 315. Eastern Philosophy. (3 Credits)**

An introduction to the central philosophical questions which have conceptually founded Eastern philosophy. This course surveys primary texts, intellectual movements, and cultural traditions that inform and influence Eastern philosophy while investigating the theoretical spaces that exist between philosophical assumptions of the East and West. Prerequisite: PHIL 101

**PHIL 325. Women and Gender in Philosophy. (3 Credits)**

A discussion of the significance of women and gender in the development of philosophy. This course questions how the philosophical canon has appropriated, incorporated, and sometimes erased women's contributions. Drawing upon a variety of discourses in and outside of philosophy itself (including feminist and queer theory), students will assess how the philosophical endeavor changes in light of previously overlooked and currently influential gender studies work. Students will use gender and sexuality as a framework that enriches and interrogates philosophical fields ranging from cultural theory to epistemology. Prerequisite: PHIL 101

**PHIL 335. Advanced Ethics. (3 Credits)**

An examination of influential moral philosophers and contrasting theories concerning how one ought to live, from ancient Greek and Eastern philosophers to contemporary thinkers. Central questions of the course explore the good life, critique ideologies that limit ethical options, and imagine how to expand individual choices in cultivating a just society. The course concludes with student applications of ethical theories to current global issues. Prerequisite: PHIL 101.

**PHIL 345. Philosophy of Religion. (3 Credits)**

An exploration of the significance of faith in our human worldview. Through a comparative approach to major world religions, students investigate the underlying assumptions behind the ways of knowing God and participating in the divine, and how those assumptions diversely manifest themselves culturally, metaphorically, and psychologically. Prerequisite: PHIL 101.

**PHIL 355. Philosophy of Science. (3 Credits)**

An exploration of the ongoing relationship between philosophy and science, and an examination of how philosophical movements have informed some of the major shifts in scientific paradigms throughout history. The course concludes with an examination of how scientific revolutions potentially de-center humans, and reorient the relationship between the self and the world. Prerequisite: PHIL 101.

**PHIL 397. Special Topics. (1-6 Credits)****PHIL 401. Reality and Representation. (3 Credits)**

This course analyzes, and provides students the opportunity to more deeply investigate, the philosophical foundations of spoken and written representation through a broad survey of theoretical readings in aesthetics, authorship, interpretation, realism, and subjectivity. Examining a diverse range of classic and contemporary thinkers in philosophy and cultural studies, the course explores the ways representation frames the experiences of being in the world, and asks such questions as: How do ideas become the words we speak?; Do the words we speak mean the same when written?; and What makes the narrative possible? The answers to these questions have broad philosophical, political, and cultural implications. Prerequisite: Phil 201 or PHIL 335; or ENG 371.

**PHIL 492. Independent Study. (1-6 Credits)****PHIL 497. Special Topics. (1-6 Credits)**

## Physics (PHYS)

### PHYS 110. Introductory Astronomy (GT-SC2). (3 Credits)

An overview of the historical development of astronomy and the basic physical principles that are relevant to it. The overall structure of the Universe is studied and its various components examined. Includes limited observational activities. Prerequisite: completion of the general education essential skills mathematics requirement. GT-SC2

### PHYS 115. Physics of Music. (3 Credits)

A practical introduction to the physics of sound, with emphasis on music. Students investigate the properties of sounds produced by musical instruments. Topics include periodic functions, waves, resonance, overtones, frequency spectra, digital sound production and basic acoustic principles. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; MATH 099 or university-level math requirement with a minimum grade of "C-"; or Accuplacer Advanced Algebra and Functions test score of 245 or above.

### PHYS 120. Meteorology (GT-SC2). (3 Credits)

A summary of the structure of the Earth's atmosphere, worldwide weather disturbances, weather forecasting, and snow avalanches. This course may not be taken for credit toward the Physics Minor. GT-SC2

### PHYS 125. Energy and the Environment (GT-SC2). (3 Credits)

A practical study of energy generation and its environmental impact, including the physics of energy fundamentals, fossil fuel use, alternative energy uses, and energy conservation. Primarily for non-science majors, this course will qualitatively detail basic physical principles behind the use of energy, including mechanics, electricity and magnetism, and thermodynamics. This course is designed to provide the student with a physicist's perspective on energy use and environmental issues. Prerequisite: completion of the general education essential skills mathematics requirement. GT-SC2

### PHYS 140. Introductory Physics (with laboratory) (GT-SC1). (4 Credits)

A semi-quantitative introduction to the fundamental concepts of physical science, particularly the laws of physics as they relate to the structure of matter. Laboratory experiences play an important role in the investigations. This course may not be taken for credit toward the Physics Minor. Additional course fee applies. Prerequisite: ACT math score of 19 or above; SAT math score of 500 or above; MATH 099; Accuplacer Advanced Algebra and Functions test score of 245 or above. GT-SC1

### PHYS 170. Principles of Physics I (with laboratory) (GT-SC1). (4 Credits)

A quantitative lecture and laboratory introduction to the basic principles of physics. Topics covered include the motions of particles, forces in nature, field concepts, energy, conservation laws, and many-particle systems. A mathematical proficiency at the level of university algebra is recommended. Additional course fee applies. Prerequisites: MATH 141. GT-SC1

### PHYS 171. Principles of Physics II (with laboratory) (GT-SC1). (4 Credits)

A continuation of PHYS 170 dealing with electromagnetism, light, thermodynamics, and the atomic structure of matter. Additional course fee applies. Prerequisite: PHYS 170. GT-SC1

### PHYS 197. Special Topics. (1-6 Credits)

### PHYS 200. General Physics I (with laboratory) (GT-SC1). (4 Credits)

A quantitative lecture and laboratory introduction to the basic principles of physics, using the concepts of calculus as a tool. Topics covered include the motions of particles, forces in nature, field concepts, energy, conservation laws, many-particle systems, and thermodynamics. A student may not receive credit for both PHYS 170 and PHYS 200. Additional course fee applies. Prerequisite or Corequisite: MATH 151. GT-SC1

### PHYS 201. General Physics II (with laboratory) (GT-SC1). (4 Credits)

A continuation of PHYS 200 dealing with electromagnetism, light, and the atomic structure of matter. A student cannot receive credit for both PHYS 171 and 201. Additional course fee applies. Prerequisite: PHYS 200 (require minimum grade of C- or higher). GT-SC1

### PHYS 250. Statics. (3 Credits)

An investigation of systems in static equilibrium. Topics covered include force systems, 2d and 3d equilibrium, structural analysis, internal forces, friction, distributed forces and virtual work. Prerequisites: PHYS 171 or PHYS 201; MATH 251.

