

**Mesa college**

GRAND JUNCTION, COLORADO 81502



**catalog**  
**81-82**

# 1981-82 ACADEMIC CALENDAR

## SUMMER SESSION 1981

- May 18** Registration for 12 week and 1st 6 week session
- May 19** Classes begin
- May 25** Memorial Day Holiday
- June 25-26** Midterm exams for 12 week session; Final exams for 6 week session.
- June 29** Registration for last 6 week session; classes begin
- July 3** Independence Day Holiday
- Aug. 3** Colorado Day Holiday
- Aug. 6-7** Final Exams for 12 week session and second 6 week session
- Aug. 7** Summer Session ends

## FALL SEMESTER 1981

- Aug. 21** New Faculty Workshop
- Aug. 22** Residual ACT Testing
- Aug. 24** All Faculty Workshop
- Aug. 25** Orientation, Advising and Registration
- Aug. 26** Classes begin
- Sept. 7** Labor Day Holiday
- Sept. 8** Last Day to change schedule\*
- Oct. 19-21** Midsemester exams
- Nov. 4** Last day to drop classes
- Nov. 25-29** Thanksgiving vacation
- Dec. 11** Last day of classes
- Dec. 14-17** Final examinations
- Dec. 17** Semester ends

## SPRING SEMESTER 1982

- Jan. 9** Residual ACT Testing
- Jan. 11** Registration
- Jan. 12** Classes begin
- Jan. 20** Last day to change schedule\*
- Mar. 1-3** Midsemester exams
- Mar. 6-14** Spring vacation
- Mar. 17** Last day to drop classes
- May 3** Last day of classes
- May 4-7** Final examinations
- May 8** Commencement

*\*Except for modular classes (schedules below)*

Last days to add and drop Physical Education modules:

- |                    |                                      |
|--------------------|--------------------------------------|
| <b>Fall 1981</b>   | 1st Module: Last day to add, Sept. 1 |
|                    | Last day to drop, Sept. 22           |
|                    | 2nd Module: Last day to add, Oct. 27 |
|                    | Last day to drop, Nov. 16            |
| <b>Spring 1982</b> | 1st Module: Last day to add, Jan. 19 |
|                    | Last day to drop, Feb. 5             |
|                    | 2nd Module: Last day to add, Mar. 19 |
|                    | Last day to drop, Apr. 9             |

**NOTE:** All hyphenated dates in schedule are inclusive

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## **CATALOG**

**1981-82**

### **STATEMENT ON EQUAL OPPORTUNITY**

*In matters related to admission and education of students: availability of student loans, grants, scholarships, and job opportunities: employment and promotion of teaching and non-teaching personnel: student and faculty activities conducted on premises owned or occupied by the College: student and faculty housing situated on premises owned or occupied by the College: and all other activities and endeavors, Mesa College does not discriminate against any person on account of race, creed, color, national origin, sex, or handicap.*

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## FOREWARD

*MESA COLLEGE is a comprehensive coeducational institution operated under the governance of the Trustees of the Consortium of State Colleges in Colorado.*

*THIS CATALOG is intended for the guidance of students and faculty but does not constitute a guarantee that all courses listed will actually be offered during the current or forthcoming academic year. Mesa College reserves the right to withdraw or add courses prior to the beginning of any semester or summer term. In some programs certain courses may be offered on an alternate-year basis or as determined by apparent demand. All program offerings are subject to adequate appropriations by the Colorado General Assembly.*

# GENERAL INFORMATION

## HISTORY OF THE COLLEGE

Mesa College was organized as Grand Junction State Junior College in 1925 by authority of legislation enacted on April 20 of that year. The College opened its doors on September 21 in a renovated former elementary school building at Fifth Street and Rood Avenue, culminating a quarter century of planning by community leaders.

The electorate of the junior college district voted to dissolve the district and transfer the assets of Mesa College to the Trustees of State Colleges in Colorado (now known as the Trustees of the Consortium of State Colleges in Colorado), effective July 1, 1974. The legislation authorized the expansion of Mesa College's programs to include baccalaureate degrees.

Mesa College has experienced growth throughout its 55 year history. Expansion of faculty has kept pace with enrollment, providing students with a favorable student—instructor ratio along with access to quality learning materials and facilities.

## PHILOSOPHY AND GOALS

Mesa College is a democratic center of learning dedicated to the improvement of human capability. The College extends its services to anyone regardless of age, sex, race, creed, color, cultural background, economic status, or handicap. Committed to instruction, service, and research, with an emphasis on instruction, the College seeks to improve each student's unique talents and sense of social responsibility by helping the student to recognize knowledge as the basis of mankind's past and future achievements.

By promoting the acquisition of skills as well as the discovery and application of knowledge, the College seeks to develop the intellectual, ethical, and aesthetic sensibilities that enable a student to pursue a rewarding career.

While recognizing the importance of preparing individuals to assume responsible and productive roles in society, the College seeks to liberate persons from narrow interests and prejudices, to help them observe reality precisely, to judge opinions and events critically, to think logically, and to communicate effectively.

The College offers programs of value in areas of civic and cultural life, research and recreation and desires to play a constructive role in improving the quality of human life and the environment.

In order to implement this philosophy, the College shall:

- 1) offer programs leading to baccalaureate degrees and associate degrees in liberal arts, sciences, business, and professional areas;
- 2) offer vocational technical programs leading to certificates and associate degrees;
- 3) offer continuing education programs directed toward personal, civic, vocational, and professional self-improvement;
- 4) offer a sufficiently wide range of lower division courses to assure smooth, successful transfer by students to other institutions;
- 5) provide community services, including intellectual, civic, and cultural activities, advisory services, and research programs;
- 6) include in all degree programs sufficient courses in the sciences and mathematics, the social sciences, humanities and the arts to insure that students can be conversant in the areas of general knowledge.

## ACCREDITATION

Mesa College is fully accredited by the North Central Association of Colleges and Schools. Accreditation by this agency places credits earned at Mesa College on a par with those earned at other similarly accredited institutions throughout the United States. Various programs at Mesa are approved by appropriate state and national agencies, including the Colorado State Board of Nursing, Colorado State Board of Practical Nursing, National League for Nursing, Colorado State Board of Accountancy, and American Medical Association Council on Medical Education (Radiologic Technology).

## ENROLLMENT — 1980 FALL SEMESTER

	Freshmen	Sophomores	Juniors	Seniors	Unclassified	Totals
Men	1185	299	155	163	3	1804
Women	1502	244	173	146	4	2069
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	2687	543	328	308	7	3873

Of the total 3873 students, 3663 were Colorado residents and 210 were non-residents including 13 from foreign countries.

## LOCATION

The campus is bordered by an attractive and modern residential section. Stores and other conveniences are located within walking distance of the campus, and many others, including large shopping centers, are nearby.

Grand Junction's location in a scenic part of the Rocky Mountain West provides unlimited opportunity for the outdoor enthusiast. Many College activities involve the physical advantages of the region. Among these activities is the College's physical education program in skiing, which is conducted at the Powderhorn Ski Area on Grand Mesa. Qualified instructors, a variety of lifts, and miles of excellent trails combine to make the ski area a valuable adjunct to the College's winter program. Students also take advantage of the city's parks, golf courses and swimming pools, and the numerous outdoor attractions to be found in the nearby mountains.

Directly to the southeast of Mesa College is beautifully landscaped Lincoln Park, the public recreation center of Grand Junction. The park includes a green-turfed football field, new quarter-mile track, baseball diamond and stands, eight concrete tennis courts, and a nine-hole golf course with grass fairways and greens, all available to college students.

## BUILDINGS AND EQUIPMENT

**Houston Hall (1940)**, the first permanent building on the present campus, has classrooms for a variety of subject areas. This structure was remodeled in 1979-80 to provide several large lecture halls and other improvements including an elevator, new stairways, modern heating, lighting, and air-conditioning.

**Horace Wubben Hall (1962)** incorporates the finest of modern science and engineering classroom and laboratory facilities for physical and natural sciences and the field of engineering. A special feature of this building is an octagonal lecture hall, seating 100, which has provisions for audio-visual presentations and laboratory demonstrations. The building also provides staff offices, reference library, and conference rooms.

**Lowell Heiny Library** (1967) is a four-level building incorporating the latest concepts in library design, with open stacks and a variety of study facilities. The collection includes more than 90,000 volumes plus 1,200 periodicals. The library has facilities for a variety of learning experiences, including reading, viewing, listening, research, and group discussions. The library is an integral part of the college's Learning Resource Center, which also includes educational media services. The terrace level of the library building provides office space for administrative and student services staffs.

**Walter Walker Fine Arts Center** (1969) includes classroom and studio facilities for art, music, and drama and a multi-purpose Little Theatre.

**William A. Medesy Vocational-Technical Center** (1969) has shops, laboratories, and classrooms for auto mechanics, auto body and fender, welding, electronics, dental assisting, and graphic-communications departments. The Mesa College Area Vocational School serves both youth and adults of the region as a training center for various occupations.

**Roe F. Saunders Physical Education Center** (1968) provides facilities for a variety of physical education and recreation activities. Major features include all-purpose gymnasium, swimming and diving pools, locker and shower rooms, classrooms, and office space for the Department of Physical Education and Recreation. Physical education and practice athletic fields are located immediately west of the Physical Education Center. Tennis courts are just north of the facility.

Three 200-student residence halls—**Aspen, Juniper, and Pinon** (1966, 1967)—and a smaller dormitory, **Elm Hall** (1961), provide comfortable living quarters for boarding students. Most of the rooms are doubles, but a few singles are available. All rooms are furnished with modern wall-hung furniture.

**Walnut Ridge Apartments** (1978) are available to sophomores, juniors, and seniors. Forty-eight attractively furnished two- and three-bedroom units provide complete housekeeping facilities.

**Mary Rait Hall** (1948, remodeled 1967) includes classrooms, Media Services, Printing Services, and other facilities on the first floor. The upper two floors provide office space for sixty faculty members.

**W.W. Campbell College Center** (1962 remodeled 1980-81) contains cafeteria, bookstore, study and recreational lounges for students and faculty, office and conference facilities for student leaders, a snack bar, and game rooms.

**Early Childhood Education Center** (1964) provides facilities for Mesa College's training program for directors and other personnel of childcare centers and also for the Parent Education and Preschool program.

**Mesa College Day Care Center**, organized for the convenience of Mesa College students who have small children, is located on the lower level of this building.

**College Service Center** (1968) houses all types of equipment and shops used in general campus upkeep. It also includes areas for the Purchasing Department, central receiving, supply storage, and campus mail service.

**Counseling and Career Center** provides a central location for counseling, career-development, employment, and placement services.

**Audio-Tutorial Laboratory** houses audio-visual, library aids, and simulated patient rooms for specialized training in Nursing and Allied Health programs.

**Student Health Center** includes office space and clinical facilities for the College Health Service staff.

**Mesa College Farm**, leased from the State Home and Training School, provides shops and laboratories for various types of courses.

### **COLLEGE-COMMUNITY RELATIONS**

Through mutual cooperation with the community, Mesa College has become an integral factor in the development of Colorado West. Faculty members are available for lectures and discussions on a wide range of subjects and student groups appear before both public and private audiences for information or entertainment programs. The public is invited to attend many College programs—musical, dramatic, forensic, religious, athletic, and those devoted to public affairs and international relations. Special programs of community-wide interest are presented in College facilities from time to time by community groups.

### **CONSORTIUM OF STATE COLLEGES IN COLORADO**

The institutions governed by the Trustees of the Consortium of State Colleges in Colorado (Adams State College, Mesa College, Metropolitan State College, and Western State College) are joined in a consortium, the purpose of which is to identify and facilitate cooperative efforts among the institutions. Mesa College is also authorized to enter into consortium agreements with other public institutions of higher education in the state to make additional programs and services available to students. For additional details about the consortium program see the Admissions Information section of this catalog.

### **MESA COLLEGE DAY-CARE CENTER**

Day care is available for children of college students. A minimum fee is charged by the hour or by the day for children 2 to 5 years of age.

For further information, write Mesa College Day Care Director.



# DEGREES, PROGRAMS, ORGANIZATION

Mesa College grants the Bachelor of Arts, Bachelor of Business Administration, and Bachelor of Science degrees in a number of areas. The College awards Associate in Applied Science, Associate in Arts, Associate in Commerce, and Associate in Science degrees in a variety of disciplines. In addition, Certificate programs are available in several occupational (vocational-technical) areas. Specific requirements for the various awards are described in the *Graduation Requirements* section of this catalog and, in some instances, in the text which describes the different instructional units and programs of the College.

Mesa College has programs of three general types:

- (1) Those offered in business, arts, sciences and professional areas;
- (2) Those that are considered occupational or vocational-technical in nature; and
- (3) Classes offered through the Office of Continuing Education.

## COLLEGE ORGANIZATION

The instructional units of Mesa College and their respective subject-matter areas are:

**School of Business**—Accounting, Data Processing, General Business, Job Entry Training (non-college credit), Management, Marketing, Medical Office Assisting, Office Administration, Secretary—Legal or Medical, and Travel, Recreation and Hospitality Management.

**School of Humanities and Fine Arts**—Art, Creative & Technical Writing, English, Foreign Languages, Journalism, Music, Philosophy, Reading, Speech and Theatre.

**School of Industry and Technology**—Auto Body and Fender, Auto Mechanics, Diesel-Hydraulics, Electric Lineman, Electronics, Graphic Communications, and Welding.

**School of Natural Sciences and Mathematics**—Agriculture, Astronomy, Biology, Botany, Chemistry, Computer Science, Engineering, Engineering Technology, Geology, Home Economics, Mathematics, Physics, Physical Science, Production Agriculture, Statistics, and Zoology.

**School of Nursing and Allied Health**—Dental Assisting and Expanded-Duty Functions, Emergency Medical Technician, Nursing, and Radiologic Technology.

**School of Social and Behavioral Sciences**—Anthropology, Archaeology, Dance, Early Childhood Education, Economics, Education, Geography, History, Human Services, Law Enforcement, Military Science (ROTC), Occupational Guidance, Physical Education, Political Science, Psychology, Recreation, Social Science, and Sociology.

**Area Vocational School**—The coordinating entity for the various occupational programs taught in the different schools of the College.

**Continuing Education and Outreach**—The coordinating office for adult education, night classes, and off-campus classes.

## MAJORS AND PROGRAMS OF STUDY

Studies undertaken by a student at Mesa College depend upon career plans and educational objectives. The college offers baccalaureate degrees in Accounting, Biological and Agricultural Sciences, Business Administration, Leisure and Recreational Services, Liberal Arts, Nursing, Physical and Mathematical Sciences, Selected Studies, and Social and Behavioral Sciences, with a variety of options available in some of these four-year degree areas.

A student may first receive an associate degree before continuing toward the baccalaureate degree, but such a plan is entirely optional.

Some students may choose to take courses at Mesa College which will fulfill lower-division requirements for transfer to a college or university that offers baccalaureate or professional programs not currently available at Mesa College. Others may prefer to work toward one of the associate degrees, either as preparation for immediate employment upon graduation or as the first phase of their total educational goals.

Mesa College offers a variety of Occupational Education programs for students whose immediate plans do not include completion of a baccalaureate degree. These specialized programs of a terminal, technical, or semi-professional nature are designed to help students develop the specific skills required for employment in various technical occupations.

## SECOND DEGREES

A student who has been awarded a bachelor's degree or an associate degree by Mesa College or another regionally accredited institution can earn an additional bachelor's or associate degree from Mesa College. The second degree will not, however, be awarded at the same commencement as the first, and the major for the second bachelor's degree must be different from the major for the first.

To receive an additional bachelor's degree, the student must:

1. Earn at least 30 semester hours of additional credit, at least 18 of which must be in upper division courses, with no fewer than two semesters of residence at Mesa College.
2. Satisfy all specific program requirements for the new major.

To receive an additional associate degree the student must earn at least 15 semester hours of additional credit at Mesa College, with a minimum of one semester of residence at Mesa College.

Students seeking to earn a second degree must file an approved Program of Study with the Registrar prior to earning credits toward the degree.

After a degree is conferred, a major will not be changed and single majors will not be expanded to double majors. Students who complete the requirements for one major but wish a degree in a double major should defer application for a degree until they can apply for a degree with a double major, rather than ask for two degrees with different majors.

Two degrees will not be conferred in the same semester or at the same commencement exercise.

# ADMISSIONS INFORMATION

(For additional application and admission information, see *How to Apply for Admission* on inside back cover of this catalog.)

## ADMISSION TO MESA COLLEGE

Admission to Mesa College is granted upon the filing of an application for Admission and the presentation of satisfactory credentials. All applications must be filed upon the official forms available at the college, or, for Colorado residents, at the office of the high school principal. A \$10.00 evaluation fee must accompany the admission application. Admission is considered without regard to race, color, creed, national origin, sex, or handicap.