### PHYS 251. Dynamics. (3 Credits)

An investigation of the kinematics and kinetics of particles and rigid bodies as well as modes of vibration and time response. Topics covered include coordinate systems, work-energy relations, momentum, relative motion and vibrations. Prerequisite: PHYS 250.

### PHYS 297. Special Topics. (1-6 Credits)

### PHYS 320. Modern Physics. (3 Credits)

An introduction to the special theory of relativity, quantum physics, atomic physics, and sub-atomic physics. Prerequisites: PHYS 171 or PHYS 201; prerequisite or co-requisite: MATH 251.

### PHYS 330. Classical Mechanics. (3 Credits)

A treatment of basic mathematical methods including vector analysis, coordinate systems and transformations, particle dynamics, energy, and gravitation. Prerequisites: PHYS 171 or PHYS 201; MATH 251.

### PHYS 335. Fluid Mechanics. (3 Credits)

Examines fundamentals of fluid flow with application to engineering problems. Topics covered include fluid statics and kinematics, Bernoulli equations, laminar and turbulent viscous boundary layers, laminar and turbulent pipe flow, and conservation equations for mass, momentum and energy. Prerequisites: MATH 251 and PHYS 250.

### PHYS 350. Electricity and Magnetism I. (3 Credits)

A study of electrostatic fields and potentials, the electrical properties of matter, magnetic phenomena and the magnetic properties of matter. Prerequisites: PHYS 171 or PHYS 201; MATH 252.

### PHYS 351. Electricity and Magnetism II. (3 Credits)

A continuation of PHYS 350 treating direct and alternating currents, electromagnetic induction, Maxwell's equations, and electromagnetic radiation. Prerequisite: PHYS 350.

### PHYS 397. Special Topics. (1-6 Credits)

### PHYS 452. Quantum Mechanics. (3 Credits)

An introduction to the mathematical formalism of quantum mechanics and its application to various types of natural systems, such as multi-electron atoms, molecules, and solids. Prerequisites: PHYS 171 or PHYS 201; corequisite: MATH 252.



**PHYS 462. Astrophysics. (3 Credits)**

A study of selected topics in astrophysics as they relate to the core areas of physics: mechanics, electromagnetism, quantum physics, and thermodynamics. Topics covered may include stellar formation and life cycles, galactic dynamics and dark matter, planetary systems, multiple star systems, interstellar medium, cosmology, and the nature of light. Prerequisites: PHYS 171 or PHYS 201; MATH 252.

**PHYS 495. Physics Capstone. (1 Credit)**

A senior research and thesis course. The course is designed as the last opportunity to develop skills required before students enter the work force, graduate school or the next step in a chosen vocation. Students shall choose individualized research projects in consultation with an instructor that utilize experimental analysis, experimental investigation and/or computational simulation. Students will communicate their results through written work and a presentation. Prerequisites: PHYS 320.

**PHYS 497. Special Topics. (1-6 Credits)**

## Politics and Government (POLS)

**POLS 117. Introduction to Political Ideas (GT-SS1). (3 Credits)**

An introduction to political analysis through a study of important political concepts and theories, as well as their historical development. Students study the ideas and practices of the public and philosophical development of concepts such as citizenship, democracy, equality, justice, liberty, or power. GT-SS1

**POLS 180. Introduction to American Politics (GT-SS1). (3 Credits)**

Introduces institutions and processes of American politics, including themes such as constitutionalism, representation, participation, political development, political economy, civil liberties and rights, public policy, and the ideas and values of American democracy. GT-SS1

**POLS 197. Special Topics. (1-6 Credits)****POLS 250. Politics of the Environment. (3 Credits)**

A survey of key issues of national and international environmental politics, the course introduces students to the historical foundations and ongoing debates concerning the environment. A specific political lens informs our discussions while students analyze theoretical, cultural and political domains of various political systems and the ways in which they have gained importance on the international scene. Some of the main issues discussed in class involve a survey of international environmental treaties, government responses to environmental disasters and crises, environmental justice movements, environmental causes of war and displacement, democratic participation as a tool for environmental change, indigenous modalities of treating the environment, and the politics of environmental agreements and developments in the United States. Students learn to examine the connections between the environment and politics in a critical, engaged and broadly-informed way. Prerequisite: POLS 117

**POLS 255. Introduction to Comparative Politics (GT-SS1). (3 Credits)**

An introduction to the challenges and problems encountered in the study of comparative politics. Students examine various issues of local and national governance through a comparative lens. By looking at similar political phenomena in several contexts, students explore the question of why some countries have successfully developed their political, economic and social systems while others are lagging behind. Some of the issues examined in the class deal with women's rights, poverty, underdevelopment, the environment, and democracy. Prerequisite: ENG 102 with a grade of C- or above. GT-SS1

**POLS 260. Introduction to World Politics (GT-SS1). (3 Credits)**

An introduction to some of the more important concepts and approaches to understanding world politics. Students examine the politics between different countries and seek to answer questions about the promise and peril of the global future. Questions contemplated include: What are the sources of political conflict and how can they be minimized? Under what conditions will nation states cooperate with each other to accomplish common goals? Should tyranny and human rights violations justify humanitarian intervention? Prerequisite: ENG 102 with a grade of C- or above. GT-SS1

**POLS 282. Issues in State and Local Government. (3 Credits)**

Using the foundations of American Federalism, the class examines policy issues at the state and local levels. With a comparative perspective and, at the same time, with particular attention paid to Colorado, some of the themes examined in states and localities include: budgets and economic policy, education, energy, and environmental Policy. Prerequisite: recommended POLS 180.

**POLS 297. Special Topics. (1-6 Credits)****POLS 300. Constitutional Law I. (3 Credits)**

A study of the historical development of the United States Constitution and Supreme Court through the most important Supreme Court decisions. The course focuses on the areas of jurisdiction of the courts, development of the common law, the separation of powers, federalism, and the inter-state commerce power. Prerequisite: POLS 180.

**POLS 301. Constitutional Law II. (3 Credits)**

A continuation of POLS 300. An examination of the constitutional protections of individual liberties as defined by the Supreme Court. Students study the historical development of the Supreme Court's point of view in such areas as freedom of speech, subversion and disloyalty, religious freedom, church-state separation, and equal protection of the law. Prerequisite: POLS 180 recommended.

**POLS 309. Political Theory I- Ancient to Early Modern. (3 Credits)**

A survey of the historical development of western political theories from their origins in ancient Greece to the development of early modern political theories such as liberalism and republicanism. Students study thinkers such as Sophocles, Plato, Aristotle, William Shakespeare, Niccolò Machiavelli, John Locke, and Jean-Jacques Rousseau. Prerequisite: POLS 117 recommended.

**POLS 310. Political Theory II-Modern and Contemporary. (3 Credits)**

A survey of the historical development of modern and contemporary political theories since the French Revolution. Issues investigated might include the rise of liberal democracy and its critics, the impact of the industrial revolution on modern politics, and how technological change and environmental limitations have affected contemporary political thought. Students study thinkers such as Mary Wollstonecraft, John Stuart Mill, Karl Marx, Friedrich Nietzsche, Hannah Arendt, and Michel Foucault. POLS 117 recommended

**POLS 331. The Politics of the Presidency. (3 Credits)**

After more than two centuries of change and development, the presidency stands not only as the nation's preeminent public office but also its most problematic. This course examines the design and creation of the office, the impact various officeholders have made on shaping future expectations, and the problems of contemporary leadership. Prerequisite: POLS 180 recommended.

**POLS 340. Politics of Social Movements. (3 Credits)**

A study of social movements, past and present, in both domestic and international contexts. Students examine theories on why social movements develop, spread, and decline, while considering the factors that lead to their successes and failures. Through an examination of transnational movements, students consider the roles of social networks and participatory democracy in a globalized world. Prerequisite: ENG 102.

**POLS 350. Human Rights. (3 Credits)**

An engagement with the history and current developments in international human rights practices, offering a justification and critique of universal human rights through the lens of various schools of thought, discussing pre and post-WWII developments with attention to specific cases, and examining the relationship between culture, globalization and human rights violations in the 21st century. Prerequisite: ENG 102.

**POLS 355. The Global South. (3 Credits)**

A historical and case specific engagement with the Global South with a focus on global political and economic processes such as colonialism and post-colonialism, development, foreign aid, humanitarian intervention, and neoliberal globalization. Notion of an epistemology of the Global South is addressed: How do we know/study the Global South? What are the political implications of the knowledge production about the Global South? Prerequisites: Junior standing or instructor permission.

**POLS 360. American Foreign Policy. (3 Credits)**

Not since the Roman Empire has any nation had as much economic, cultural and military power as the United States does today. Yet, as has become all too evident through the problems of terrorism, environmental degradation and the proliferation of weapons of mass destruction, that power is not enough to solve many global issues. This course examines the way in which U.S. foreign policy is made and the variety of ongoing and emerging foreign policy problems the U.S. faces in the context of their evolution. Prerequisites: POLS 255 and/or POLS 260 recommended.

**POLS 370. Political Economy. (3 Credits)**

A study of economic systems that focuses on the structure and uses of economic power and the relationship between economic and political power. Students think about questions such as: What is capitalism? What varieties of capitalism exist around the world? How has capitalism changed over time? Ultimately, students consider the relationship between capitalism, freedom, and democracy. Prerequisite: ENG 102.

**POLS 376. American Political Thought. (3 Credits)**

A study of American political thought from the colonial period to the present day through a survey of key thinkers and social movements. Students gain an appreciation for dominant views and key controversies within American political thought, as well how the ideas of challengers, such as Abolitionism, Populism, Progressivism, the Labor Movement, the Women's movement, the New Deal, and the Civil Rights Movement, have reshaped the accepted order. Prerequisite: POLS 117 or POLS 180.

**POLS 380. The United Nations. (3 Credits)**

A study of the United Nations, focusing on the relationship between the UN, the proliferation of human rights regimes and international human development. Students think about the importance of creating international norms, working toward a sustainable world peace, political efficacy, and human rights in the world. A Model UN simulation is part of the course requirements. Prerequisite: ENG 102.

**POLS 390. Mock Trial. (3 Credits)**

Students explore a hypothetical criminal or civil case prepared by the American Mock Trial Association. Students study case materials, including affidavits and evidence, learn rules of evidence, and prepare for trial. After dividing into roles of prosecuting attorneys, defense attorneys, and witnesses, students plan strategies, rehearse witnesses, draft direct and cross examinations, and construct opening and closing statements. Students develop skills related to law, practiced and improvisational public speaking, teamwork, and argumentation. Co-requisite or Prerequisite: COM 202. Course may be repeated twice for credit.

**POLS 392. Independent Study. (1-4 Credits)****POLS 397. Special Topics. (1-6 Credits)****POLS 485. Studies in Political Theory. (3 Credits)**

Senior seminar in political theory with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 486. Studies in American Politics. (3 Credits)**

Senior seminar in American politics with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 487. Studies in International Relations. (3 Credits)**

Senior seminar in International Relations with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 488. Studies in Comparative Politics. (3 Credits)**

Senior seminar in Comparative politics with varying topics. This course meets the Capstone requirement. Prerequisite: senior standing or instructor permission.

**POLS 492. Independent Study. (1-3 Credits)****POLS 499. Internship in Politics and Government. (1-12 Credits)**

Credit earned in an internship may be applied to the Major or Minor with advisor approval.

## Psychology (PSY)

**PSY 100. General Psychology (GT-SS3). (3 Credits)**

An introduction to psychology including research methodology, biological bases of behavior, human development, sensation, perception, intelligence, cognition, language, states of consciousness, learning, memory, motivation, emotion, personality, abnormal behavior and stress and health. GT-SS3

**PSY 192. Independent Study. (1-6 Credits)****PSY 197. Special Topics. (1-6 Credits)****PSY 200. Statistics and Data Analysis. (3 Credits)**

An introduction to statistical procedures often encountered in the analysis of data from behavioral science research. Statistical methods covered include measures of central tendency and variability, correlation, regression, t-tests and analysis of variance. Prerequisites: PSY 100; MATH 113 or MATH 140 with a minimum grade of C-, or instructor permission.