Colorado high school graduates who have completed satisfactorily a minimum of 15 acceptable units of high school work are eligible for admission to Mesa College. Individuals who have not graduated from high school will be considered for admission by submitting a G.E.D. High School Equivalency Certificate with a composite standard score of 45 or above. The Application for Admission and transcript of the high school record properly filled out and signed by the high school principal or counselor should be on file in the Admissions Office no later than August 1, for the fall semester. Application for Admission to the spring semester should be on file in the Admissions Office at least two weeks prior to the beginning of the semester.

## ADMISSION OF NON-DEGREE STUDENTS

Individuals who lack some of the requirements for admission as regular students may be admitted as non-degree students on either a part-time or full-time basis. A non-degree student may become a regular student upon fulfilling the entrance requirements. Individuals wanting to take one or two courses for non-degree purpose must clear with the Admissions Office.

## ADMISSION TO CERTAIN PROGRAMS

Admission to Mesa College does not automatically constitute admission to programs which require special admission procedures. Such programs include the Early Childhood Education Program, the Electric Lineman program, and all programs offered by the School of Nursing and Allied Health. Students applying for these programs must have their ACT scores on file in the Admissions Office. (Other test scores will not be accepted in lieu of ACT scores).

## ADVANCED COURSE PLACEMENT

Mesa College recognizes superior high school achievement by means of advanced placement for those students who have taken enriched or accelerated courses before entering college. Usually, applicants qualify for such placement by scoring higher than average on the American College Tests (ACT) or special placement examinations prepared by the respective academic schools or departments of Mesa College. Detailed information concerning advanced placement may be obtained by writing the Office of Admissions.

## ADMISSION TO ADVANCED STANDING (Transfer Students)

Students in good standing with other colleges or institutions may be admitted to advanced standing at Mesa College. Students applying for

advanced standing shall furnish to the Admissions Office a transcript of all college work (to be sent from each institution attended). An applicant for admission who has already attended another institution cannot disregard a collegiate record and apply for admission as a first-time freshman.

A high school transcript is required of all transfer students with fewer than 60 semester hours.

Transfer students with fewer than 60 semester hours of credit are required to take the ACT prior to registration unless the test has been taken previously and an official record of the scores is on file in the Mesa College Office of Admissions. All applicants for Nursing programs, regardless of the number of hours transferred, are required to have ACT scores on record in the Admissions Office. Such test scores are not a regular part of the official transcript and are released by the student's former school only at the student's specific request.

It is Mesa College's general policy to accept up to 60 semester hours of credit in transfer from accredited two-year community or junior-colleges.

Transfer students who may be on probation or suspension from the institution previously attended cannot be admitted until they have been approved by the Admissions Committee. In such cases the applicant must address a written petition to this committee describing the circumstances leading up to the probation or suspension status and any significant changes in these circumstances that would indicate that a successful record might be established at Mesa College.

#### **ADMISSION OF FOREIGN STUDENTS**

Foreign students will be considered for admission Summer Session and Fall Semester only. In making the decision to attend Mesa College, foreign students should be aware that the College does not have special programs for foreign students and that no funds are available for financial aid covering tuition and fees or living expenses.

To be considered for admission, foreign students must complete and submit the following to the Admissions Office at Mesa College prior to August 1 for Fall Semester and May 1 for Summer Session: (1) Application form with \$10 non-refundable application fee; (2) Medical examination report; (3) Copy of American College Testing Scores; (4) High school transcript, translated into English; (5) Transcripts from other colleges and universities attended; and (6) Certificate of financial support.

Foreign students must provide documented evidence of ability to read, write, speak and understand the English language. This requirement may be fulfilled in one of the following ways: (1) Submit scores of Test of English as a Foreign Language (TOEFL) with an average of 45 or higher; (2) Submit results of Michigan Test of English Language with minimum score of 70; (3) Complete a recognized English Language Institute with an achievement level of 108; or (4) A foreign student who has been enrolled as a regular full-time student at another college or university may be considered on an individual basis.

Before admission is granted, a foreign student must provide proof of financial ability to meet cost of tuition, fees, books, living accommodations, and incidental expenses for at least one full year. The total cost per student is approximately \$7,500 per calendar year. The sum of \$1,000 must be deposited with the Mesa College Business Office by August 1 for Fall Semester or May 1 for Summer Session. This will be applied to the first semester's expenses and will be refunded only if admission is not granted.

Further information and forms may be obtained from the Director of Admissions.

### **ADMISSION OF HANDICAPPED STUDENTS**

Mesa College admits physically handicapped students and assists such students with class schedules, housing, parking, and health problems.

Currently, the physical barriers in the buildings and facilities on the campus are under study relative to changes needed to accommodate handicapped students. Some of these changes have already been made, and it is hoped that adequate funding will allow completion of this project in the near future. The prospective student should visit the campus prior to enrollment and meet with counselors to discuss special needs and determine the feasibility of completing the program of the student's choice.

### **CONSORTIUM STUDENTS**

A purpose of the Consortium of State Colleges is to establish procedures for facilitating the best kinds of programs through shared resources—physical, professional, organizational, and curricular.

The registrars of the four institutions of the Consortium have developed a form to be used for inter-institutional registration. Using this registration form, a student in good standing at any of the schools will be accepted as a student at any of the others. Before the consortium student registers at another school, agreements will be reached by the home and host schools concerning the exact application of earned credits toward degrees, majors, and electives. Students should contact the registrar of the home institution to obtain further information on arrangements.

Institutions of the Consortium of State Colleges in Colorado have agreed on the following:

1. Credit for consortium courses shall be treated as resident courses and not as transfer courses for purposes of fulfilling major and minor requirements and for graduation.
2. Grades for consortium students shall be awarded by cooperating institution faculty in the normal manner. The cooperating institution shall provide the grades of consortium students to the home institution registrar for posting to students' educational records.

The terms "home institution" and "cooperating institution" are defined as follows:

1. Each student shall have a "home institution," which is defined as that institution at which a student has matriculated by paying application fees and has been accepted as a student in good standing. The home institution shall maintain all education records and shall administer all student services, including financial aid. The cooperating and home institution shall share responsibilities for academic advising.
2. A "cooperating institution" is defined as any consortium institution other than the home institution at which a consortium student enrolls in courses.

### **ADMISSION INFORMATION FOR VETERANS**

The programs offered by Mesa College, with certain exceptions, are approved by the State Board for Community Colleges and Occupational

Education for the education and training of those veterans and dependents of veterans eligible under applicable public laws. Veterans or dependents planning a course of training in special programs not described in the college catalog or identified as approved for veterans' benefits should check with the veterans certification officer before enrolling in such a program, if benefit assistance is desired.

Veterans and dependents who plan to apply for VA benefits while attending Mesa College must contact the Office of Veterans Affairs as soon as the decision to attend Mesa is made. Application for benefit assistance must be made at least six weeks prior to the initial registration if the student plans to have the benefit check on hand for payment of expenses at the time of registration. Without this advance payment, the student must make other financial arrangements and be prepared to finance tuition and fees, books, supplies, and living expenses for at least two months. This represents the normal processing time required for the VA to establish the applicant's file. Further information may be obtained from the Office of Veterans Affairs.

### **ADMISSIONS AND COUNSELING TESTS**

Mesa College requires the ACT (American College Test) of all students. Test scores must be on file in the Admissions Office before official admittance is granted. (See inside back cover.) Students are not admitted to Mesa College on the basis of "passing" or "failing" the ACT tests. The test results are used by the counseling center and by the student and adviser as the basis for planning a course of study, and as an aid in placement in certain class sections, keeping within the student's abilities and interests. Extra classroom instruction is provided on a limited basis for those whose test scores indicate weakness or deficiencies in certain areas such as English and mathematics. The results may also be used for scholarship consideration and institutional research.

There are some exceptions and exemptions to this admissions requirement. Students who are exempt from having to submit their ACT scores as part of their admissions requirement are:

- 1) Students enrolled only in classes offered through the Continuing Education Outreach Program.
- 2) Students who are enrolled in a certificate program of one year or less.
- 3) Students transferring to Mesa College from other accredited colleges or universities with 60 or more semester hours of credit. This does not apply to Associate-Degree Nursing applicants, who must take the ACT regardless of the number of credit hours transferred.
- 4) Students enrolled in resident instruction for nine or fewer semester hours of credit for the first two semesters.
- 5) Students who have already earned an associate or bachelor degree from another college. (See exception in item 3.)

When a student has accumulated 12 or more hours of credit and enrolls in the resident-instruction program in either an associate-degree or baccalaureate-degree program, the student is required to have ACT scores on file in the Office of Admissions and Records.

High school students admitted to Mesa College under special consideration must submit their ACT scores as part of their admissions requirement.

It is recommended that prospective students take the ACT tests during their high school senior year. Transfer students (unless exempt under

(item 3 or 5 above) are required to have their ACT test scores on file in the Admissions Office prior to registration. ACT scores from a previous college or university are acceptable. A special residual ACT test is scheduled prior to registration each semester for applicants who did not take the ACT on one of the five national test dates. Contact the Director of Admissions or the Testing Office for further details. The results will be available to the student and the student's adviser during registration. A special testing fee of \$12.50 will be collected from the student immediately prior to the test.

Scholastic Aptitude Test (SAT) scores are not required by Mesa College and will not excuse the student from the ACT tests. When the SAT scores are received they are filed in the student's permanent record and personnel folder where they are available for counseling purposes if desired.

## **REGISTRATION**

In order to become a student of the College, an applicant for admission must register on the official forms provided by the Registrar's Office during the period scheduled for registration and pay tuition and fees at the Business Office. Credit will be given only for the specific courses for which the student is registered.

## **NO-CREDIT-DESIRED COURSES**

A student who desires to attend certain classes regularly, but does not wish to take the final examinations or receive grades or credit, should register No Credit Desired in these courses. Credit for such courses may not be established at a later date.

## **WITHDRAWAL FROM COLLEGE**

A student who desires to withdraw from the College should notify his faculty adviser and report to the Office of Admissions and Records. The necessary withdrawal papers will be filled out and officially signed by an appropriate College official. The student will receive a grade of W (Withdrawn) for each course regardless of whether passing or failing at the time of withdrawal. Such withdrawal may be made at any time during the semester prior to the sixth day after midterm grades are posted and available to students from their faculty advisers. Students who withdraw or drop classes after the above date are subject to penalty "F" grades.

# **EXPENSES AT MESA COLLEGE**

*Mesa College reserves the right to adjust any and all charges, including fees, tuition, room and board, at any time deemed necessary by the Governing Board.*

## **DETERMINATION OF RESIDENCE STATUS FOR TUITION PURPOSES**

The classification of students as residents of Colorado for tuition purposes is determined under Colorado statute. The final decision regarding tuition status rests with the institution. Questions regarding residence (tuition) status should be referred only to the Director of Admissions. Opinions of other persons are not official or binding upon the institution.

Tuition and fees for the 1981-82 academic year could not be determined when this catalog was printed. The following rates are those actually charged during the 1980-81 academic year. Students are invited to write for current rates, which will be available by July 1, 1981.

### TUITION AND FEE SCHEDULE (IN EFFECT DURING 1980-81)

Full-Time Students, Regular Academic Year:	Semester	Year
<b>COLORADO RESIDENTS (Enrolled in 10 to 18 hours)</b>		
Tuition .....	\$ 262.00	\$ 524.00
Student Services Fees .....	96.00	192.00
<b>TOTAL .....</b>	<b>\$ 358.00</b>	<b>\$ 716.00</b>
(Surcharge of \$18.00 per hour over 18 semester hours)		
<b>NON-COLORADO RESIDENTS (Enrolled in 10 to 18 hours)</b>		
Tuition .....	\$1154.00	\$2308.00
Student Services Fees .....	96.00	192.00
<b>TOTAL .....</b>	<b>\$1250.00</b>	<b>2500.00</b>
(Surcharge of \$77.00 per hour over 18 semester hours)		
Part-time Students, Regular Academic Year:	<i>Per Sem. Hr.</i>	
<b>COLORADO RESIDENTS</b>		
Tuition .....		\$ 26.00
Student Services Fees .....		6.00
<b>TOTAL .....</b>		<b>32.00</b>
<b>NON-COLORADO RESIDENTS</b>		
Tuition .....		\$ 77.00
Student Services Fees .....		6.00
<b>TOTAL .....</b>		<b>\$ 83.00</b>

\*Student Services Fees are \$6.00 per semester hour for students carrying less than seven hours. Students carrying 7 or more semester hours are required to pay a total of \$96.00 per semester for Student Services Fees.

#### Summer Session

Colorado Residents (includes \$4.00 student fee) .....	\$ 30.00
Non-Residents (includes \$4.00 student fee) .....	81.00

### PRIVATE AND SPECIAL INSTRUCTIONAL FEES

When private and special instructional services are required, additional charges will be incurred by the student. These fees vary with the nature of the instruction. Private instruction in applied music is available through the College from instructors approved by the College. Cost of this instruction is \$60 per semester for one lesson each week. Other special instructional services available to students which require extra fees include bowling, skiing, and physical education classes with locker and towel facilities.

### PAYMENT OF TUITION AND FEES

Tuition and fees are due and payable at the time of registration, and registration is not complete until the student's obligation is met in full. Any student who enrolls and attends classes is liable for payment of tuition and fees. No student having unpaid financial obligations of any nature due the College shall be allowed to graduate or to receive a transcript of credits.

### REFUNDS OF TUITION AND FEES

If notification of withdrawal is made prior to the first day of classes, tuition and fees will be refunded in full. If a student withdraws within ten calendar days of the first day of classes, two-thirds of tuition and fees may



be refunded. After ten days, no refunds will be made except in cases of unusual emergency.

### APPLICATION AND EVALUATION FEES

Application and Evaluation Fee (non-refundable) .....	\$ 10.00
Valid only for the semester for which the student makes application.	

### MISCELLANEOUS FEES

Late registration, \$10 first day, \$5 each additional day, maximum .....	\$ 35.00
Graduation (cap, gown, diploma) .....	12.50
Room damage deposit (refundable) .....	100.00
Parking permit .....	12.00
Student health insurance per semester .....	59.00

### ROOM AND BOARD

Two types of on-campus housing are available. Sophomores, juniors and seniors may reside in new college apartments which are modern living units for three or four students consisting of bedrooms, bath, kitchen and living room. College residence halls with cafeteria meal plans are available to all students. Meal plans are also available to students residing in the college apartments and those students permitted to reside off campus. The meal plans are available Monday through Friday (five day plan) or seven days a week; however, breakfast is not served on Sunday.

### PAYMENT OF ROOM AND BOARD

Room and board is contracted on a yearly basis but is payable each semester at the time of registration. Registration is not complete until the student's obligation is met in full.

#### APARTMENTS:

##### (Full occupancy)

2 bedroom—for 3 students .....	\$518.00 per student per semester
3 bedroom—for 4 students .....	518.00 per student per semester

##### (Partial occupancy)

2 bedroom—for 2 students .....	\$777.00 per student per semester
3 bedroom—for 3 students .....	691.00 per student per semester

#### RESIDENCE HALLS:

	<i>Semester</i>	<i>Year</i>
Double occupancy .....	398.00	796.00
Single occupancy .....	537.00	1074.00

#### BOARD:

Seven day meal plan - 20 meals per week	\$500.00	\$1000.00
Five day meal plan - 15 meals per week	400.00	800.00
Five day meal plan - 5 meals per week (not available to dorm residents)	195.00	390.00
Weekend meal plan - 2 meals Sat., 3 Sun.	100.00	200.00

### REFUNDS ON ROOM AND BOARD

See section on Student Housing.

### BOOKS AND SUPPLIES

Textbooks, notebooks and school supplies are sold at the College Bookstore. Cost of needed books and supplies will vary according to the course taken by the student but should not exceed \$300 per year for a basic course load. Some saving may be realized by buying used books.

# Graduation Requirements

To graduate from Mesa College with an associate degree or baccalaureate degree, a student must:

1. Have been regularly enrolled for at least two semesters, including the semester during which graduation requirements are met, and must have earned a minimum of 16 semester hours at Mesa College for an associate degree and 28 semester hours for a baccalaureate degree.
2. File with the Registrar an application for graduation sometime during the semester immediately preceding the semester during which graduation requirements are to be met. A nominal graduation fee is charged for all degrees.
3. Satisfy all general and specific requirements of the College including the fulfillment of all financial obligations.
4. Have removed from the official record all marks of deficiency in those subjects for which the student expects to receive credit toward graduation.

Only lower-division courses will be accepted in fulfilling general education requirements.

Students must attain a minimum cumulative grade point average of 2.0 (C) in lower division work before being permitted to take upper division subjects for credit.

A student seeking a baccalaureate degree from Mesa College must earn a minimum of 40 semester hours of upper-division credit at Mesa College or the higher minimum that may be established for a particular program.