**PSY 210. History of Psychology. (3 Credits)**

Introduces psychology majors to the philosophical underpinnings and historical context underlying the development of the discipline. Prerequisite: PSY 100.



**PSY 258. Introduction to Personality. (3 Credits)**

An examination of the fundamental theories of personality including the psychoanalytic, trait, behavioral, social-learning, humanist and existential perspectives.

**PSY 270. Development Psychology. (3 Credits)**

A critical look at the change and continuity that occurs throughout the life span, emphasizing the interrelationships among physical, cognitive and psychosocial realms of human development. Current research findings are emphasized.

**PSY 292. Independent Study. (1-4 Credits)****PSY 297. Special Topics. (1-6 Credits)****PSY 301. Research Methods. (3 Credits)**

An examination of experimental and non-experimental research methods, the design of research studies, measurement issues, research ethics, research reporting and advanced topics in data analysis using computer statistical software. Students design and conduct their own study and present the results following APA approved format. Prerequisite: PSY 200.

**PSY 308. Environmental Psychology. (3 Credits)**

Research in the field of environmental psychology is intended to answer questions about the influence of environment on the human experience, what personal factors affect an individual's unique experience of a certain setting, how human behaviors affect the environment, and how to increase pro-environmental behaviors. Students read current scientific literature in the field and engage in problem solving for current issues that can be informed by the study of the human-environment psychological interaction. Prerequisites: PSY 100 or ENV 100.

**PSY 324. Forensic Psychology. (3 Credits)**

An overview of the different tasks performed by forensic psychologists, including assessment, civil commitment, jury selection, eyewitness testimony, behavioral profiling, provision of clinical services to incarcerated individuals, and custody evaluations. Prerequisites: PSY 100 or instructor permission.

**PSY 335. Learning and Behavior. (4 Credits)**

An exploration of the relationship between behaviors and their consequences through the application of basic behavioral principles. Topics include classical conditioning, instrumental conditioning, stimulus control, aversive control, and the biological constraints on learning. Students conduct their own experiments to apply the behavioral principles discussed throughout the course. Additional course fee applies. Prerequisite: PSY 200 or instructor permission.

**PSY 338. Cognitive Psychology. (3 Credits)**

A theoretical and empirical investigation into the processes and outcomes of thinking. Topics such as memory and forgetting, problem solving and creativity, cognitive dissonance and consistency, defensive repression, language, optimism, and attribution are studied in relation to current scientific research findings. Prerequisites: PSY 100 and minimum sophomore standing or instructor permission.

**PSY 345. Biological Psychology (with laboratory). (4 Credits)**

An investigation of the physiological basis of human behavior. Topics include functional neuroanatomy, neurophysiology and the activity of the nervous system in relation to behaviors such as sexual behavior, drug effects, emotion, and memory. Additional course fee applies. Prerequisite: PSY 200.

**PSY 361. Industrial and Applied Psychology. (3 Credits)**

A course designed to show how psychology is directly related to the student's career and the student's life as a job applicant, employee, manager, and consumer. Topics covered include worker morale, leadership, work climate, communication networks, and productivity.

**PSY 368. Psychopathology. (3 Credits)**

A systematic study of the etiology, symptoms, assessment, and treatment of major forms of psychopathology. An interdisciplinary approach is employed as a basis for understanding mental disorders and mental illness. Prerequisites: PSY 100, PSY 258, or PSY 270.

**PSY 369. Health Psychology. (3 Credits)**

An overview of the emerging, multidisciplinary field of health psychology, which synthesizes research from clinical psychology, behavioral medicine and alternative therapies. Psychological aspects of prevention, health promotion and wellness are addressed. Content is both theory and application-based.

**PSY 380. Evolutionary Psychology. (3 Credits)**

Evolutionary psychology examines mental and psychological traits such as memory, perception, attraction, or aggression, as adaptations or functions of the natural selection process. Topics addressed include the nature and nurture conflict, relationships between the two sexes, group cooperation, crime, and racism. Prerequisite: PSY100

**PSY 392. INDEPENDENT STUDY. (1-6 Credits)****PSY 397. Special Topics. (1-6 Credits)****PSY 399. Internship in Psychology. (1-9 Credits)**

An opportunity for psychology majors to obtain field experience through direct, supervised contact with professionals in psychology and related areas. Graded Satisfactory/Unsatisfactory only. Prerequisite: completion of a minimum of 18 credits in psychology, including six credits at Western.

**PSY 410. Multicultural Psychology. (3 Credits)**

An exploration of current issues in diversity and cultural psychology including the translation of psychological science across different cultures, and how people with identities along many dimensions of human diversity experience the world uniquely. Intersectionality is a major theme. The content of the course will focus on current events and scientific literature. Prerequisite: PSY 100.

**PSY 437. Behavioral Pharmacology. (3 Credits)**

Considers the relationship between our sensation of the physical world and our internal perceptions through the lens of behavioral pharmacology. Attention is given to the exploration of altered perceptions produced by drugs. Prerequisites: PSY 100 and PSY 200.

**PSY 457. Social Psychology. (3 Credits)**

A discussion of theories and research findings concerning the individual in social situations with an emphasis on their applications to current social issues. Included are such topics as interpersonal attraction, persuasion, altruism, morality, aggression, and intra-group relations.

**PSY 460. Psychological Testing. (3 Credits)**

An introduction to the general methodology and theory of psychological testing. Students have the opportunity to take, score, administer and interpret several common assessment instruments. Ethics and limitations of testing are emphasized. Prerequisite: PSY 100, PSY 258, or PSY 270.

**PSY 475. Clinical Psychology. (3 Credits)**

An introduction to the profession of clinical/counseling psychology through the presentation and analysis of different theoretical orientations and their respective techniques. Students have in-class opportunities to practice basic skills. Professional ethics in the delivery of mental health services are addressed. Prerequisites: PSY 100, PSY 258, or PSY 270.

**PSY 491. Topical Seminar in Psychology. (1-3 Credits)**

A seminar involving advanced reading, discussion, and research. Different areas of study are selected as student and faculty interests dictate. A goal of this course is to stimulate critical thinking and analysis.