Except for changes in major, students are required to complete the curriculum or course of study in which they initially enroll, provided courses needed to complete the program are available. In cases where it appears, because of catalog changes, advantageous to the student to change to current catalog requirements, the student has this option. The student must obtain approval of the Dean of the School and must meet all requirements of the catalog, including the general-education requirements. The student cannot choose part of the program from one catalog and part from another.

If a student resumes study or begins a new course of study at Mesa College after having been absent from college enrollment for one academic year or more, the student must follow the curriculum or course of study outlined in the catalog current at the time of re-enrollment unless the School concerned gives written authorization for the student to pursue a different curriculum or course of study.

Mesa College reserves the right to evaluate on a course-by-course basis any credits earned 15 or more years prior to re-enrollment which the student wishes to apply toward any degree or certificate program.

## DEGREE REQUIREMENTS

In addition to completing the general graduation requirements listed in the preceding paragraphs, students who wish to qualify for an associate degree or a baccalaureate degree must complete certain *General Education* requirements for each of the specific degrees as outlined in the following: (Most degree programs require ENGL 111 and 112; some programs accept ENGL 111 and 115. Students should check with adviser.)

**Associate in Arts Degree:**

Freshman English	6 semester hours
Literature	6 semester hours
Social Science	6 semester hours
Physical Science or Mathematics	6 semester hours
Biology or Psychology	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours
Approved electives	30 semester hours

**Associate in Science Degree:**

Freshman English	6 semester hours
Social Science or Literature	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours
Laboratory Science or Mathematics	26 semester hours
Approved electives	22 semester hours

**Associate in Commerce Degree**

See requirements in School of Business section.

**Associate in Applied Science Degree**

Freshman English	6 semester hours
Social Science (including Psychology) or Literature	6 semester hours
Physical Education (two semesters of different activity courses)	4 semester hours

In addition to the above general education requirements, students seeking the Associate in Applied Science Degree must enroll in one of the specially designed Occupational Education programs. The specific course requirements for these programs are listed in the *Instructional Programs* section of this catalog.

For any of the associate degrees, a student must earn a 2.0 grade point average for all hours taken toward meeting the 60 hour minimum requirement plus 4 semester hours of physical activity courses with at least a 2.0 average.

**Baccalaureate Degree Requirements**

Students who meet requirements for the baccalaureate degree must complete a minimum of 120 semester hours plus 2 semesters (4 semester hours) of different physical ACTIVITY courses.

Of the 124 credit hours, a minimum of 40 semester hours must be in upper division courses. A minimum of 2.0 (C) overall grade point average must be maintained. Repeated courses will be counted only once. Each baccalaureate degree program must include 40 semester hours of lower division *General Education* courses from Sections I and II of the following: (Student should check with faculty adviser to determine departmental recommendations.)

- I. 6 semester hours in English composition ENGL 111, 112; or, in a few programs, ENGL 111, 115; or, for those who qualify, ENGL 126, 127; plus
- II. 34 semester hours in four areas distributed as follows:
  - (a) 8-9 semester hours in Biological Sciences and/or Psychology chosen from the following: BIOL 101, 101L, 102, 102L, 105, 106, 106L, 107, 107L, 141, 141L; PSY 121, 122, 200, 210, 220, 233; and
  - (b) 8-9 semester hours in Humanities and Fine Arts as follows:
    - 6 hours in ENGL 131, 132, 134, 135, 141, 142, 143, 254, 255, 256, 261, 262; and
    - 3 hours in ART 115, 120, 140, 150, 152, 170, 180, 190, 211, 212; THEA 115, 141, 235, 236; FA 101; MUS 114, 115, 127, 137, 251, 252; SPCH 101, 102, 201, 235, 241; and

- (c) 8-9 semester hours in Physical Sciences and Mathematics chosen from: **CHEM** 121, 121L, 122, 122L, 131, 131L, 132, 132L, 211, 211L, 212, 212L, 221, 221L; **CSCI** 100, 111, 131, 131L, 133, 133L, 230, 230L, 240, 250; **GEOL** 101, 101L, 102, 102L, 111, 111L, 112, 112L, 201, 201L, 203; **MATH** 101, 105, 106, 110, 113, 119, 121, 127, 130, 131, 132, 133, 134, 135, 146, 151, 152, 161, 253, 260, 265; **PHYS** 111, 111L, 211, 211L, 212, 212L, 221, 221L, 222, 222L, 224; **PSCI** 111, 112, 114, 115; **STAT** 200, 214; and
- (d) 8-9 semester hours in Social Sciences chosen from: **ANTH** 101, 102, 221, 222; **ECON** 201, 202 (will count only if taken following **ECON** 201); **GEOG** 101, 102; **HIST** 101, 102, 105, 106, 120, 125, 126, 131, 132, 136; **POLS** 101, 102, 256, 261, 262; **SOCS** 210, **SOC** 144, 260, 264.

Specific information concerning the requirements of the various baccalaureate degree programs at Mesa College is included in the sections of this catalog dealing with programs and courses offered by each of the academic schools.

### VOCATIONAL CREDITS

Six hours only of vocational credits, as defined by each school, may count toward the Associate in Arts, Associate in Science, and Associate in Commerce degrees.

Six hours only of vocational credits, as defined by each school, may count toward the Bachelor of Arts and Bachelor of Science degrees, with the following exceptions:

B.A., Social & Behavioral Sciences	Varies
B.A., Leisure and Recreation Services	12 hours
B.A., Selected Studies	Varies
*B.S., Accounting	12 hours
*B.B.A., Business Management	12 hours

\*Vocational credits must be approved by the Dean of the School of Business.

### CERTIFICATES

Mesa College offers one and two year certificates in several vocational-technical fields. The specific requirements for certification in these programs are found elsewhere in this catalog. (See Alphabetical Index.)

### ACADEMIC ADVISING

Students are expected to assume the responsibility for planning their academic programs in accordance with College rules and policies and departmental major requirements. They are, however, urged to consult with advisers in their major department concerning their academic programs and objectives. The College will assume no responsibility for difficulties arising out of the student's failure to establish and maintain contact with his or her major department and adviser.

*The student alone is ultimately responsible for knowing the requirements for a particular degree and for fulfilling those requirements.* Upon completion of the requirements (including those of a major), the student will be awarded the appropriate degree.

### ACCELERATION OF COLLEGE STUDY

It is possible for students to satisfy the requirements for baccalaureate degrees in less than the traditional four years (eight regular academic year semesters). The various things that can be done to accomplish this should, when possible, be discussed with faculty advisers. They include: enrolling in college classes while in high school; exceeding the normal

course load at Mesa College; enrolling in the summer sessions at Mesa College or elsewhere; challenging by examination courses in which competence has previously been attained; earning credit by testing through the College-Level Examination Program (CLEP); obtaining credit for work experience. Further information may be obtained from faculty advisers and the testing office.

### **TRANSFER OF CREDIT**

Accreditation by the North Central Association of Colleges and Schools assures the acceptance of credits earned at Mesa College by other accredited colleges and universities throughout the United States. Students are reminded that acceptance of transfer credit by any accredited college depends upon the individual student's previous grade average and a certification from Mesa College that the student is in "good standing."

### **TEACHER PREPARATION**

Through consortium arrangements with the University of Northern Colorado and Western State College, Mesa College students may pursue courses of study leading to certification to teach in elementary schools and, in some disciplines, in secondary schools.

These arrangements allow a student to take most of his or her coursework at Mesa College and to receive a degree from Mesa College, but requires residence at either the University of Northern Colorado or Western State College for one or more semesters.

Students interested in pursuing a teacher preparation program should contact the Dean of the School of Social and Behavioral Sciences in Room 306, Mary Rait Hall, for information.

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### **FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT OF 1974**

The College's practice in regard to student record keeping is based on the provisions of the Educational Privacy Act of 1974 (the Buckley Amendment) and is intended to be a safeguard against the unauthorized release of information. This act applies to all enrolled students, former students, and alumni. For details, see Mesa College Student Handbook.

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# General Academic Regulations

## LATE REGISTRATION

Students who register late are expected to make up the work missed. Students who register after the first week are advised to enroll for less than a normal 15 credit hour load. Late registration must be completed within ten calendar days including the first day of registration. A special fee is charged for late registration. This information is included under "Miscellaneous Fees."

## ATTENDANCE

Students at Mesa College are expected to attend all sessions of each class in which they are enrolled. Failure to do so may result in a lowered grade or exclusion from class. At any time during a semester, a student who fails to attend regularly may be dropped from college rolls.

Absences will be excused when incurred by reason of a student's participation in required field trips, intercollegiate games and other trips arranged by the College only if previously approved by the Office of Student Affairs. The coach, instructor or other official whose activities require students to be absent from classes shall file with the Vice-President for Student Services a list of the names of the students involved at least 24 hours before the activity.

Absences due to serious illness or strictly unavoidable circumstances may be excused if the instructor in charge of the course is completely satisfied as to the cause. Being excused for an absence in no way relieves the student of the responsibility of completing all the work of the course to the satisfaction of the instructor in charge.

## STUDENT LOAD AND LIMITATIONS

The normal student load is 15 semester hours (18 for engineering students). The minimum load to be recognized as a full-time student is 12 semester hours. Students may register for less than 12 semester hours, in which case they are classified as part-time students.

## INDEPENDENT STUDY

Independent study courses are offered in a number of programs in the various Schools. Credit earned through independent study is limited to 6 semester hours toward an associate degree and 12 semester hours toward a baccalaureate degree.

Students are not allowed to enroll for credit in a lower-division independent-study course until they have completed a minimum of 6 semester hours of work in the field in which the independent study is planned and also have attained a cumulative grade-point average of 2.5 or higher. Students must attain a cumulative grade-point average of 2.75 or higher and complete a minimum of 8 semester hours of work in the field in which upper-division independent study is planned before they can enroll in an upper-division independent study course. In all cases, consent of the instructor is required.

Independent-study courses cannot be used to fulfill general education requirements for a degree.

## ACADEMIC STANDARDS

**Academic Standing.** The scholastic standing of a student at Mesa College is computed on the basis of all courses attempted. This includes grades which the student may have transferred, as well as those earned at

Mesa College. Mesa College uses the four point system in computing the grade-point average (GPA) of its students. Under this system, a student receives four quality points for each semester hour of A; three points for each semester hour of B; two points for each semester hour of C; one point for each semester hour of D; and no quality points for F's. An example follows:

3 Semester Hours	A = 12 points
3 Semester Hours	B = 9 points
3 Semester Hours	C = 6 points
3 Semester Hours	D = 3 points
3 Semester Hours	F = 0 points

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30 points divided by 15 hours = 2.00 GPA

If a student repeats a course previously taken at Mesa College, only the second grade received is computed in determining the cumulative average. Incomplete grades are considered as tentative grades and until changed are not considered in computing either the cumulative grade-point average or the grade-point average for the particular semester concerned. It is important to remember that a student must achieve a cumulative grade-point average of 2.00 (C), or higher, in order to graduate at either the associate or baccalaureate levels. However, the student is considered to be making "satisfactory progress" toward a degree if he attains a cumulative GPA according to the table listed below. It is important to note that if the student plans to graduate at the end of two years with an associate degree, the 2.00 must be achieved prior to graduation.

Credit Hours	Cumulative GPA
0 - 19	1.50
20 - 29	1.60
30 - 39	1.70
40 - 49	1.80
50 - 59	1.90
60 and above	2.00

**ACADEMIC PROBATION AND SUSPENSION**

"Good Standing" signifies that the student is making satisfactory academic progress and is eligible to continue studies at Mesa College.

"Academic Probation" indicates a student is not in good standing and constitutes a warning to the student that the student's scholastic achievement needs improvement or suspension may result. The student is permitted to continue studies for one term during which he is expected to improve his cumulative grade point average to the minimum required level.

"Academic Suspension" represents a temporary involuntary separation of the student from the college for failure to meet minimum academic standards.

A student is subject to academic probation for the next semester(s) during which he is enrolled, if he does not achieve a cumulative grade-point average set forth above. At the end of any semester in which a student's cumulative grade-point average falls below the above requirement, the student will be placed on probation.

Once placed on probation, the student may not be reinstated in satisfactory academic standing based upon less than minimum full-time performance (12 semester hours credit completed) for the semester on proba-

tion. Part-time achievement (less than 12 semester hours) can only continue the student on probation for another semester or result in suspension, depending upon whether the student's academic performance for the semester on probation meets the minimum GPA requirement prescribed above or falls below this requirement. If the student, at the end of the semester on probation, fails to bring his/her cumulative GPA to the minimum required, such student shall be subject to academic suspension.

After a student has completed 60 or more semester hours, probation and suspension shall be based on the 2.00 cumulative grade-point average which is the minimum required to be making satisfactory progress toward a degree. If at the end of any given semester a student permits his/her cumulative grade-point average to fall below a 2.00, such student shall be placed on academic probation for the next semester enrolled.

If at the end of the semester on academic probation, the student fails to earn a 2.00 or higher GPA, such student will be considered immediately subject to suspension. In the event a student placed on academic probation earns the minimum 2.00 GPA for the semester on probation, but fails to raise his/her cumulative grade-point average up to the minimum 2.00 requirement, such student may be continued on academic probation for an additional semester(s), provided the student's average meets the requirement of 2.00 or higher GPA.

**Any student, regardless of previous academic standing, may be considered subject to suspension if his/her grade-point average falls below .75 for any semester enrolled, as either a part-time or full-time student.**

A first suspension shall be for a period of one semester, summer term excluded. Subsequent suspension shall be for one calendar year.

Where extenuating circumstances exist, a suspended student may appeal to the Vice President for Student Services for permission to be continued on probation for the next semester.

Any suspended student may not enroll as a part-time student except during the summer term or with permission from the Vice President for Student Services. Such permission shall be granted only in unusual situations.

All of the above measures are to be viewed from the standpoint that academic probation and suspension are not disciplinary in nature, but rather an attempt to guide the student in the direction of the student's highest academic potential.

## **EVALUATION**

The evaluation of student learning progress is considered to be a planned and continuous process and consists of a variety of activities including judgment, observation, testing, etc. Midterm and final examinations are a part of the evaluation process.

## **GRADE REPORTS**

Individual grade reports are mailed to the permanent home address of every student at the end of each semester. Special reports may be obtained at any time upon application to the Records Office. An official grade report is withheld, however, until all fees owed the College are paid.

## **SYSTEM OF GRADES**

Grades at Mesa College are indicated as follows: A, excellent to supe-



rior; B, good to excellent; C, satisfactory; D, passing but not satisfactory; F, failure; I, incomplete; W, withdrawn; NC, no credit; WN, withdrawn from no-credit class; IP, in progress.

### INCOMPLETES

A grade of "I" (incomplete) is given to a student only in emergency cases. Once given, the incomplete grade must be made up by the end of the next term, summer term excluded. If the incomplete grade is not made up, the "I" grade will automatically be changed to the grade which was specified by the instructor on the incomplete grade report turned in to the Records Office.

This policy does not exclude extension of the incomplete grade in exceptional circumstances. An incomplete grade is not to be made up by a second or subsequent enrollment for credit in the same course.

### HONOR LISTS

The President's List is made up of those students who earn a straight "A" (4.00 grade-point) average while enrolled in a minimum of 13 credits for a particular semester.

The Dean's List includes students who achieve a grade-point average of 3.5 or higher while enrolled in a minimum of 13 credits.

The lists are based on semester grades, not cumulative grade-point averages, and are published at the end of Fall and Spring semesters. Regardless of grade-point average, a student who receives a failing grade (F) in any course is not eligible for the Dean's List.

### GRADUATION WITH HONORS

Each year during formal commencement ceremonies Mesa College recognizes the following categories of academic achievement.

*With Distinction*—Associate-degree graduates with cumulative grade-point averages of 3.50 to 3.74

*With High Distinction*—Associate-degree graduates with cumulative grade-point averages of 3.75 to 4.0

*Cum Laude*—Baccalaureate-degree graduates with cumulative grade-point averages of 3.50 to 3.74.

*Magna Cum Laude*—Baccalaureate-degree graduates with cumulative grade-point averages of 3.75 to 3.89.

*Summa Cum Laude*—Baccalaureate-degree graduates with cumulative grade-point averages of 3.90 to 4.0.

# STUDENT SERVICES

The entire College exists for the benefit of its students. The college setting provides the opportunity for students to develop socially as well as educationally. Learning is a total experience not confined to the classroom and the library. Mesa College's Student Services provides students with quality opportunities to increase skills and competencies in academic and vocational areas as well as areas of self-understanding, interpersonal relations, realistic decision-making, value clarification, and the setting of life goals.

## COUNSELING AND CAREER CENTER

Mesa College offers a comprehensive program designed to meet the individual needs of students in the areas of personal counseling, educational decision-making, career development, employment and placement.

**Personal counseling** is available to students encountering difficulties in adjusting to life situations or the college environment. Students receive assistance in identifying problem areas, developing alternatives, and implementing change. The staff receives regular consultation from the Mesa County Mental Health Center and can refer students for assessment or treatment when deemed necessary.