**PSY 492. Independent Study. (1-4 Credits)**

An opportunity for detailed study and research for advanced students. Topics and course requirements are determined in consultation with the sponsoring faculty member.

**PSY 497. Special Topics. (1-6 Credits)****PSY 498. Capstone Seminar in Psychology. (3 Credits)**

This capstone course is required for all psychology majors, except those who opt to complete the capstone internship. It is intended to provide the opportunity for the synthesis of the ideas and concepts acquired during undergraduate education in psychology. The seminar includes a discussion of controversial issues and ethical considerations in both experimental and applied areas, the completion of a comprehensive literature review and a consideration of the future of the field. Prerequisites: completion of a minimum of 18 credits in psychology including PSY 210.

**PSY 499. Capstone Internship in Psychology. (3 Credits)**

An opportunity for psychology majors to gain field experience through direct, supervised contact with professionals in psychology and related fields. In addition to on-site responsibilities, students write a comprehensive paper integrating the field experience and psychological theory and later formally present the paper in an open forum. Prerequisites: completion of a minimum of 18 credits in psychology, including six credits at Western.

## Recreation & Outdoor Education (ROE)

**ROE 182. Introduction to Recreation and Outdoor Education. (3 Credits)**

An introduction to the history, philosophy, founders, and principles of recreation and outdoor education, the agencies providing programs, and an investigation of professional employment opportunities in recreation.

**ROE 189. Principles of Outdoor Education. (1-20 Credits)**

An exploration of the theory and practice of outdoor education, with emphases on group dynamics, risk management, leadership, Leave No Trace, technical skills, and teaching, which are applied in a backcountry setting. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisite: Instructor permission.

**ROE 197. Special Topics. (1-12 Credits)****ROE 230. Interpretation of Natural and Cultural History. (3 Credits)**

A study of the principles, philosophies, and practices of interpretation, as well as active approaches to describing, relating, displaying, and revealing resources to a variety of audiences, primarily through observation and involvement in a variety of interpretation programs. Prerequisites: BIOL 130, BIOL 150, BIOL 151 or GEOL 101.

**ROE 235. Foundations of Teaching Environmental Education. (3 Credits)**

A survey of environmental education examples from land management agencies, nature centers, and educational organizations. Students are guided to create their own curriculum employing environmental content. Field trips required.

**ROE 240. Alternative Programming. (3 Credits)**

Course participants gain insight into alternative programming for special populations. Students explore case studies, specialized equipment, and profiles of special populations. Guest speakers and site visits will help students understand the intricacies of alternative programming and requisite career qualifications. Field trips required.

**ROE 283. Leadership and Facilitation. (1-20 Credits)**

A study of recreation and outdoor education leadership, including leading activities, managerial leadership, and the art of facilitation. Emphasis is placed upon appropriate theories and techniques for varying populations.

**ROE 293. Outdoor Pursuits Education- Water Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, facilitation, rescue techniques, white water rafting, stand-up paddle boarding, and kayaking, as well as a focus on environmental education. This backcountry block course is offered in summer only, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 295. Outdoor Pursuits Education- Snow Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, teaching, traveling in avalanche terrain, backcountry skiing, and winter camping. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 296. Outdoor Pursuits Education- Land Based (with laboratory). (1-20 Credits)**

Skill development in areas such as leadership, teaching, rock climbing, mountain biking, and backpacking. This backcountry block course is offered outside the confines of the regular semester, so check dates before registering. Students who drop the course within two weeks of the start date will not have their course fees refunded. Prerequisites: ROE 189; ROE 283; and instructor permission.

**ROE 297. Special Topics. (0.5-12 Credits)****ROE 333. Recreation and Sport Marketing. (3 Credits)**

A survey of recreation and sport marketing topics: buyer behavior, segmentation, positioning, demand analysis, information and research, pricing, promotion, channels, 'product' policies, destinations, sponsorship, endorsement, merchandising, and fundraising. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 351. Inquiry into Sustainability. (3 Credits)**

An investigation of sustainability and the interconnectedness of environment, economics, and society. Students are provided opportunities to examine their thoughts and behaviors as they pertain to sustainability. The course examines theoretical and practical examples of sustainable businesses, communities, and other systems. Teaching, applied projects, field trips, and/or participation in conferences may be required. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 364. Entrepreneurship and Commercial Recreation. (3 Credits)**

An analysis of the types of commercial and private enterprises, along with the qualities of the entrepreneur specific to recreation businesses. The student is also exposed to smallbusiness management practices as they relate to commercial recreation. Case study analysis and field investigation methods are emphasized to provide the student the opportunity to learn through active participation. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 391. Experiential Education Theory and Pedagogy. (3 Credits)**

An introduction to the historical, theoretical, and pedagogical foundations of experiential education. Teaching opportunities in the classroom and/or in the outdoors allow students to hone facilitation styles and effectiveness. Course topics include the experiential learning cycle, reflective learning, feedback, edgework, communication techniques, and multiple intelligences. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 392. Independent Study. (1-6 Credits)****ROE 397. Special Topics. (0.5-18 Credits)****ROE 398. Program Planning (with laboratory). (3 Credits)**

Equips students with a variety of program-planning methodologies and skills. Emphasis is placed on the planning, organization, implementation, and evaluation of recreation programs. Theories are applied in an experiential setting. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 454. Human Development and Counseling for Outdoor Educators. (3 Credits)**

An investigation of human development theories enabling students to better understand their own motives in outdoor pursuits and allow them to more effectively program for, manage, and support a variety of client needs. Prerequisite: ROE 182; ROE 189; ROE 283; and one of the following: ROE 293, ROE 295, or ROE 296; and senior standing; or instructor permission.

**ROE 466. Facilities and Administration. (3 Credits)**

A study of management, clientele considerations, facilities, outdoor area planning, and operation. Also addressed are personnel, finance, architectural and environmental barriers, plus equipment as related to recreation areas and facilities. Field visits required. Prerequisites: ENG 102 with a minimum grade of C- and completion of at least 30 credits; or instructor permission.

**ROE 468. Leadership and Administration. (3 Credits)**

A focus on the implementation of recreation and outdoor education programs, including planning, management and leadership, administrative duties, risk management, and specialized populations. Practical projects are employed as a means to provide students authentic experience in the field. Field trip(s) may be required. Prerequisites: senior standing or instructor permission.

**ROE 474. Outward Bound School. (1 Credit)****ROE 475. National Outdoor Leadership. (1 Credit)****ROE 490. Recreation Philosophy and Ethics. (3 Credits)**

An exploration of recreation philosophy from Plato to Petzoldt and its implications to professionals in the field. Designed to prepare ROE majors for the ethical challenges and time use dilemmas of the 21st century. Prerequisites: senior standing; corequisite: ROE 491.

**ROE 491. Senior Seminar. (3 Credits)**

A small group of graduating seniors pursue a practical project necessitating professional levels of problem solving, research, written and oral prowess, critical thinking, and familiarity with core curriculum. Final projects are of high quality, so they can be used by professionals and decision-makers in the field. Prerequisites: senior standing. Corequisite 490.

**ROE 492. Independent Study. (1-4 Credits)**

A course open to qualified upper-division students who have specialized interests in a particular area of advanced study in recreation. Prerequisite: instructor permission.

**ROE 494. Research. (1-4 Credits)**

Provides students the opportunity to pursue research in the field of recreation.

**ROE 496. Field Experiences. (1-6 Credits)**

Provides students with directed field experiences in teaching, coaching, and laboratory settings. Guidelines for the field experiences are provided and agreed upon prior to registering for the course. Graded Satisfactory/Unsatisfactory only. Prerequisite: instructor permission.

**ROE 497. Special Topics. (1-6 Credits)****ROE 499. Internship in Recreation and Outdoor Education. (3-9 Credits)**

A course providing full-time concentration on a specific practical experience at an approved agency. It allows for comprehensive involvement in an agency program with faculty and on-site supervision. Prerequisites: senior standing and instructor permission.

## Science (SCI)

**SCI 110. Habitable Planet (with laboratory). (4 Credits)**

An introduction to earth science and ecology. Topics include earth history, the fossil record, biogeochemical cycles, climate, energy flow, biodiversity, evolution, population growth and regulation. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies.

**SCI 111. Nature of Science. (1 Credit)**

An introduction to science as it relates to the individual, society, and the elementary school classroom. The process of science is examined, as well as the connection between science as it is done and science in textbooks. This course is designed for students seeking licensure as elementary teachers (grades K-6). Prerequisite or corequisite: SCI 110.

**SCI 120. Living Planet (with laboratory). (4 Credits)**

An introduction to human biology, chemistry and biochemistry. Topics explored include anatomy, physiology, nutrition, cell biology, genetics, inorganic chemistry, biochemistry, development, and the application of biological and biochemical principles to understanding disease. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies.

**SCI 197. Special Topics. (1-6 Credits)****SCI 202. Scientific Writing. (3 Credits)**

An introduction to the effective oral, written, and graphical communication in the sciences. Students address these skills by exploring current issues in science. Prerequisites: ENG 102 and minimum sophomore standing with a major in anthropology, biology, or chemistry.

**SCI 210. Dynamic Planet (with laboratory). (4 Credits)**

A foundation in physics, earth science, and space science. Topics explored include motion, force, energy, weather, plate tectonics, earthquakes, volcanoes, and the solar system. This course is designed for students seeking licensure as elementary teachers (grades K-6). Additional course fee applies. Prerequisite: SCI 110 or SCI 120 and completion of the general education essential skills mathematics requirement.

**SCI 292. Independent Study. (1-6 Credits)****SCI 297. Special Topics. (1-6 Credits)****SCI 390. Science Teaching Practicum. (1-2 Credits)**

An opportunity for students in the sciences to participate in laboratory design, instruction and execution, and in field experiences. Specifically designed for recipients of awards, such as undergraduate assistantships and teaching assistantships, or for students pursuing degrees in science with an education emphasis. May be taken for a maximum of six credits. Graded satisfactory/Unsatisfactory only.

**SCI 397. Special Topics. (1-6 Credits)****SCI 400. Environmental Science Seminar. (1 Credit)**

An examination of the environmental sciences through readings of primary literature, secondary literature and discussions of the environmental science discipline. The professional practices, procedures and standards of environmental science are discussed. Students will develop a professional portfolio of an environmental science project. Graded Satisfactory/Unsatisfactory only. Prerequisites: Instructor approval. This course is intended for students at the end of their Environmental Science minor

**SCI 497. Special Topics. (1-6 Credits)****SCI 499. Internship in Science. (1-5 Credits)**

An opportunity for students to gain experience through direct involvement with professionals in various fields of science.

## Sociology (SOC)

**SOC 101. Introduction to Sociology. (3 Credits)**

An introduction to the discipline of sociology with special emphasis on the unique perspective this science utilizes to examine the social world. Sociology is distinguished by its focus on understanding patterns of human behavior and emphasizing the social forces that shape and influence these patterns. Primary course focus is on culture, inequality, race and gender, and social institutions. This course serves as a 'gateway' course for all Sociology majors and minors, and must be passed with a minimum grade of 'C' to be used as a prerequisite. Prerequisite for all 200-, 300-, and 400-level Sociology courses.

**SOC 150. Environmental Sociology. (3 Credits)**

The sociological perspective is utilized to examine a variety of issues addressing the human-environment interface. In particular, this course examines how social organization and culture both shape and are shaped by the natural environment. The course focuses on issues of sustainability, the rights of the natural world, and environmental justice.

**SOC 168. Social Problems. (3 Credits)**

An introduction to the field of sociology through an analysis of social problems in the United States and in the world. Course focus is on topics such as drugs and alcohol abuse, crime and prisons, health and illness, hunger and poverty, resource depletion and pollution, and the effects of globalization.

**SOC 197. Special Topics. (1-6 Credits)****SOC 211. Quantitative Research Methods. (3 Credits)**

An introduction for students of the social sciences to the fundamentals of quantitative research analysis. Students design and administer surveys, code data, and analyze results. Students become familiar with descriptive statistics (frequency distributions, measures of central tendency, and dispersion), inferential statistics (sampling theory, hypothesis testing, normal binomial distributions, confidence intervals, and types of error), as well as techniques for computing correlation. Prerequisites: SOC 101 with a minimum grade of C; and MATH 113 or MATH 140.