Students who are uncertain about the direction they wish to take in college or are considering a change can find support, information, and resources to aid them in the decision-making process. Information on educational alternatives, testing, study skills, time management, and basic-education course work are among the resources available at the Center.

**Career development** is an important emphasis in the Center's programming. Students are encouraged to explore various career options, utilize the Student Development Library, secure information from the Colorado Computer Information System, take vocational or personality inventories, or participate in numerous programs designed to aid them in their career decisions.

**Employment and placement services** include job development, part-time and full-time job listings, scheduled employer interviews, guidance to students regarding job search, resume writing, interview techniques, and salary negotiation, as well as development of placement folders.

**Special programs** are also presented by the Center to aid students in their personal development. Many informational, educational, and skill-building workshops and groups are offered during the year as outreach activities. These programs are non-credit and are open to all students, staff, and faculty.

All services are provided free to students, with all contacts being confidential and adhering to ethical standards as prescribed by the American Psychological Association and the American Personnel and Guidance Association.

## STUDENT HEALTH SERVICES

Good health, both physical and emotional, is an important factor in successful college work. It is the intent of the College Health Service to provide competent medical care. The Out-Patient Clinic serves as a fixed and readily available source of medical assistance for any student (part-time or full-time) who has a known or suspected health problem.

Services include consultation, diagnosis, and treatment of illnesses or injuries, as well as health counseling, medical referrals, and health educa-

tion. The Health Service will cooperate with your family physician in providing continuation of treatment previously prescribed if the physician so desires.

The Health Service is located in a building on the north side of Elm Avenue immediately across the street from the College Center. It is staffed with a full-time registered nurse and employs the services of a medical doctor on a two-hour daily schedule during class days. Physician services are available by appointment only. The registered nurse may be seen on a walk-in basis. Office hours for receiving students are: weekdays, 7:30 a.m. to 11:30 a.m. and 12:30 p.m. to 4:30 p.m., except Friday when closing time is 1 p.m.

The Student Health Service is not open on Saturdays, Sundays, or holidays. Students who reside on campus should report illnesses that occur after hours or on weekends to the Head Resident of the residence hall, who can assist with proper arrangements for treatment. Residence-hall occupants should use area hospitals for emergencies only or upon referral by physician. In extreme emergencies, call the Grand Junction Rescue Squad, telephone 242-1234. The Health Services office is open on Wednesdays from 4:00 p.m. to 7:00 p.m. for the purpose of processing insurance claims for students.

### ACADEMIC AND VOCATIONAL ADVISING

All students, including transfers, are assigned an academic adviser on the basis of vocational or major-subject interest. The faculty adviser helps the student plan a course of study and complete the registration process and then continues to provide assistance in such matters during the entire period that the student is enrolled at Mesa College, unless the student requests to be transferred to another adviser.

### STUDENT ACTIVITIES

Mesa College promotes an active extra-curricular program to enhance a student's educational experience. An extensive and varied program, available to all students, includes such activities as intercollegiate athletics, intramurals, drama, theater, dance, forensics, numerous art and music groups, student government, and student organizations of special interest.

The Mesa College student newspaper, the *Criterion*, and the student radio station, KMSA, provide students with news of current happenings both on and off campus. The yearbook, the *Maverick*, is published annually to provide a remembrance of the year's activities. The *Criterion* and *Maverick* offices are located in the W.W. Campbell College Center; KMSA operates from Houston Hall. Student activities are coordinated through the Office of Student Activities located in the College Center.

**Student Body Association** provides a means for Mesa College students to participate in both curricular and extra-curricular programs and policies. The association operates through the Student Cabinet, a legislative body composed of students elected by the student body. The cabinet is active in providing a broad program of social, educational, and cultural activities. The cabinet works with the college Lectures and Forums Committee in bringing nationally known artists and lecturers to the campus each year. Student Body Association offices are located in the W.W. Campbell College Center.

## THE COLLEGE CENTER

Located in the main artery of the campus, the W.W. Campbell College Center serves as a meeting place for many Mesa College students and faculty members. Through the College Center Board and the Student Body Association, it is the hub of cultural, recreational, and social activities throughout the year. In addition to housing offices for the Student Body Association, the *Criterion* (student newspaper) and the *Maverick* (year-book), it includes the College Cafeteria, Snack Bar, and the Bookstore, as well as a very active games room and a student lounge. An extensive Outdoor Program is administered through the College Center.

In 1981-82, Mesa College students will be able to enjoy an expanded College Center. Construction completion date is set for January of 1982, however, many areas will be completed for use by Fall semester, 1981.

## FINANCIAL AIDS

Financial aid at Mesa College consists of a balanced program of scholarships and grants-in-aid awarded for outstanding academic achievement or outstanding performance in special skill areas including vocational skills, athletics, drama, music, etc. Mesa College also participates in federal and state programs of grants, loans, and student employment, the awarding of which is based primarily on need as determined by an accepted needs-analysis system.

## COLORADO STUDENT-AID PROGRAMS

(Available to full- and half-time students. Half-time students will be considered for assistance only when the needs of full-time students have been met.)

1. **Colorado Grants**—Grants not to exceed \$1,000 are awarded to Colorado resident students on the basis of documented financial need. Financial aid packages which include Colorado Grants may not exceed the documented financial need of the student.
2. **Colorado Scholarships**—This program is an effort by the State of Colorado to recognize Colorado resident students for outstanding achievement in academic and talent areas. This award shall not exceed \$400 and need is not a factor in determining recipients. Students who receive Colorado Scholarships and who do not wish to apply for other financial aid but plan to seek employment off campus may contact the Mesa College Job Placement officer for assistance.
3. **Colorado Work-Study**—This program is designed to provide employment, both on and off campus, for students with documented need.
4. **Colorado Student Incentive Grant (CSIG)** is a matching program between the State of Colorado and the federal government. Half of the grant to a student is provided by the state and half of the grant is funded by the federal government. Awards are made only to students with extreme need, and the maximum CSIG that may be awarded any student is \$2000 of which \$1,000 is CSIG funds and \$1,000 Colorado Grants funds.
5. **Colorado Non-Resident Scholars Program**—Similar to Colorado Scholars program, these awards are available to students living in states west of the Mississippi River.

## FEDERAL STUDENT-AID PROGRAMS

1. **Pell (formerly the B.E.O.G.) Program** is a grant program available to needy students enrolling in an eligible institution of post-secondary

education. Application forms are available from high schools or the office of financial aids at any accredited post-secondary institution. The student applies directly to the Pell Grant analysis center and, upon receipt of a Student Eligibility Report (SER) from Pell, submits the SER to the financial aid officer of the college of the student's choice for the grant determination. Full-time and half-time students enrolling in an institution of post-secondary education who are high school graduates or equivalent are eligible to apply. The Pell Grant Program is the base program for financial aids at Mesa College.

2. **College Base Programs**—Mesa College participates in many of the other federal student-aid programs. These include: (1) the National Direct Student Loan Program, (2) Supplemental Educational Opportunity Grants Program and, (3) the College Work Study Program.

Supplemental Educational Opportunity Grants (SEOG) are available to exceptionally needy students who wish to attend Mesa College. Under this program, students from low-income families who have exceptional financial need may receive an outright grant of from \$200 to \$2,000. The amount of grant is geared to the parental contribution but may not exceed one-half of the student's total financial need. It is the last consideration in preparing a financial-aid package.

Financial need for educational expenses is an essential requirement to qualify for assistance from any of these programs. Students who must have financial aid in order to secure a college education are encouraged to contact the financial aid office of the College for necessary information and application forms. Both full-time and half-time students may receive consideration.

Since financial need is the primary requirement for determining eligibility for assistance under any of the federal student aid programs, Mesa College requires that the student applicant submit the Family Financial Statement (FFS) of the American College Testing Program. This form should be available at either the high school principal's or counselor's office, or may be obtained by writing the Office of Financial Aid at Mesa College.

There is no absolute deadline for submitting applications for any of the federal student-aid programs; however, students who have all application materials complete and on file with the Admissions Office and Financial Aids Office by March 15, and have demonstrated financial need, will receive consideration in the first screening of applications. In addition, any application other than BEOG received after July 1 may be too late to be funded, as demand is greater than fund level.

Guaranteed Student Loans may be obtained up to a maximum of \$2,500 for dependent students but not to exceed the student need for an academic year. The maximum loan for independent students is \$3,000. Applications are submitted to participating banks, savings and loans associations, and credit unions. These loans are available at nine per cent interest repayable after students complete their education.

#### **MESA COLLEGE SCHOLARSHIP AND DEVELOPMENT FUND, INC.**

The Mesa College Scholarship and Development Fund, Inc., is a non-profit agency comprised of prominent citizens of the area who are interested in aiding deserving students at Mesa College. This group, which functions independently of the College, conducts an annual drive to raise funds for scholarships and student loans. The organization also serves as a receiving and clearing agency for many of the established scholarships

and for those received from clubs and organizations. All scholarships are designed to apply toward tuition and fees:

1. **Scholarships**—Each semester a number of scholarships amounting to \$150 per semester are awarded to students who have achieved the minimum 3.0 grade-point average and who have not previously received a scholarship. Applications are submitted immediately following mid-term examinations. Scholarships are awarded at the completion of the semester; the scholarship then becomes effective for the subsequent semester.
2. **Community Clubs and Organizations Scholarships**—In addition to the institutional scholarships described above, many scholarships and awards have been established for students of the College by individuals and organizations of the Grand Junction area. The amounts of these awards vary but all are designed to apply toward tuition and fees.
3. **Student Loans**—The College provides short-term and intermediate-term loan funds from which students may borrow to help meet financial obligations temporary in nature. By definition, short-term loans are limited to a maximum of \$50, repayable within 60 days or by the end of the semester, whichever comes first. Intermediate-term loans are repayable within six months or, in any event, not later than September 1 following the date of the loan. Loans in this category are normally limited to \$450. There is a service charge for loans made from this fund: \$2 per \$100 borrowed and \$1 for any fraction over \$100. For loans exceeding \$100 co-signers may be required.

## STUDENT HOUSING

**Residence Halls** at Mesa College offer students more than just a place to study and sleep. Each hall is staffed with personnel who are interested in a student as an individual and who provide information about college programs and offer counsel when needed.

Colleges have learned through experience that freshmen living in campus halls adjust more readily to college life and that their grades are usually better than those of students living off campus.

In addition, the total cost of living in Residence Halls is generally considerably less than living off campus.

Students wishing accommodations in Residence Halls should apply well in advance of their planned term of attendance as housing is limited and in high demand.

**On-Campus Apartments**—The Walnut Ridge apartment complex is reserved for sophomore, junior, and senior students. The two- and three-bedroom apartments are attractively furnished to accommodate three and four persons. The apartments are fully carpeted and completely equipped, including stove, refrigerator, garbage disposal and dishwashers as well as beds, dressers, study desks, chairs and couches. Utilities are included.

Students are responsible for securing their own roommates. A security deposit is required in addition to signing a nine-month lease.

**General Requirements.** A housing deposit of \$100 is required, in addition to the signed contract, before a room reservation will be made. This guarantees the holding of a room space for a period *not later than 9 a.m. on the first day of classes* of the semester for which the space is reserved. Upon the student's occupancy of the room and the completion of registration, the \$100 room reservation deposit becomes a security deposit held

by the College Business Office. If all provisions of the contract have been complied with and no damage charges have been assessed, the \$100 security deposit will be refunded within 60 days. When a reservation is cancelled 30 days prior to registration for the semester for which accommodations have been reserved, the full \$100 reservation deposit will be refunded. Otherwise, there will be no refund of the reservation deposit.

**Refund on Housing and Boarding Contract.** The housing and boarding contract is a contract for the *full academic year* (Fall and Spring semesters), payable on a semester basis. Normally, no student will be permitted to break the contract unless the student is getting married, has special health problems, or is terminating his or her enrollment at the College.

If the student marries during the semester, the housing contract may be terminated if the student wishes. The student will be assessed charges for room and board in accordance with the following refund policy. The \$100 security deposit, less damages, will be refunded.

**Room Refund Policy**—Students who withdraw from the College and/or Residence Hall after officially checking into a hall will receive a refund of rent based on the date of official check-out in accordance with the following scale.

- 90% of semester rent refunded when check-out occurs during first week
- 80% of semester rent refunded when check-out occurs during second week
- 70% of semester rent refunded when check-out occurs during third week
- 60% of semester rent refunded when check-out occurs during fourth week
- 50% of semester rent refunded when check-out occurs during fifth week
- 40% of semester rent refunded when check-out occurs during sixth week
- 30% of semester rent refunded when check-out occurs during seventh week
- No refunds of rent will be made for check-outs that occur after the seventh week.

**Board Refund Policy**—Departing students are charged for meals through the week in which formal check-out occurs. Students leaving during the last two weeks of the semester are charged the full semester rate for meals.

No refunds are made for missed meals or for temporary absences from the hall except as follows: (a) Residents absent from their residence hall because of illness may apply at the Office of Housing for a board refund for any period of absence in excess of seven days. Such application must be accompanied by a written statement from the Head Resident and the attending physician certifying the medical basis for the absence and period of absence. (b) Students whose college academic requirements necessitate their being away from the residence hall for a period in excess of seven days may apply at the Office of Housing for a board refund. In such cases the student must notify the Head Resident and the Office of Housing prior to leaving.

**Off-Campus Housing.** Students who cannot be accommodated in Mesa College residence halls will be granted permission to live off campus. The College has no jurisdiction over off-campus housing but attempts to assist students in locating housing by soliciting listings of accommodations that may be available in the Grand Junction area.

## CAMPUS PARKING

Students and College staff members who wish to park on campus may purchase parking permits for designated areas. The parking sticker does not guarantee a parking space, but permits on-campus parking when such space is available.

# INSTRUCTIONAL PROGRAMS

The following sections of this catalog describe the instructional organization of Mesa College. Included is information about the specific programs, degrees, and options offered by the various schools.

Students who have selected majors will find essential information listed under the appropriate school. Students who have not selected definite majors but who wish to work toward the associate degree should consult their faculty advisers to select courses which will meet the requirements. All students are advised to familiarize themselves with the information included under Graduation Requirements in another section of this catalog. (See index.)

The course descriptions in this catalog indicate the content of the course and the prerequisites when applicable. Courses are numbered and given titles. For example, HIST 131 is a course number and United States History is the corresponding course title. The number in parentheses at the end of the course title indicates the credit granted, in terms of semester hours, for each course.

Courses numbered 1 through 99 are preparatory in nature and are not intended for transfer or for degree requirements. In some instances they may be counted as electives. Courses numbered 100-199 are designed for freshmen, 200-299 for sophomores, 300-399 for juniors, and 400-499 for seniors. For an explanation of course prefixes, see the first page of Course Description section in the back of this catalog.

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Mesa College reserves the right to withdraw from its offerings any course which the enrollment does not justify giving during any particular semester. Other courses may be added any semester if there is sufficient demand. In some programs, certain courses may be offered on an alternate year basis or as determined by demand.

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# SCHOOL OF BUSINESS

James C. Carstens, Dean

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*Faculty:* N. Anderson, Beck, Buckley, Capps, Dickson, Dimpfl, Gibson, Isaacson,  
E. Johnson, Mourey, M. Myers, Rogers, R. Youngquist.

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The purpose of the School of Business is to provide students with specialized training for a future of self-reliance and economic opportunity. Courses in this school are designed to help students develop the skills and understanding of business principles necessary to enter and succeed in the business field; aid students in their personal economic planning, in buying for consumption, and in safeguarding and protecting their interests as consumers; enable students to gain a better understanding of the agencies, functions, methods, and organization of business enterprises, and develop an understanding of business ethics. The programs provide opportunities for practical applications and also provide background courses for students planning to enter advanced business study.

## PROGRAMS

Several types of programs are offered by the School of Business. The Bachelor of Science in Accounting and Bachelor of Business Administration are designed for persons desiring to enter a profession or to continue formal study in a graduate school. Associate Degree programs are designed for persons desiring to obtain employment immediately after completion of the course of study or to transfer to another institution. One-year Certificate programs are designed for students desiring immediate employment after completion of the program. The one- and two-year programs provide necessary preparation for beginning employment as data-processing workers; bookkeepers; assistant accountants; general, medical, or legal secretaries or stenographers; typists; filing clerks; business machine operators; and other types of business and office workers.

## DEGREES AND CERTIFICATES

Students in the School of Business may choose from programs leading to the following degrees and certificates:

### *Four-Year Degree Programs:*

Bachelor of Science in Accounting. Specialization areas are:

- (1) Data Processing
- (2) Managerial Accounting
- (3) Public Accounting

Bachelor of Business Administration. Specialization areas are:

- (1) Data Processing
- (2) Management
- (3) Marketing
- (4) Personnel Management

### *Two-Year Degree Programs:*

Associate in Applied Science—Legal Secretary

Associate in Applied Science—Medical Secretary

Associate in Applied Science—Travel, Recreation, and Hospitality Management

Associate in Arts in Business Administration

Associate in Commerce in Accounting

Associate in Commerce in Office Administration (Secretarial)

**One-Year Certificate Programs:**

Data Processing  
 Job-Entry Training in Business  
 Legal Secretary  
 Medical Office Assistant  
 Office Clerical-Secretarial

**Bachelor of Science in Accounting**

In order to receive the Bachelor of Science in Accounting, a student must satisfactorily complete the following: (NOTE: The student will work closely with his/her adviser and utilize a program sheet in planning course sequences to meet program requirements.)

	<i>Hrs.</i>
General Education (including 4 hours of Physical Education) . . . . .	44
Core Courses:	
Accounting—to include BUAC 331, 401, and 441 . . . . .	23
Business Law—BUGP 251 and 252 . . . . .	6
Data Processing—BUDP 101 and 131 . . . . .	6
Management—BUMA 201 . . . . .	3
	<u>38</u>
Courses in one of the following Specialization areas:	
(1) Data Processing . . . . .	21
(2) Managerial Accounting . . . . .	21
(3) Public Accounting . . . . .	24
	<u>21-24</u>
Unrestricted Electives . . . . .	<u>18-21</u>
<b>TOTAL SEMESTER HOURS (Minimum)</b> . . . . .	<b>124</b>

**Bachelor of Business Administration**

In order to receive the Bachelor of Business Administration degree, a student must satisfactorily complete the following: (NOTE: the student will work closely with his/her adviser and utilize a program sheet in planning course sequences to meet program requirements.)

	<i>Hrs.</i>
General Education (including 4 hours of Physical Education) . . . . .	44
Core Courses:	
Accounting—BUAC 201 and 202 and select one of the following: BUAC 211, 321, or 331 . . . . .	9
Data Processing—BUDP 101 . . . . .	3
Introduction to Business and Business Law— BUGB 101, 251 and 252 . . . . .	9
Management—BUMA 201, 231, 339, and 491 . . . . .	12
Any two of the following courses: BUGB 141, 211, 221, 241 . . . . .	6
	<u>39</u>
Courses in one of the following Specialization areas:	
(1) Data Processing . . . . .	21
(2) Management . . . . .	21
(3) Marketing . . . . .	21
(4) Personnel Management . . . . .	21
	<u>21</u>
Unrestricted Electives . . . . .	<u>20</u>
<b>TOTAL SEMESTER HOURS (Minimum)</b> . . . . .	<b>124</b>

**Legal Secretary Associate in Applied Science**

In order to receive the Legal Secretary Associate in Applied Science degree, a student must satisfactorily complete the following:

General Education:	<i>Hrs.</i>
English and/or Literature .....	6
Social Science, Psychology or Literature .....	6
Physical Education .....	4
Other Courses listed in Suggested Course Sequence.....	<u>48</u>
TOTAL.....	<u>64</u>

**LEGAL SECRETARY Suggested Course Sequence**

**FRESHMAN YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English Composition).....	3	47	ENGL 112 (English Composition).....	3	47
BUOA 152 (Intermediate Typing).....	3	47	BUOA 251 (Advanced Typing).....	3	47
BUOA 112 (Intermediate Shorthand).....	3	47	BUGB 141 (Business Mathematics).....	3	47
BUOA 221 (Transcription Machines).....	3	47	General Education (Social Science or Psychology).....	3	47
General Education (Social Science or Psychology).....	3	47	BUOB 271 (Business Communications).....	3	47
Physical Education.....	2	32	Physical Education.....	2	32
	<u>17</u>			<u>17</u>	

**SOPHOMORE YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BUOA 101 (Secretarial Accounting).....	3	47	BUOA 201 (Office Management).....	3	47
BUGB 251 (Business Law I).....	3	47	Speech.....	3	47
BUOA 244 (Legal Procedures I).....	3	47	Business Electives.....	6	94
BUOA 265 (Electronic Word Processing).....	3	47	BLOA 271 (Office Simulation).....	3	47
Business Elective.....	3	47			15
	<u>15</u>				

Typing and Shorthand are subject to challenge. Approved Business electives may be substituted.

SUGGESTED BUSINESS ELECTIVES: Secretarial Co Op or Work Experience, Introduction to Data Processing, Introduction to Business, Human Relations in Business, Business Law II.

**Medical Secretary Associate in Applied Science**

In order to receive the Medical Secretary Associate in Applied Science degree, a student must satisfactorily complete the following:

General Education:	<i>Hrs.</i>
English .....	6
Social Science, Psychology or Literature .....	6
Physical Education .....	4
Other Courses listed in Suggested Course Sequence.....	<u>48</u>
TOTAL.....	<u>64</u>

**MEDICAL SECRETARY Suggested Course Sequence**

**FRESHMAN YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English Composition).....	3	47	ENGL 112 (English Composition).....	3	47
BUOA 152 (Intermediate Typing).....	3	47	BUOA 251 (Advanced Typing).....	3	47
Social Science, Psychology, or Literature.....	3	47	BUGB 211 (Business Communications).....	3	47
BUOB 141 (Business Mathematics).....	3	47	Social Science, Psychology, or Literature.....	3	47
Physical Education.....	2	32	BUOA 101 (Secretarial Accounting).....	3	47
	<u>14</u>		Physical Education.....	2	32
				<u>17</u>	

(Med. Sec. con't.)

## SOPHOMORE YEAR

Fall Semester	Sem. Contact		Spring Semester	Sem. Contact	
	Hrs.	Hrs.		Hrs.	Hrs.
SOC 260 (General Sociology) .....	3	47	BUHL 159 (Medical Office Procedures) ..	3	47
BIOL 141 (Human Anatomy and Physiology) .....	3	60	BUOA 231 (Medical Transcription) .....	4	92
BIOL 141L (Human Anatomy and Physiology Lab) .....	2	32	BUHL 154 (Lab Techniques) .....	2	32
BUHL 147 (Medical Terminology) .....	2	32	Elective .....	6	44
PSY 233 (Human Growth and Development) .....	3	3			15
PER 265 (First Aid) .....	2	32			
Elective .....	3				
		18			

RECOMMENDED ELECTIVES: Related Work Experience, Office Management, Personal and Community Health, Nutrition, Human Relations in Business, Electronic Word Processing.

## Travel, Recreation, and Hospitality Management

### Associate in Applied Science

In order to receive the Associate in Applied Science degree in Travel, Recreation, and Hospitality Management, a student must satisfactorily complete the following:

General Education:	Hrs.
Engl 111 (English Composition) .....	3
History of Colorado and Principles of Economics .....	6
Survey of Earth Science .....	3
Technical Report Writing .....	3
Physical Education .....	4
Business School Courses in Suggested Course Sequence .....	21
Travel, Recreation, and Hospitality Courses as Indicated .....	30
Electives* .....	9
<b>TOTAL .....</b>	<b>79</b>

## TRAVEL, RECREATION, AND HOSPITALITY MANAGEMENT

### Suggested Course Sequence

#### FRESHMAN YEAR

Fall Semester	Sem. Contact		Spring Semester	Sem. Contact	
	Hrs.	Hrs.		Hrs.	Hrs.
BUTR 101 (Travel Industry I) .....	3	79	BUTR 102 (Travel Industry II) .....	5	79
ENGL 111 (English Composition) .....	3	47	ENGL 115 (Technical Writing) .....	3	47
BUMK 135 (Salesmanship) .....	3	47	BU'MA 121 (Human Relations in Business) .....	3	47
BUGB 141 (Business Mathematics) .....	3	47	PSCI 113 (Survey of Earth Science) .....	3	47
Physical Education .....	2	32	BLTR 103 (Travel and Tourism Marketing Techniques) .....	3	47
BUGB 101 (Introduction to Business) .....	3	47	Physical Education .....	2	32
		17			

17

**SOPHOMORE YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BUTR 201 (Management in Travel Industry I).....	3	47	BUDP 101 (Business Data Processing).....	3	47
BUAC 201 (Principles of Accounting I).....	3	47	BUTR 202 (Management in Travel Industry II).....	3	47
ECON 201 (Principles of Economics).....	3	47	HIST 120 (History of Colorado).....	3	47
BUGB 251 (Business Law I).....	3	47	Elective.....	6	94
Elective.....	3	47			15
		15			

\*Students who are contemplating seeking a four year degree upon completion of this program should work very closely with their advisor in selecting the elective hours.

**Business Administration Associate in Arts**

This program is designed primarily for students who wish to complete two years at Mesa College and then transfer to another college or university. In order to receive the Associate in Arts degree in Business Administration a student must satisfactorily complete the following:

<i>General Education:</i>	<i>Hrs.</i>
English Composition.....	6
Literature.....	6
Social Science (Suggest Economics).....	6
Physical Science or Mathematics.....	6
Biology or Psychology.....	6
Physical Education.....	4
Business Data Processing.....	3
Introduction to Business.....	3
Business Communications.....	3
Principles of Accounting.....	6
Electives.....	15
<b>TOTAL.....</b>	<b>64</b>

**BUSINESS ADMINISTRATION**

*Suggested Course Sequence* \*Required Core Courses

**FRESHMAN YEAR**

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
ENGL 111 (English Composition).....	3	ENGL 112 (English Composition).....	3
MATH 113 (College Algebra).....	4	*BUAC 202 (Principals of Accounting II).....	3
*BUGB 101 (Introduction to Business).....	3	*BUGB 211 (Business Communications).....	3
*BUAC 201 (Principles of Accounting I).....	3	*BUDP 101 (Business Data Processing).....	3
Physical Education.....	1	MATH 121 (Mathematical Foundations).....	3
Elective (Suggest Speechmaking).....	3	Physical Education.....	1
	17	Elective (Suggest Principles of Mgmt.).....	3
			16

**SOPHOMORE YEAR**

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
Biology or Psychology.....	3	Biology or Psychology.....	3
Literature.....	3	Literature.....	3
ECON 201 (Principles of Economics).....	3	ECON 202 (Principles of Economics).....	3
Elective.....	3	Elective (Suggest Statistical Applications of Business).....	3
Physical Education.....	1	Elective.....	3
Math 121 (Mathematical Foundations).....	3	Physical Education.....	1
	16		16

### Accounting Associate in Commerce

The Associate in Commerce Degree is designed primarily for students who wish to complete two years at Mesa College.

In order to receive the Associate in Commerce degree in Accounting, a student must satisfactorily complete the following:

General Education:	<i>Hrs.</i>
English Composition .....	6
Principles of Economics .....	6
Electives (Lit., Soc. Sci., Nat. Sci., Humanities, etc.).....	18
Physical Education .....	4
Business Mathematics or Mathematical Foundations of Business ..	3
Business Data Processing.....	3
Accounting .....	9
Business Law .....	6
Income Tax.....	3
Principles of Management.....	3
Business Elective .....	3
<b>TOTAL.....</b>	<b>64</b>

#### ACCOUNTING Suggested Course Sequence \*Core Courses

##### FRESHMAN YEAR

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
*BUGB 141 (Business Mathematics) or		*BUMA 201 (Principles of Management).....	3
MATH 121 (Mathematical Foundations) .....	3	ENGL 112 (English Composition).....	3
ENGL 111 (English Composition).....	3	*BUAC 202 (Principles of Accounting II).....	3
*BUDP 101 (Business Data Processing) .....	3	SPCH 102 (Speechmaking) or other	
*BUAC 201 (Principles of Accounting I) .....	3	General Education .....	3
General Education Elective.....	3	General Education Elective.....	3
Physical Education.....	2	Physical Education.....	2
	17		17

##### SOPHOMORE YEAR

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
*BUGB 251 (Business Law I).....	3	*BUGB 252 (Business Law II).....	3
ECON 201 (Principles of Economics) .....	3	ECON 202 (Principles of Economics) .....	3
*BUAC 211 (Managerial Accounting).....	3	General Education Electives.....	6
General Education Electives.....	3	*BUGB 241 (Income Tax).....	3
Business Elective .....	3		15
	15		

### Office Administration (Secretarial) Associate in Commerce

In order to receive the Associate in Commerce degree in Office Administration (Secretarial), a student must satisfactorily complete:

General Education:	<i>Hrs.</i>
English .....	6
Social Science or Literature .....	12
Physical Education .....	4
Business Mathematics .....	3
Intermediate Shorthand .....	3
Intermediate Typewriting .....	3
Secretarial Accounting.....	3

Business Communications .....	3
Business Data Processing .....	3
Office Management .....	3
Office Simulation .....	3
Transcription Machines .....	3
Word Processing or Advanced Typing .....	3
Business Electives .....	3
Electives .....	9
<b>TOTAL</b> .....	<b>64</b>

**OFFICE ADMINISTRATION (SECRETARIAL)**  
*Suggested Course Sequence* \*Core Courses.

**FRESHMAN YEAR**

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
Social Science or Literature .....	3	Social Science or Literature .....	3
ENGL 111 (English Composition) .....	3	ENGL 112 (English Composition) .....	3
*BUOA 112 (Intermediate Shorthand) .....	3	*BUDP 101 (Business Data Processing) .....	3
*BUGB 141 (Business Mathematics) .....	3	*BUOA 101 (Secretarial Accounting) .....	3
*BUOA 152 (Intermediate Typewriting) .....	3	BUOA 251 or BUOA 265 (Advanced Typewriting or Word Processing) .....	3
Physical Education .....	1	Physical Education .....	1
	<u>16</u>		<u>16</u>

**SOPHOMORE YEAR**

<i>Fall Semester</i>	<i>Hrs.</i>	<i>Spring Semester</i>	<i>Hrs.</i>
Social Science or Literature .....	3	Social Science or Literature .....	3
*BUGB 211 (Business Communications) .....	3	*BUOA 201 (Office Management) .....	3
*BUOA 221 (Transcription Machines) .....	3	*BUOA 271 (Office Simulations) .....	3
Physical Education .....	1	Physical Education .....	1
Electives .....	6	Electives .....	6
	<u>16</u>		<u>16</u>

SUGGESTED ELECTIVES: Business Law, Advanced Shorthand, Secretarial Co-Op, Management Courses, Economics, Speech, Work Experience.

**One-Year Certificate Programs**

These programs are designed to be flexible enough to meet individual needs. Substitutions or additions may be made in the suggested course sequences with the approval of the student's adviser.

**DATA PROCESSING**

In order to receive the one-year Certificate in Data Processing, a student must satisfactorily complete a course sequence approved by the adviser. This sequence must contain 30 or more semester hours.

**JOB-ENTRY TRAINING**

In order to receive the one-year Certificate in Job-Entry Training, a student must satisfactorily complete the following: (Courses with a BUJT prefix, designed for the Job-Entry Program only, do not provide college credit for any degree at Mesa College.)

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BUJT 51 (Typewriting) .....	3	80	BUJT 51 (Typewriting) .....	3	80
BUJT 91 (Office Procedures and Work Experience) .....	3	80	BUJT 91 (Office Procedures and Work Experience) .....	6	160
BUJT 21 (Bookkeeping) .....	3	80	BUJT 21 (Bookkeeping) .....	3	80
BUJT 31 (Business Mathematics and Office Machines) .....	3	80	BUJT 41 (Business English) .....	3	80
BUJT 61 (Word Study) .....	3	80	BUJT 31 (Business Mathematics and Office Machines) .....	3	80
BUJT 41 (Business English) .....	3	80			
		<u>16</u>			<u>18</u>

**(Job Entry con't.)**

	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>
<i>Summer Session</i>		
BUJT 51 (Typewriting) .....	3	80
BUJT 91 (Office Procedures and Work Experience) .....	3	80
BUJT 21 (Bookkeeping) .....	3	80
BUJT 31 (Business Mathematics and Office Machines) .....	3	80
BUJT 71 (Speech) .....	3	80
BUJT 41 (Business English) .....	3	80
	<u>18</u>	

**LEGAL SECRETARY**

In order to receive the nine-month Certificate in Legal Secretary, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser:

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English Composition) .....	3	47	ENGL 112 (English Composition) or		
BUOA 244 (Legal Procedures I) .....	3	47	ENGL 115 (Technical Writing) .....	3	47
BUOA 152 (Intermediate Typing) or			BUOA 101 (Secretarial Accounting) .....	3	47
BUOA 251 (Advanced Typing) .....	3	47	BUOA 265 (Electronic Word		
BUOA 112 (Intermediate Shorthand) .....	3	47	Processing) .....	3	47
BUGB 141 (Business Mathematics) .....	3	47	BUOA 271 (Office Simulation) .....	3	47
BUOA 221 (Transcription Machines) .....	3	47	*Social Science Elective .....	3	47
	<u>18</u>			<u>15</u>	

\*Suggested Social Science electives include American Government, Sociology, Economics or Psychology.

Typing and Shorthand courses are subject to challenge. Approved Business electives may be substituted for these courses.