**SOC 225. Self and Society. (3 Credits)**

An examination of how the discipline of sociology approaches "micro-level" phenomenon. Emphasis is on the formation of the self, the socialization process, and the importance of language to social interaction. Beginning with the premise that social reality is a social construction which has been created through our interactions with others, the implications of this premise for the version of reality each of us experiences is explored. Prerequisite: SOC 101 with a minimum grade of "C."

**SOC 259. Introduction to Criminal Justice. (3 Credits)**

An introduction to the history and contemporary issues of the criminal justice system (law enforcement, courts, and corrections) in the United States. Topics surveyed include the system's history, constitutional limitations, philosophical background, and the system's process. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 285. Criminology. (3 Credits)**

An introduction to the field of criminology with special emphasis on theories of crime, types of criminals, victimology, and the criminal justice system. Special topics examined include gangs, white collar crimes, property crimes, victimless crimes, and organized crime. Prerequisites: SOC 101 with a minimum grade of "C" and SOC 259 with a minimum grade of "C".

**SOC 297. Special Topics. (1-6 Credits)****SOC 302. Sociological Theory. (3 Credits)**

A formal introduction to classical sociological theories relevant to the discipline. Students learn about the history of the discipline, identify major sociological theorists and their theories, learn how these theories can be applied to various historical and contemporary social issues, and discover the relationship between theory, research, ideology and everyday life. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 303. Contemporary Sociological Theory. (3 Credits)**

A formal introduction to sociological theories developed since World War II. Students are able to identify and describe recent sociological theories and apply theory to contemporary social phenomena as well as their individual experiences. Students recognize the relationship between theory, ideology, and daily life. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 310. Qualitative Research Methods. (3 Credits)**

An examination of qualitative approaches to understanding social life. In particular, the course covers selecting a topic suitable for qualitative investigation, participant observation 220 Sociology and in depth interviewing techniques, the ethics and politics associated with doing qualitative research, writing up field notes, formulating topics, reviewing the literature around the topic, the analysis of field notes, and the writing of research reports. Prerequisite: ENG 102 with a grade of "C-" or above; SOC 101 with a minimum grade of "C."



**SOC 320. The Family. (3 Credits)**

An analysis of the family as a social group and institution. Students consider the ways in which the family is influenced by demographic changes and by the changes in other social institutions, such as the economy, education, the state and religion. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 322. Medical Sociology. (3 Credits)**

An examination of the United States Health Care System and comparison of various components of this system with that of others. The allopathic (Western) medical model is also examined. The course emphasizes the mortality and morbidity trends and patterns which exist in the U.S., the problems facing our health care system (high costs, unequal access), and alternative models of health and disease. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 323. Cultural Studies. (3 Credits)**

A foundation in the sociology of culture as well as extensive analysis of selected regional, national and/or global (sub) cultures and their environments. Issues covered include the social organization of culture, institutions and narratives, material and non-material culture, and cultural identity and the self. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 340. Social Movements. (3 Credits)**

An introduction to the study of social movements with two goals in mind. First, is to expose students to the beliefs, practices, and consequences of a number of important historical, and contemporary movements. Second, the course familiarizes students with the theoretical perspectives, conceptual issues, focal questions, and empirical research that animate the study of social movements. This includes such issues as movement emergence, movement participation, mobilization dynamics, movement strategies and tactics, and movement outcomes. Prerequisite: SOC 101 or ENVS 100 with a minimum grade of C.

**SOC 349. Law Enforcement. (3 Credits)**

An examination of issues affecting American law enforcement. Students are exposed to the historical underpinnings of the American policing experience, police operations and applications at the local, state, federal, and international levels, law enforcement subculture, police structure and organization, ethics, selection and training, and career opportunities. Prerequisite: SOC 259 with a minimum grade of C.

**SOC 350. Deviance. (3 Credits)**

Students examine various forms of nonconformity-criminal and otherwise. To do so, they study the major theoretical perspectives addressing deviance and its control. Students explore how ordinary rituals, agents of social control, and ideology interact to maintain the existing social order. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 351. Juvenile Delinquency. (3 Credits)**

Biological, psychological, and sociological factors in juvenile delinquency are examined, as are modern trends in prevention and treatment. The course also addresses the procedural and substantive aspects of the juvenile justice system. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 355. Drugs and Society. (3 Credits)**

An examination of trends and patterns in American drug use, drug classifications, the relationship between drugs and crime, and drug education and prevention strategies. The use of hallucinogenic plants in other cultures is also explored. Prerequisite: SOC 101 with a minimum grade of C.

**SOC 367. Corrections. (3 Credits)**

An in-depth look at corrections in the United States. Topics include history of corrections, jails, prisons, community corrections, offenders and inmates, women in corrections, juvenile corrections, correctional officers and treatment professionals, and special inmate populations. Prerequisites: SOC 101, SOC 259 and SOC 285 all with a minimum grade of "C."

**SOC 380. Social Inequalities. (3 Credits)**

An examination of major theories and concepts associated with social inequality as well as the causes and consequence of social inequality. The historical and contemporary aspects of social inequality in the United States are explored. Forms of resistance to social inequality are also considered. Prerequisite: SOC 101 with a minimum grade of "C".

**SOC 392. Independent Study. (1-6 Credits)****SOC 397. Special Topics. (1-6 Credits)****SOC 399. Internship in Sociology. (1-6 Credits)**

Sociology internships provide Sociology majors of junior and senior status with opportunities to work on sites off campus in the areas of law enforcement and social services. The experience must meet standards set by the College and by the sociology faculty. Up to three hours of internship credit may be counted toward the major. Graded Satisfactory/Unsatisfactory only.

**SOC 492. Independent Study. (1-6 Credits)**

Independent studies are available to seniors as a Capstone option. Enrollment is contingent upon developing a proposal with a faculty sponsor and requires a variable credit form. Prerequisite: minimum GPA of 3.50 in Sociology courses or instructor permission.

**SOC 497. Special Topics. (1-6 Credits)****SOC 498. Capstone. (3 Credits)**

Provides Sociology majors with a culminating activity for the senior year. Students summarize and integrate their coursework, apply their emerging sociological perspective to real world events, and prepare for future careers, jobs, and/or graduate work. Prerequisites: SOC 101 and SOC 310 with minimum grades of C, and one of the following: SOC 211, PSY 200, ECON 216, or MATH 213 with minimum grade of C; senior standing, or instructor permission.