**MEDICAL OFFICE ASSISTANT**

In order to receive the nine-month Certificate in Medical Office Assistant, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser.

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BIOL 141 (Human Anatomy and			BUHL 159 (Medical Office Procedures) .....	3	47
Physiology) .....	3	60	BUOA 231 (Medical Transcription) .....	4	92
BIOL 141L (Human Anatomy and			BUOA 152 (Intermediate Typing) .....	3	47
Physiology Lab) .....	2	32	BUHL 154 (Lab Techniques) .....	2	32
BUHL 147 (Medical Terminology) .....	2	32	PER 265 (First Aid) .....	2	32
PSY 121 (General Psychology) .....	3	47	BUGB 211 (Business Communications) .....	3	47
BUOA 101 (Secretarial Accounting) .....	3	47		<u>17</u>	
ENGL 111 (English Composition) .....	3	47			
	<u>16</u>				

**OFFICE CLERICAL-SECRETARIAL**

In order to receive the nine-month Certificate in Office Clerical-Secretarial, a student must satisfactorily complete the following course sequence or a similar sequence with substitutions approved by the adviser.

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English Composition) .....	3	47	ENGL 112 (English Composition) or		
BUOA 111 (Beginning Shorthand) .....	3	47	ENGL 115 (Technical Writing) .....	3	47
BUGB 211 (Business Communications) .....	3	47	BUOA 101 (Secretarial Accounting) .....	3	47
BUOA 221 (Transcription Machines) .....	3	47	BUGB 141 (Business Mathematics) .....	3	47
BUOA 152 (Intermediate Typing) .....	3	47	BUOA 112 (Intermediate Shorthand) .....	3	47
	<u>15</u>		Electives .....	6	94
				<u>18</u>	



# SCHOOL OF HUMANITIES AND FINE ARTS

R. Bruce Crowell, Dean

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*Faculty:* Berkey, Blackburn, Boschi, P. Carmichael, Djos, Frohock, Gallegos, Guyton, Hardy, R. Johnson, Lay, Dan MacKendrick, Meyers, Pilkenton, M. Robinson, W. Robinson, Runner, A. Sanders, Schneider, Showalter, Sowada, Spelman, Margaret Sullivan, Tharaud, Zeigel

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The School of Humanities and Fine Arts endeavors to promote in students cultural awareness and critical judgment. The school embraces the disciplines of Art, Creative and Technical Writing, Dance, English, Foreign Language, Journalism, Music, Philosophy, Reading, Speech, and Theatre. Studies in these areas help students develop intellectual and moral values which contribute to the enrichment of life for the individual and society. The School of Humanities and Fine Arts includes the following departments:

Department of Art (Donald E. Meyers, Department Head)

Department of Languages and Literature (Robert L. Johnson,  
Department Head)

Department of Music (Darrell C. Blackburn, Department Head)

Department of Speech and Theatre (William S. Robinson, Department Head)

## BACHELOR OF ARTS IN LIBERAL ARTS

This program is designed for students who wish a broad experience in the arts and humanities. There are three emphases available:

1. Fine Arts—an emphasis having four tracks: music; art; theatre; general fine arts.
2. English—one specified track.
3. Humanities—comprehensive, allowing a flexible mix of literature, speech, philosophy, foreign language, the arts and history of the arts.

Outside the School of Humanities and Fine Arts, any emphasis traditional to the liberal arts spectrum but located in other schools in the college (i.e., history, biology, mathematics, psychology, etc.) may be accommodated under this degree.

### The Emphases

Each of the emphases noted above is developed around a sequence of required areas of study embracing eighteen to twenty credits, to which may be added appropriate electives to strengthen the total program. Each presumes an adequate preparatory base in courses selected to fulfill the school "Core" (see following).

#### *Fine Arts: Theatre Track*

Required areas of study include Makeup and Costuming, Acting, Scenery Construction, Beginning and Advanced Directing, and one course from among the following: World Drama, American Drama, Contemporary Drama, or Shakespeare.

#### *Fine Arts: Music Track*

Required areas of study include Music Theory, History of Music, Comprehensive Musicianship, Applied Music, and a semester of participation in an advanced performing group.

**Fine Arts: Art Track**

Required areas of study include Figure Drawing, Processes and Media, Exhibitions and Management, Advanced Studio Art, and Seminar in either Art History or 20th Century Art.

**English**

Studies under this emphasis are required in: Shakespeare, and Chaucer or Milton; British Literature from the Beginning to 1800; 19th Century British Literature; American Literature to 1900; 20th Century Literature; and History of the Language, or Linguistics.

**Humanities**

This emphasis requires that eighteen credits be selected in a balanced program representing at least three of the following areas:

Literature, Speech, Philosophy, Foreign Languages, the Arts, and History of the Arts. The program must be carefully designed in consultation with an adviser and be approved by the dean of the school.

**Degree Requirements**

General Education .....	44 semester hours
Core Program .....	30 semester hours
Emphasis .....	18 semester hours
Electives .....	32 semester hours
	<b>124 minimum</b>

**General Education**

Forty-four hours of courses spread over a broad group of subject areas are specified for all baccalaureate degree students at Mesa College. This requirement includes one year of English Composition and one year of physical activity courses; four other broad areas are specified and stated in the college catalog.

**Core Program in Humanities and Fine Arts**

Requirement: thirty credits total, from at least three departments, with a maximum of 18 credits from any single field of study. (Note: the courses indicated in each category or *their functional equivalents* are required.)

**GENERAL INTRODUCTION OR APPRECIATION:** Five to six credits.

- FA 101, Man Creates (required)
- plus one of:
- ENGL 131 or 132, World Literature
- MUS 136, Music Fundamentals
- ART 100, Art Foundations
- THEA 141, Introduction to Theatre

**HISTORICAL STUDIES:** nine to twelve credits selected from among twelve historically oriented courses.

- ART 211 or 212, History of Art; ART 315, 20th Century Art History; THEA 331; History of Theatre; FA 301 or 302, Civilization and the Arts; ENGL 134 or 135, Mythology; ENGL 142, Introduction to Poetry; ENGL 143, Introduction to Drama; ENGL 254 or 255, Survey of English Literature; ENGL 261 or 262, U.S. Literature; MUS 324 or 325, History of Music; MUS 343 or 344, History of Jazz; PHIL 251, History of Philosophy.

**APPLIED STUDIES:** nine to twelve credits selected from among two dozen courses of an applied nature. *Must include at least two disciplines.*

ART PROCESSES AND MEDIA, all courses; ART 151, Basic Drawing; THEA 142, Makeup and Costuming; THEA 244, Light and Sound; THEA 251, Stage Movement; ENGL 251 or 252, Creative Writing; FOREIGN LANGUAGE, any standard Introductory or Advanced; JOUR 131 or 132, Introduction to Journalism; MUS 114, 115, Elementary Theory; MUS 116, 117, Sight Singing/Ear Training; MUS 167 or 168, Conducting; MUS 251 or 252, Music Theatre; MUS 100-400, Applied Lessons; PERF 100-400, Performing Groups; SPCH 101 or 102, Interpersonal/Public Speaking; SPCH 112, Voice and Diction.

CRITICAL STUDIES: Three credits selected from among three courses in philosophy/criticism of the arts and humanities.

ENGL 421, History of Literary Criticism  
FA 401, Critical Analysis of the Arts  
PHIL 451, Aesthetics

### Electives

Thirty-two hours are to be chosen as either free electives where the individual's program permits, or restricted electives if the individual chooses a difficult or more comprehensive emphasis.

### FOREIGN LANGUAGE

Since foreign language courses are essential for many bachelor's degree programs, especially in English and science areas, lower-division students may wish to consider taking foreign language during the first two years. Persons desiring to earn a B.A. degree in Liberal Arts with subsequent certification for teaching are advised to take at least two sequences of a language. Most English majors desiring to teach should have at least two years of a language.

### ASSOCIATE IN ARTS DEGREES

Students who wish to work toward the Associate in Arts degree in any of the disciplines included in the School of Humanities and Fine Arts should refer to the schedule listed under *Graduation Requirements* elsewhere in this catalog. Faculty advisers will assist candidates for the Associate in Arts degree in planning a program that will meet the requirements.

Study directed toward the Associate in Arts degree will serve as a basis for the Bachelor of Arts in Liberal Arts and also for programs offered in other academic units at Mesa College. The Associate in Arts program also serves as a basis for transfer to other institutions toward baccalaureate degrees not currently available at Mesa College.

### SCHOLARSHIPS

Music, art, and drama students may apply directly to their respective departments for consideration as scholarship applicants. Auditions or portfolio of work may be required. Students in all areas may apply for other types of general scholarships and grants available through the Office of Financial Aids. See information in *Student Services* section of this catalog.

### ART COLLECTION

The Mesa College Art Department maintains and displays a collection of student art work and reserves the right to retain one piece of work from each student enrolled in a studio class.

# SCHOOL OF INDUSTRY AND TECHNOLOGY

A. D. Anderson, Dean

*Faculty:* Bolla, Branton, Charlesworth, Duff, Feters, Fresquez, Holgate, Jacoby, Livingston, Replogle, Timpfe, Welis, Youngblood.

The School of Industry and Technology offers a variety of training in:  
 Auto Body-Fender                      Graphic Communications  
 Auto Mechanics                        Heavy Equipment/Diesel Mechanics  
 Electric Lineman                        Welding  
 Electronics Technology

Students may work toward an Associate in Applied Science Degree in Auto Body, Auto Mechanics, Electronics, Graphic Communications, and Welding. Certificates of Occupational Proficiency are awarded only in Heavy Equipment/Diesel and Electric Lineman. Students may work toward Certificates of Occupational Proficiency instead of Degrees in Auto Mechanics and Welding.

Requirements for the Associate in Applied Science degree in addition to technical subject matter in all programs include:

	<i>Sem. Hrs.</i>
English or Vocational Communications .....	6
Social Science .....	6
Physical Education .....	4
Electives .....	Vary

To successfully complete the requirements for a Certificate of Occupational Proficiency the student must complete the program as currently approved for offering.

All programs are approved for offering by the Colorado State Board for Occupational Education.

## **Auto Body and Fender Associate in Applied Science**

Upon successful completion of the requirements set forth in the curriculum, a student may receive the Associate in Applied Science degree. Practical application covers all phases of body and fender repair, including a comprehensive unit in auto painting. The training covers necessary shop skills, knowledge of theory, principles and related subjects essential to enter and progress competitively in the occupation. Students may enter the program any semester.

Requirements for the Associate in Applied Science degree in Auto Body and Fender include the following:

### AUTO BODY AND FENDER CURRICULUM

#### FIRST YEAR

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ABF 100 (Applied Mathematics) .....	2	32	ABF 120 (Auto Body Repair and Refinishing I) .....	8	160
ABF 110 (Auto Body Repair and Refinishing II) .....	8	160	ABF 130 (Auto Reconditioning) .....	3	64
ABF 140 (Oxyacetylene Welding) .....	2	48	ABF 150 (Arc Welding) .....	2	48
English or Vocational Communications .....	3	48	English or Vocational Communications .....	3	48
Physical Education .....	2	64	Physical Education .....	2	64
	17	352		18	384

SECOND YEAR

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ABF 200 (Panel and Spot Painting) . . . . .	2	64	ABF 240 (Auto Body Repair and Refinishing IV) . . . . .	5	160
ABF 210 (Frame Repair) . . . . .	2	64	ABF 250 (Estimating) . . . . .	3	48
ABF 230 (Auto Body Repair and Refinishing III) . . . . .	5	160	BUMA 121 (Human Relations in Business) . . . . .	2	32
ABF 220 (Shop Management) . . . . .	2	32	Social Science . . . . .	3	48
Social Science . . . . .	3	48	Electives . . . . .	2	30
Electives . . . . .	2	30		15	316
	16	396			

Total Sem. hrs. required for graduation—86

**Auto Mechanics Associate in Applied Science**

This program is designed to train persons who wish to enter into the automotive service trades as general mechanics to later advance in their work to such jobs as specialists of various types, shop foremen, service managers, service salesmen, factory service representatives or insurance adjusters.

The curriculum is designed in modules of five weeks each. Generally there are nine modules offered each semester and a student may choose among these. This system allows anyone interested to enroll for any module and therefore become proficient in one or more aspects of auto mechanics.

Requirements for the Associate in Applied Science degree in Auto Mechanics include the following:

	<i>Sem. Hrs.</i>
English or Vocational Communications . . . . .	6
Physical Education . . . . .	4
Engineering Drawing (ENGR 105) . . . . .	2
Auto Mechanics . . . . .	44-46
Social Science . . . . .	6
Electives . . . . .	4-2
Total sem. hrs. required for graduation . . . . .	66

**Auto Mechanics Certificate of Occupational Proficiency**

Requirements for a Certificate of Occupational Proficiency are:

AMEC 111: Applied Math for Auto Mechanics (2 semester hours, 30 contact hours) plus 44 semester hours of auto mechanics courses from the following list:

	<i>Semester Hrs.</i>	<i>Contact Hrs.</i>
AMEC 105 Introduction to Automotive Systems . . . . .	2	30
AMEC 110 Beginning Welding for Auto Mechanics . . . . .	2	48
AMEC 113 Internal Combustion Engines . . . . .	3	75
AMEC 114 Engine Rebuilding and Repairs . . . . .	6	150
AMEC 121 Clutches, Standard Transmissions, Overdrive . . . . .	2	60
AMEC 122 Drivelines and Differentials . . . . .	3	75
AMEC 123 Carburetors . . . . .	3	75
AMEC 124 Electrical Systems . . . . .	3	75
AMEC 125 Automotive Brake Systems . . . . .	3	75
AMEC 127 Transmissions . . . . .		75

## (AMEC con't.)

AMEC 133	Air Conditioning .....	2	60
AMEC 136	Ignition Systems .....	3	75
AMEC 139	Emission Control .....	3	75
AMEC 140	Alignment and Wheel Balance .....	3	75
AMEC 141	Suspension Repair .....	3	75
AMEC 295	Special Studies in Auto Mechanics .....	1 or 2	15 or 30
or 296			

## Heavy Equipment/Diesel Mechanics

### Certificate of Occupational Proficiency

With the increasing shortage of gasoline and the use of heavy equipment, diesel power is an important energy source. This increase in use of diesel powered equipment has placed increased emphasis on the need for well qualified heavy equipment maintenance mechanics. Mesa College offers a program designed to prepare serious students for employment in the field of heavy equipment maintenance mechanics and related systems such as hydraulics, electrical and fuel. Upon successful completion of the program, students are awarded a certificate of occupational proficiency.

		Semester Hours	Contact Hours
DIHY 111	Introduction to Heavy Equipment & Shop Processes .....	3	45
DIHY 115	Internal Combustion Engine Maintenance .....	2	48
DIHY 120	Internal Combustion Engine Reconditioning .....	4	120
DIHY 135	Fuel Systems .....	2	45
DIHY 140	Diesel Engine Troubleshooting .....	5	120
DIHY 145	Clutches, Transmissions and Drivelines .....	5	120
DIHY 146	Clutches, Transmissions and Drivelines II .....	5	120
DIHY 150	Hydraulic Systems I .....	2	45
DIHY 160	Hydraulic Systems II .....	2	45
AMEC 111	Applied Math for Mechanics .....	2	30
AMEC 124	Electrical Systems .....	3	75
ENGL 117	Vocational Communications .....	3	45
WELD 151	Industrial Welding I .....	2	48
Also Recommended:			
BUMA 121	Human Relations in Business .....	3	47
WELD 152	Industrial Welding II .....	2	48

## Electric Lineman

### One-Year Certificate of Occupational Proficiency

This program is designed to train highly qualified personnel for employment with electrical service and construction companies. Students receive field training and practical theory in all phases of power-line installation and maintenance. Field training consists of actual experience in an outdoor school laboratory. It covers climbing, setting and removing various sizes of poles, guy work, conductors, transformers, streetlights, installation of services, tree trimming, and the use and care of safety equipment.

Related Training, conducted in laboratory and classroom, provides an opportunity for acquaintance with the materials and hardware of the trade and the theory of their use. Fundamentals basic to the trade in electricity, construction techniques, transmission, distribution systems, underground procedures, hot line, and safety are emphasized throughout.

Requirements for the Certificate of Occupational Proficiency include:

		Semester Hrs.	Contact Hrs.
ELIN 111	Applied Mathematics .....	5	75
ELIN 120	Fundamentals of Electricity I .....	5	105
ELIN 131	Electric Distribution Theory I .....	4	105
ELIN 132	Electric Distribution Theory II .....	4	105
ELIN 136	Related Fundamentals I .....	4	90
ELIN 137	Related Fundamentals II .....	4	90
ELIN 140	Underground Procedures .....	5	135
ELIN 145	Hot-Line Procedure .....	2	72
ELIN 150	Applied Theory and Fundamentals I, II, III .....	10	320

### Electronics Technology Associate in Applied Science

The Electronics Technology curriculum has been arranged to provide the student with a knowledge of basic electronics and the use of general test equipment during the first year, with the second year devoted to digital, communication, and industrial circuits and systems. The objectives and emphasis throughout is on the application of electronic principles required in the maintenance and repair of electronic equipment. The program is not a pre-engineering curriculum and is not designed for transfer to other institutions in electrical engineering.