## Spanish (SPAN)

**SPAN 101. Elementary Spanish I. (3 Credits)**

An introduction to essentials of the Spanish language: comprehension, speaking, reading, and writing. Reserved for students with less than two years of high school Spanish, or a WebCAPE score of 269 or lower.

**SPAN 102. Elementary Spanish II. (3 Credits)**

A continuation of SPAN 101. Prerequisite: SPAN 101, or a WebCAPE score of 270-345.

**SPAN 197. Special Topics. (1-6 Credits)****SPAN 201. Intermediate Spanish I. (3 Credits)**

A continuation of SPAN 102. A grammar review and extensive practice in conversation, reading, and writing. Prerequisite: SPAN 102, or WebCAPE score of 346-426.

**SPAN 202. Intermediate Spanish II. (3 Credits)**

A continuation of SPAN 201. Further practice and development of speaking, reading, and writing skills. Prerequisite: SPAN 201, or WebCAPE score of 427-508.



**SPAN 270. Spanish Conversation and Composition. (3 Credits)**

A course to develop oral proficiency and writing skills in Spanish. Focuses on structure and vocabulary, emphasizing both speaking and listening, as well as basic writing skills within the Spanish language. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

**SPAN 292. Independent Study in Spanish. (1-4 Credits)****SPAN 297. Special Topics. (1-6 Credits)****SPAN 321. Spanish for Business. (3 Credits)**

A course to develop oral proficiency and writing skills in Spanish as applied to business settings and global marketplace. Marketing and other business-related terminology will also be covered. Conducted in Spanish. Prerequisites: SPAN 202 or WebCAPE score of 509 or higher, or instructor permission.

**SPAN 324. Spanish for Medical and Social Services. (3 Credits)**

A course to develop oral proficiency and writing skills in Spanish as applied to medical and social services settings. Conducted in Spanish. Prerequisites: SPAN 202 or WebCAPE score of 509 or higher, or instructor permission.

**SPAN 341. Latin American Civilization and Culture. (3 Credits)**

An introduction to the general trends of Latin American civilization, culture and the national character, as expressed in everyday life in the various countries of Latin America. Includes pre-Columbian history to the present. Conducted in Spanish. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

**SPAN 350. Introduction to Hispanic Linguistics. (3 Credits)**

A study of the Spanish language and its main components. Topics may include phonology, phonetics, morphology, syntax, semantics, sociolinguistics, and Spanish in the U.S. Conducted in Spanish. Prerequisite: SPAN 202 or WebCAPE score of 509 or higher.

**SPAN 366. Methods of Teaching a Foreign Language. (3 Credits)**

An introduction to past and current methods of teaching a foreign language, as well as to develop an understanding of proficiency and a synthesis of sound language-teaching practices. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 370. Advanced Spanish Conversation and Composition. (3 Credits)**

A course designed to give students the opportunity to develop their oral proficiency through discussion and presentations. In addition, consideration is given to composition, using tasks that reflect the type of academic work generally asked of Spanish majors and minors: analysis and classification, argumentation, definition, exposition, comparison and contrast, and cause and effect. Prerequisite: SPAN 270.

**SPAN 385. Introduction to Hispanic Literature. (3 Credits)**

Students read authentic Hispanic literature concentrating on details such as style, point of view, theme, and symbolism rather than simply reading for comprehension. Students read works by authors from Spain and Latin America with emphasis on works from major literary movements and styles. Conducted in Spanish. Prerequisite: SPAN 202, or WebCAPE score of 509 or higher.

**SPAN 392. Directed Study in Spanish. (1-4 Credits)**

A course of individual research and study about topics in Spanish. Prerequisite: six credits of Spanish beyond SPAN 102.

**SPAN 397. Special Topics. (1-6 Credits)****SPAN 462. Hispanic Literature. (3 Credits)**

An advanced literary analysis course with readings from Spanish literature from pre-Columbian times to the early 19th century. Genres may include poetry, narrative, essay and drama in Spanish. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 464. Hispanic Literature Through Film. (3 Credits)**

The study of Hispanic literature and culture as represented through film. Topics may include contemporary Spanish-speaking filmmakers, critical thinking, interpretation, speaking, and higher level writing skills. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 466. U.S. Latino Literature. (3 Credits)**

A study of literature written by Hispanics living in the United States and literature written in Spanish-speaking countries that revolve around Hispanics living in the U.S., immigration issues, and associated topics. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 468. Hispanic Literature, Contemporary Authors. (3 Credits)**

A study of important twentieth century texts from Spain and Latin America. Readings may include contemporary short stories, novels, and poetry. Conducted in Spanish. Prerequisite: SPAN 385.

**SPAN 480. Spanish Phonetics and Pronunciation. (3 Credits)**

A study of the correct, and incorrect, native patterns of Spanish pronunciation. Topics may include articulatory phonetics, phonology, phonetic analysis, and phonetic transcription. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 481. Syntax and Morphology of Spanish. (3 Credits)**

A study of the structures of words (morphology) and their customary arrangement in phrases and sentences (syntax) of the Spanish language. Conducted in Spanish. Prerequisite: SPAN 350.

**SPAN 482. Spanish in the U.S.. (3 Credits)**

A course where the students develop critical and linguistic awareness about the relationship between language, individual, and society, in the context of the use of Spanish in the U.S. Conducted in Spanish. Prerequisites: SPAN 350.

**SPAN 490. Workshop Abroad. (1-8 Credits)**

A series of workshops to study various aspects of contemporary issues in Hispanic cultures abroad. Prerequisite: SPAN 255 or equivalent.

**SPAN 492. Independent Study. (1-4 Credits)**

A special study in areas of student interest. May be taken for a maximum of four credits. Prerequisite: 15 credits of Spanish.

**SPAN 494. Capstone Experience. (3 Credits)**

An integrative capstone experience for seniors majoring in Spanish. Students will discuss, research, and write about their options after graduation. This course is offered yearly. Prerequisite: Senior standing.

**SPAN 497. Special Topics. (1-6 Credits)**

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