The courses are arranged in workable sequence suitable to the instructional needs of the students, with an appropriate balance among technology courses, general education courses, and laboratory applications.

A background of algebra, geometry, and trigonometry or concurrent enrollment in technical mathematics is desirable for this program.

A graduate of this program will have a good foundation in the principles of electronics and considerable facility with the "hardware" encountered in the electronics industry.

#### ELECTRONICS TECHNOLOGY

(Suggested Course Sequence)

##### FIRST YEAR

Fall Semester		Spring Semester	
ELEC 117 DC Passive Circuits .....	3	ELEC 253 Solid State I .....	3
ELEC 117 L—DC Passive Circuits .....	1	ELEC 253 L—Solid State I .....	1
ELEC 118 AC Passive Circuits .....	3	ELEC 263 Solid State II .....	3
FLFC 118 L—AC Passive Circuits .....	1	ELEC 263 L—Solid State II .....	1
ELEC 121 Shop Processes I .....	1	ELEC 122 Shop Processes II .....	1
ELEC 121 L—Shop Processes I .....	1	ELEC 122 L—Shop Processes II .....	1
ELEC 101 Technical Math I .....	4	ELEC 102 Technical Math II .....	4
English .....	3	English .....	3
Physical Education .....	2	Physical Education .....	2
Semester Hours	19	Semester Hours	19

##### SECOND YEAR

Fall Semester		Spring Semester	
ELEC 251 Wave Shaping Circuits .....	3	ELEC 254 Industrial Circuits .....	3
ELEC 251 L—Wave Shaping Circuits .....	1	ELEC 254 L—Industrial Circuits .....	1
ELEC 256 Communication Circuits I .....	3	ELEC 257 Communication Circuits .....	3
ELEC 256 L—Communication Circuits I .....	1	ELEC 257 L—Communication Circuits .....	1
ELEC 265 Digital Circuits I .....	3	ELEC 275 Digital Circuits II .....	3
ELEC 265 L—Digital Circuits I .....	1	ELEC 275 L—Digital Circuits II .....	1
ELEC 266 Microprocessors I .....	2	FLFC 276 Microprocessors II .....	2
ELEC 266 L—Microprocessors I .....	1	ELEC 276 L—Microprocessors II .....	1
Social Science .....	3	Social Science .....	3
	18		18

*Required Hours AAS—Electronics Technology*

Electronics .....	50	or	54
ETEC 101, 102 or Calculus .....	8	or	4
English .....	6		
Social Science .....	6		
Physical Education .....	4		
<b>TOTAL REQUIRED HOURS</b>	<b>74</b>		<b>74</b>

**Graphic Communications Technology***Associate in Applied Science*

A two year technical program designed to prepare the student to enter business, industry, and education graphics systems. The student develops basic skills in visual information design, visual information reproduction, and visual information recording, storage, and retrieval.

Minimum requirements for the Associate in Applied Science degree in Graphic Communications Technology include the following:

	<i>Sem. Hrs.</i>
ENGL 111, 112 (English Composition) .....	6
Physical Education .....	4
Social Science or Psychology .....	6
Mathematics .....	2
Art .....	3
Advertising .....	3
Journalism .....	3
Graphic Communications .....	31
Electives .....	6

(Typing and Speech recommended.)

**GRAPHIC COMMUNICATIONS CURRICULUM****FIRST YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English) .....	3	48	ENGL 112 (English) .....	3	48
Social Science or Psychology .....	3	46	Social Science or Psychology .....	3	48
Physical Education .....	2	64	Physical Education .....	2	64
Art .....	3	48	BU MA 232 (Advertising) .....	3	48
GRCO 130 (Introduction to Graphic Communications) .....	2	32	GRCO 130 (Basic Photography) .....	2	32
GRCO 120 (Graphic Arts Layout and Design) .....	3	68	GRCO 140 (Typesetting) .....	3	80
	16	308	Elective .....	3	48
				19	368

**SECOND YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BUGB 141 (Business Mathematics) cr. ...	3	48	GRCO 241 (Image Preparation II) .....	3	80
MATH 110 (Finite Math) .....	2	30	GRCO 251 (Offset Press) .....	3	80
ENGL 131 (Introduction to Journalism) ..	3	48	GRCO 231 (Process Photography II) ..	3	80
GHCO 240 (Image Preparation I) .....	3	80	GHCO 260 (Cost Estimating) .....	3	48
GRCO 250 (Offset Press) .....	3	80	Elective .....	3	48
GHCO 230 (Process Photography I) .....	3	80		15	336
	14-15	336			



## Welding

### Associate in Applied Science and Certificate of Occupational Proficiency Programs

In addition to the Associate in Applied Science degree, both three-semester and four-semester certificate programs are offered. Students who leave the program before completion of the three-semester sequence, and at the request of the student, may be awarded a certificate of competency level. Appropriate certificates or the degree will be awarded upon satisfactory completion of the longer programs if requested by the student.

The courses are designed to give students the necessary knowledge of metals, layout work, and welding processes, along with an opportunity to gain manipulative skills and the related information needed to enter and progress in the welding occupations. Instruction and shop practice are offered in oxy-acetylene and arc welding of mild steel in all positions. Students can arrange work experience as an elective part of the regular program after completing two semesters or more.

Minimum requirements for the Associate in Applied Science degree in Welding include the following:

	<i>Sem. Hrs.</i>
Welding .....	46
Physical Education .....	4
Engineering Drawing .....	3
English .....	6
Social Science .....	6
Total required for graduation .....	65

### WELDING CURRICULUM

#### *Associate in Applied Science*

	<i>Sem. Contact</i>			<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
<i>First Semester</i>			<i>Second Semester</i>		
WELD 110 (Welding Laboratory I) .....	7	240	WELD 120 (Welding Laboratory II) .....	7	240
WELD 112 (Oxyacetylene and Arc Theory) .....	3	64	WELD 121 (Blueprint Reading) .....	2	48
WELD 115 (Applied Mathematics) .....	2	48	WELD 131 (Fabrication Layout) .....	2	48
English or Vocational Communications .....	3	48	English or Vocational Communications .....	3	48
Physical Education .....	2	64	Physical Education .....	2	64
ENGR 105 (Engineering Drawing) .....	3	96		16	448
	20	560			

	<i>Sem. Contact</i>			<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
<i>Third Semester</i>			<i>Fourth Semester</i>		
WELD 230 (Welding Laboratory III) .....	7	240	WELD 240 (Welding Laboratory IV) .....	7	240
WELD 141 (Shop Management and Structural Theory) .....	3	64	WELD 145 (Metallurgy) .....	2	46
WELD 122 (Advanced Blueprint Reading) .....	2	48	WELD 132 (Advanced Fabrication Layout) .....	2	46
Social Science .....	3	48	Social Science .....	3	48
	15	400	Electives .....	2	32
				16	416

#### Requirements for the Three- and Four-Semester Certificates

	<i>Three Semesters</i>	<i>Four Semesters</i>
Welding .....	35 hrs.	46 hrs.
ENGR 105 (Engineering Drawing) .....	3	3
Vocational Communication .....	3	3
BUMA 121 (Human Relations in Business) .....	3	3
	44	55

# SCHOOL OF NATURAL SCIENCES AND MATHEMATICS

William E. Putnam, Dean

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*Faculty:* Allmaras, Bailey, Bauerle, Boge, Britton, Chowdry, Davis, Foutz, Gilbert, Hafner, Hanan, Hawkins, Henson, Hurlbut, J. Johnson, Kautzsch, Kelley, Kerns, Kramer, Lenc, Luke, Martineau, McCallister, Peters, Rice, Roadifer, Rybak, Marcella Sullivan, Taylor, Wethington, White.

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## DISCIPLINES INCLUDED

The academic and vocational disciplines comprising the School of Natural Sciences and Mathematics are:

Agriculture	Geology
Biology	Home Economics
Chemistry	Mathematics
Computer Science	Physics
Engineering	Production Agriculture
Engineering Technology	Statistics

## DEGREES AND PROGRAMS

Under the aegis of this school, degrees can be earned with study in the disciplines indicated below. For each, a detailed list of requirements and a suggested course sequence for the first two years can be obtained from a faculty adviser or the school office (Wubben Hall 203).

### *Bachelor of Science*

Biological and Agricultural Sciences

Agriculture emphasis

Biology emphasis

Pre-professional (such as pre-medical) studies can be pursued in this area.

Physical and Mathematical Sciences

Computer Science emphasis

Geology emphasis

Mathematics emphasis

### *Associate in Science*

Engineering

Forestry

Home Economics

These programs are the first two years of BS programs that require transfer to another institution to complete.

### *Associate in Applied Science*

Engineering Technology

Civil Engineering emphasis

Drafting emphasis

Production Agriculture

## Biological and Agricultural Sciences

### PROGRAM DESCRIPTION

The curriculum for this degree is intended to provide a broad education in the biological and agricultural sciences. The student adds to this experience a specialization in one of the disciplines and is thus prepared for employment or graduate study in his or her area of specialization. Specializations are presently available in agriculture and biology.

### PROGRAM REQUIREMENTS

*General Education.* Some of the courses required in this program, as in all Mesa College baccalaureate programs, are those classified as general education. It should be understood that in conjunction with certain emphasis disciplines some specific courses outside the discipline are required. In most cases these courses also satisfy general education requirements. Faculty advisers should be consulted about the details.

*Core.* A second group of courses required in this program is called the core. These courses must be chosen in such a way that 40 hours of credit will be earned from them. Some of the courses are specifically required of every student in the program and others are left as choices as indicated:

#### Specifically Required

BIOL 105 and 105L Attributes of Living Systems	4 hrs.
BIOL 106 and 106L Principles of Animal Biology	5 hrs.
BIOL 107 and 107L Principles of Plant Biology	5 hrs.
AG 301 and 301L Principles of Genetics	4 hrs.
AG 422 or BIOL 461 Externship	4 hrs.

*Choices.* Courses yielding 18 hours of credit must be selected from at least two of the disciplines in the following list with no more than 10 hours of credit coming from any one discipline:

AG 113 and 113L Introductory Animal Science	4 hrs.
AG 142 Economic Organization of Agriculture	3 hrs.
AG 202 and 202L Soils	4 hrs.
AG 213 and 213L Crop Production	4 hrs.
AG 251 and 251L Forage Crops	4 hrs.
AG 254 Livestock Feeding	3 hrs.
CHEM 121, 121L, 122, and 122L General and Introductory Organic Chemistry	10 hrs.
CHEM 131 and 131L, 132, and 132L General Inorganic Chemistry	10 hrs.
CHEM 201 and 201L Life Science Organic Chemistry	5 hrs.
CHEM 202 and 202L Biochemistry	5 hrs.
GEOL 101, 101L, 102, and 102L Introductory Geology	10 hrs.
GEOL 111 and 111L Principles of Physical Geology	5 hrs.
CSCI 111 Introduction to Computing	3 hrs.
CSCI 131 and 131L Introduction to Fortran Programming	4 hrs.
MATH 113 College Algebra	4 hrs.
MATH 130 Trigonometry	3 hrs.
MATH 146 Calculus for Biological Sciences	5 hrs.
STAT 200 Introduction to Probability and Statistics (All considered one discipline)	3 hrs.
PHYS 211, 211L, 212 and 212L General Physics	10 hrs.

*Emphasis Area.* A third group of courses with which 20 hours of credit will be earned must be selected from the offerings in the agricultural sciences or the biological sciences.

*Electives.* The remainder of the program consists of free or restricted elective courses producing a minimum of 20 hours of credit.

## Physical and Mathematical Sciences

### PROGRAM DESCRIPTION

The curriculum of this program is intended to provide a broad education in the physical and mathematical sciences. The student adds to this experience a specialization in one or perhaps two disciplines and is thus prepared for employment or graduate study in his or her area of specialization. Specializations are presently available in computer science, geology, and mathematics.

### PROGRAM REQUIREMENTS

*General Education.* Some of the courses required in this program, as in all Mesa College baccalaureate programs, are those classified as general education. It should be understood that in conjunction with certain emphasis disciplines some specific courses outside the discipline are required. In most cases these courses also satisfy general education requirements. Faculty advisers should be consulted about the details.

*Core.* A second group of courses in this program is called the core. These courses must be chosen in such a way that no fewer than 35 and no more than 40 hours of credit will be earned from them. They must be chosen from the disciplines of chemistry, computer science, geology, mathematics, and physics in such a way that no fewer than 10 and no more than 15 hours of credit will be earned in each of three disciplines. Courses which can be used to satisfy the core requirements are listed below. It should be understood that in conjunction with certain emphasis disciplines some choices within the following list are restricted. Faculty advisers should be consulted about these restrictions.

CHEM 121, 121L, 122, and 122L General and Introductory Organic Chemistry .....	10 hrs.
CHEM 131, 131L, 132, and 132L General Inorganic Chemistry .....	10 hrs.
CSCI 111 Introduction to Computing .....	3 hrs.
CSCI 131 and 131L Introduction to Fortran Programming .....	4 hrs.
CSCI 133 and 133L Introduction to PASCAL Programming .....	4 hrs.
CSCI 230 and 230L Assembly Language Programming .....	4 hrs.
GEOL 101, 102, and 102L Introductory Geology .....	10 hrs.
GEOL 111 and 111L Principles of Physical Geology .....	5 hrs.
GEOL 112 and 112L Principles of Historical Geology .....	5 hrs.
GEOL 201 and 201L Stratigraphy and Paleontology .....	5 hrs.
MATH 113 College Algebra .....	4 hrs.
MATH 119 Precalculus Mathematics .....	5 hrs.
MATH 130 Trigonometry .....	3 hrs.
MATH 151 Analytic Geometry with Calculus .....	5 hrs.
MATH 152 Calculus .....	5 hrs.
MATH 253 Calculus .....	4 hrs.
STAT 200 Introduction to Probability and Statistics (considered a mathematics course) .....	3 hrs.
PHYS 211, 211L, 212, and 212L General Physics .....	10 hrs.
PHYS 221, 221L, 222, and 222L Engineering Physics .....	10 hrs.

*Emphasis Area.* A third group of courses with which 20 additional hours of credit will be earned must be selected from the offerings in computer science, geology, or mathematics.

*Electives.* The remainder of the program consists of free or restricted elective courses producing a minimum of 25 hours of credit.

## Engineering, Forestry, and Home Economics

### PROGRAM DESCRIPTION

These programs are designed as the first two years of baccalaureate studies to be completed elsewhere.

### PROGRAM REQUIREMENTS

The following lists of courses, although not generally required for Associate in Science degrees, should be considered requirements for the respective programs. This is because their successful completion will insure smooth transfer for completion of baccalaureate study. Faculty advisers should be consulted about general education and other requirements.

#### Engineering

ENGR 111 and 111L Engineering Graphics and Design	3 hrs.
ENGR 240 Statics	3 hrs.
ENGR 241 Dynamics	3 hrs.
ENGR 251, 251L, 252, and 252L Circuit Analysis	8 hrs.
ENGR 255 Introduction to Thermal Sciences	3 hrs.
MATH 151 Analytic Geometry with Calculus	5 hrs.
MATH 152 Calculus	5 hrs.
MATH 253 Calculus	4 hrs.
MATH 260 Introduction to Differential Equations	3 hrs.
MATH 265 Introduction to Linear Algebra	3 hrs.
CSCI 131 and 131L Introduction to Fortran Programming	4 hrs.
CHEM 151 and 151L Engineering Chemistry	5 hrs.
PHYS 221, 221L, 222, and 222L Engineering Physics	10 hrs.

#### Forestry

AG 211 and 211L Introduction to Range Science	4 hrs.
BIOL 105 and 105L Attributes of Living Systems	4 hrs.
BIOL 106 and 106L Principles of Animal Biology	5 hrs.
BIOL 107 and 107L Principles of Plant Biology	5 hrs.
BIOL 110 Natural Resource Occupations	1 hr.
BIOL 111 Conservation of the Environment	2 hrs.
BIOL 211 and 211L Ecosystem Biology	5 hrs.
CHEM 121, 121L, 122, and 122L General and Introductory Organic Chemistry	10 hrs.
MATH 113 College Algebra	
MATH 148 Calculus for Biological Sciences	5 hrs.

#### Home Economics

HEC 101 Careers in Home Economics	1 hr.
HEC 110 and 110L Clothing Construction	3 hrs.
HEC 111 Clothing Selection and the Consumer	2 hrs.
HEC 115 and 115L Textiles	4 hrs.
HEC 136 and 136L Home Furnishing and House Planning	4 hrs.
HEC 211 Nutrition	3 hrs.
HEC 233 Personal and Family Decision-Making	2 hrs.
HEC 238 Child Development	5 hrs.
HEC 251 and 251L Food Selection and Preparation	4 hrs.
HEC 252 and 252L Preparation and Service of Meals	3 hrs.
HEC 261 and 261L Tailoring	3 hrs.
HEC 264 and 264L Pattern Designing	3 hrs.
CHEM 121 and 121L General Chemistry	5 hrs.
BIOL 141 and 141L Human Anatomy and Physiology	5 hrs.

## Engineering Technology

### PROGRAM DESCRIPTION

Engineering technology provides support to engineering effort by helping to move design, research, or planning ideas to application. Two emphases, Civil Engineering and Drafting, are included.

### PROGRAM REQUIREMENTS

Minimum requirements for each emphasis in this program are listed below. Faculty advisers should be consulted for additional recommendations.

#### Civil Engineering

EETC 101 and 102 Technical Mathematics	8 hrs.
EETC 125 and 125L Soils Engineering	3 hrs.
EETC 158 and 158L Drafting and Design-Architectural	3 hrs.
EETC 223 and 223L Concrete	3 hrs.
EETC 241 Statics and Strength of Materials I	3 hrs.
EETC 242 Strength of Materials II	3 hrs.
EETC 245 and 245L Fluid Mechanics and Hydraulics	3 hrs.
EETC 253 and 253L Drafting and Design-Topographical	3 hrs.
EETC 254 and 254L Drafting and Design-Piping	3 hrs.
EETC 257 and 257L Drafting and Design-Electrical Systems	3 hrs.
ENGR 111 and 111L Engineering Graphics and Design	3 hrs.
ENGR 231, 231L, 232, and 232L Surveying	6 hrs.
ENGR 259 Introduction to Energy	3 hrs.
CSCI 131 and 131L Introduction to Fortran Programming	4 hrs.

#### Drafting

EETC 101 and 102 Technical Mathematics	8 hrs.
EETC 125 and 125L Soils Engineering	3 hrs.
EETC 158 and 158L Drafting and Design-Architectural	3 hrs.
EETC 220 Specifications and Cost Estimates	3 hrs.
EETC 241 Statics and Strength of Materials I	3 hrs.
EETC 242 Strength of Materials II	3 hrs.
EETC 251 and 251L Drafting and Design-Electrical/Electronic	3 hrs.
EETC 252 and 252L Drafting and Design-Structural	3 hrs.
EETC 253 and 253L Drafting and Design-Topographical	3 hrs.
EETC 254 and 254L Drafting and Design-Piping	3 hrs.
EETC 255 and 255L Drafting and Design-Heating, Ventilating, and Air Conditioning	3 hrs.
EETC 256 and 256L Drafting and Design-Machine	3 hrs.
EETC 257 and 257L Drafting and Design-Electrical Systems	3 hrs.
EETC 262 and 262L Drafting and Design-Technical Illustrating	3 hrs.
ENGR 111 and 111L Engineering Graphics and Design	3 hrs.
ENGR 230 and 230L Topographical Surveying	3 hrs.
ENGR 231 and 231L Surveying I	3 hrs.
CSCI 131 and 131L Introduction to Fortran Programming	4 hrs.

**Contact Hours**

The minimum amounts of faculty contact with students in engineering technology courses are:

Course	Contact Hours	Course	Contact Hours	Course	Contact Hours
EETC 101	60	EETC 242	45	EETC 254	45
EETC 102	60	EETC 245	45	EETC 254L	45
EETC 123	45	EETC 245L	45	EETC 255	45
EETC 193I	30	EETC 251	45	EETC 255L	45
EETC 125	45	EETC 251L	45	EETC 256	45
EETC 125L	30	EETC 252	45	EETC 256L	45
EETC 162	45	EETC 252I	45	EETC 257	45
EETC 162L	45	EETC 253	45	EETC 257L	45
EETC 220	45	EETC 253L	45	EETC 258	45
EETC 241	45			EETC 258L	45

**Production Agriculture**

**PROGRAM DESCRIPTION**

Production agriculture is a program of practical education in agriculture emphasizing technical aspects of crop and animal production, farm management, farm mechanics, and general farm operations. Courses in this program are taught in a modular format with modules ranging in length from two to six weeks. A module consists of classroom and laboratory activities two days per week for a total of 10 hours per week. A student may enroll in only those modules of interest to him or her. Frequent, detailed consultations with a faculty adviser are essential for successful completion of this program.

**PROGRAM REQUIREMENTS**

A student can obtain a certificate of completion by earning 48 hours of credit in production agriculture courses or can receive an Associate in Applied Science degree upon also meeting the additional institutional requirements for the degree.

A student enrolled as a full-time student in this program must also work on a supervised farm project for a minimum of 12 hours per week in each of the terms of full-time enrollment. This work may be performed on the farm where the student lives or is employed or on the farm operated by Mesa College.

**Contact Hours**

The minimum amounts of faculty contact with students in production agriculture courses are:

Course	Contact Hours	Course	Contact Hours	Course	Contact Hours
AGPR 112	48	AGPR 123	32	AGPR 135	32
AGPR 114	32	AGPR 124	32	AGPR 136	32
AGPR 115	64	AGPR 125	32	AGPR 137	64
AGPR 118	96	AGPR 126	32	AGPR 138	48
AGPR 119	64	AGPR 127	48	AGPR 139	48
AGPR 120	64	AGPR 128	32	AGPR 140	32
AGPR 121	32	AGPR 130	32	AGPR 141	64
AGPR 122	32	AGPR 133	32	AGPR 142	48
				AGPR 143	48
				AGPR 144	64

## GENERAL INFORMATION

### Professional School Preparation

Preparation for admission into the graduate professional schools of Dentistry, Medicine, Optometry, Pharmacy, and Veterinary Medicine is possible with a biological and agricultural sciences baccalaureate program, biology emphasis, and a judicious choice of electives. Because of the intense competition for admission into these schools, it is essential that a student plan his or her program in especially close consultation with a faculty adviser.

### Departments

Several groups within the faculty of the School of Natural Sciences and Mathematics are organized into departments as follows:

Department of Agriculture, Maylon D. Peters, Head

Department of Biological Sciences, Edward C. Hurlbut, Head

Department of Computer Science, Mathematics, and Engineering,  
James C. Davis, Head

Department of Geology, Jack E. Roadifer, Head

The faculties of chemistry, home economics, and physics are not formally departmentalized.

## SPECIAL REQUIREMENTS

### Laboratories

Most courses in the School of Natural Sciences and Mathematics include laboratory work. For students' convenience the class and laboratory portions of such courses are technically treated as different courses with distinctive numbers and individual grades. It is required, however, that a student enrolled in such a class or laboratory be also enrolled in the other unless credit in it has already been established. If, through accident or oversight, the requirement stated above is not enforced, it is nonetheless to be understood that credit can not be earned toward graduation for a class or laboratory unless credit is also earned for the other.

### Independent Study

A student can enroll for independent study at different levels or at the same level more than once. However, in the School of Natural Sciences and Mathematics, no more than two semester hours credit toward graduation with an associate degree and four semester hours credit toward graduation with a bachelor's degree can be earned through independent study.



# SCHOOL OF NURSING AND ALLIED HEALTH

Jane VanderKoik, Acting Dean

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*Faculty:* Dea, Eicher, Forrest, Gabriel, Goodhart, Geisler, Harvey, Magenheim, Mustee, Schumann, Stewart.

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The School of Nursing and Allied Health offers six programs preparing students for employment in the health fields. These programs are: Dental Assisting and Expanded Function (DENT), Emergency Medical Technician (EMT), Baccalaureate, Associate-Degree, and Practical Nursing (NURS), and Radiologic Technology (RADT). Applicants are urged to apply early for the program they desire. All of the programs have special admissions committees to select students for the programs from the applicants who meet the requirements.

## Expanded Function Dental Auxiliary

### *Certificate*

Helen Gabriel, Program Director

This program has been designed to provide better dental services to the people of Colorado.

The program combines training as a Certified Dental Assistant with that of Expanded Function Dental Auxiliary.

After the first three terms (fall, spring and summer) the student is eligible to take the National Dental Assisting Board Examination, and with successful completion earns the title of Certified Dental Assistant (CDA). He/she can then perform the following:

1. Assisting at chairside during various operative procedures; for general dentistry and the specialties.
2. Taking and processing dental radiographs.
3. Establishing and implementing educational programs in oral hygiene.
4. Performing basic laboratory procedures.
5. Performing basic intro-oral expanded functions, such as polishing restorations, applying topical fluoride, placing rubber dam, placing and wedging matrixes, removing sutures and surgical dressing, taking endodontic cultures.
6. Office Management.

The additional fall session will prepare the student as an Expanded Function Dental Auxiliary (EFDA), and will qualify the graduate to perform expanded functions in the State of Colorado. This includes:

1. Performing all duties and functions of the CDA.
2. Performing restorative dentistry such as adapting, placing, and removing temporary restorations and placing, carving, and finishing simple and compound amalgam restorations.

All application materials should be submitted by March 1 in order to be considered for the class starting in the fall. Successful applicants must be able to type a minimum of 35 words per minute.

**EFDA CURRICULUM  
FIRST YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
DENT 110 Orientation to Dentistry.....	2	32	DEN 120 Dental Science II.....	3	48
DENT 112 Dental Science I.....	3	48	DENT 130 Chairside I.....	2	32
BIOL 141 Human A&P.....	3	48	DENT 130L Chairside I.....	2	64
BIOL 141L Human A&P Lab.....	2	64	DENT 140 Dental Material I.....	2	32
PSCI 101 Physics & Chemistry for Allied Health.....	2	32	DENT 140L Dental Material I.....	2	64
HEC 211 Nutrition.....	3	48	DENT 150 Radiology I.....	2	32
NURS 124 Nursing Procedures for Allied Health.....	1	16	DENT 150L Radiology I.....	1	32
SCPH 101 Interpersonal Communications.....	3	48	DENT 122 Oral Pathology.....	2	48
			PSY 122 Psychology.....	3	48
			DENT 190 Dental Office Procedures.....	2	32
			DENT 190L Dental Office Procedures.....	1	16
	19	336		22	400

Summer program to be arranged by Program Director

**SECOND YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>
DENT 210 Expanded Function Dental Auxiliary.....	4	64
DENT 210L Expanded Function Dental Auxiliary.....	7	224
DENT 210E Expanded Function Dental Auxiliary.....	3	160
	14	448

## Emergency Medical Technician

### Certificate

This standard curriculum has been approved by the National Highway Safety Administration, United States Department of Transportation. Upon satisfactory completion of the course, recommendation of the instructor, and attainment of age 18, the student is eligible to take the examination to be certified as Emergency Medical Technician by the State of Colorado. Students are also eligible to take the national registry examination to become a Registered Emergency Technician: Ambulance.

Emergency Medical Technicians enjoy a variety of career opportunities that include ambulance attendants, rescue personnel, industrial safety personnel, and hospital emergency-room technicians. Employment opportunities in the immediate area are somewhat limited at this time.

Prerequisites: Standard first-aid course, age 18, and/or permission of the instructor. This course may not be offered every year.

**EMT CURRICULUM**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
FMT 141 (Emergency Medical Technician I).....	2	70	EMT 142 (Emergency Medical Technician II).....	2	50
TOTAL.....				4	120

## NURSING PROGRAMS

Mesa College nursing programs include Bachelor of Science in Nursing for individuals who are registered nurses, Associate Degree Nursing, and Practical Nursing. The number of students admitted to these programs is limited. Applicants must be in good health, have satisfactory references, and show aptitude for service in the area chosen. All applicants for Nurs-

ing Programs, regardless of the number of hours transferred, are required to have ACT scores on record in the Admissions Office.

A special admissions committee chooses students for the nursing programs from applicants who best meet the requirements. Associate Degree applicants should submit all application materials by March 1 in order to be considered for classes starting the following fall. Students will be accepted separately for each program.

The nursing curriculum is organized so that Practical Nursing (L.P.N.) students and Associate Degree (R.N.) students are enrolled in the same courses Fall and Spring semesters the first year.

All nursing courses must be completed in sequence as numbered. Upon successful completion of Summer Session, Practical Nursing students will be eligible to take state examinations to become licensed practical nurses. A student with passing grades who finds it necessary to withdraw from school at the end of Fall Semester should be qualified to seek a position as nurses' aide or orderly.

Completion of the Practical Nursing program does not guarantee automatic acceptance into the Associate Degree program. Since there is a great need for licensed practical nurses, the spaces reserved for these students will be filled by applicants who intend to practice as L.P.N.'s.

## **Practical Nursing**

### *Certificate*

Wilma Schumann, Program Director

The Practical Nursing program is a 12-month course designed to prepare qualified men and women for service in hospitals and other health agencies as licensed practical nurses. Upon completion of the course, the graduate is qualified to take the licensing examination.

Applicants follow the same procedures as all other Mesa College applicants. Supplementary forms and detailed instructions for making application specifically for Practical Nursing may be secured from the Admissions Office.

## **Associate Degree Nursing**

### *Associate in Science*

Initiated in September 1962, this program is fully accredited by the Colorado Board of Nursing and by the National League for Nursing. Upon completion of the prescribed course of study, the graduate receives the Associate in Science degree and is eligible to take the examination for licensure as a registered nurse. The purpose of this program is to prepare graduates to serve as registered nurses in first-level (staff nurse) positions in hospitals, nursing homes, physicians' offices, and other health agencies where adequate direction is provided.

Laboratory experiences are planned with hospitals in the Grand Junction area and other health agencies in the community.

Students are required to have at least a 2.0 grade average in nursing courses at the end of Spring Semester of their freshman year and to maintain this average each succeeding semester in order to continue in the program.

**NURSING CURRICULUM**

**FIRST YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BIOL 141 (Anatomy and Physiology) . . . . .	5	112	BIOL 250 (Microbiology) . . . . .	4	96
HEC 211 (Nutrition) . . . . .	3	48	NURS 123 (Nursing Concepts II) . . . . .	9	304
NURS 113 (Nursing Concepts I) . . . . .	7	176	Physical Education . . . . .	2	32
NURS 112 (Introduction to Nursing) . . . . .	2	32	PSY 133 (Human Growth and Development) . . . . .	3	48
Physical Education . . . . .	2	32			
	18	400		18	480

*Summer Session (Required for Practical Nursing students ONLY)*

	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>
NURS 143 (Clinical Nursing) . . . . .	7	320
NURS 141 (Personal and Vocational Relations) . . . . .	2	30
NURS 142 (Health in the Home and Community) . . . . .	2	30
	11	380

**SECOND YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BIOL 241 (Pathophysiology) . . . . .	4	64	Social Science . . . . .	3	48
ENGL 111 (English) . . . . .	3	48	ENGL 112 (English) . . . . .	3	48
Social Science . . . . .	3	48	NURS 230 (Nursing Concepts IV) . . . . .	10	320
NURS 213 (Nursing Concepts III) . . . . .	10	320	NURS 273 (Issues in Nursing) . . . . .	2	32
	20	480		18	448

**Bachelor of Science in Nursing**

The program offers the junior and senior years for registered nurses who have completed an associate degree or diploma (hospital) program in nursing. The curriculum provides the learning experiences necessary to prepare professional nurses to deliver direct or indirect care to clients in community health settings as well as hospitals and to assume effective leadership roles in nursing. The graduate of the program will be prepared to function in situations utilizing health maintenance as well as illness care.

Students are required to have at least a 2.0 (C) in each nursing course in order to continue in the program. Nursing courses are able to be taken in a sequence that meets student's needs.

**DEGREE REQUIREMENTS**

**130 semester hours (plus one year of physical education activities) to graduate.**

40 semester hours of general education (Statistics and Computers in Society are required for a baccalaureate nursing student but also may be used to fulfill requirements in Physical Science and Mathematics.)

62 semester hours of nursing

30 hours lower division, maximum

32 hours upper division

The following courses are required in the curriculum:

<b>Course</b>	<b>Hrs.</b>
NURS 320, Matrix — entry course	3
NURS 330, Research Techniques	3
NURS 340-340L, Health Assessment Physical	4
NURS 350, Concepts of Community Health Nursing I	3
NURS 420-420L, Concepts of Community Health Nursing II	7

NURS 430-430L, Health Assessment Psychosocial	4
NURS 441-441L, Nursing Management I	3
NURS 442-442L, Nursing Management II	3
NURS 460, Health Delivery Systems — exit course	2
	32

28 hours of electives (nursing and general education, 300 and 400 level courses preferred) 40 of the 130 hours must be in upper division courses.

## Radiologic Technology

### Associate in Applied Science

Andrea Harvey, Program Director

A two-year Associate in Applied Science program which continues through two summers. Admissions are limited because of the number of clinical facilities in the area. A pre-admission interview with the director is required. A special admissions committee chooses students who best meet the requirements. Applicants must be in good health and show aptitude for service within the Radiologic Technology field. A general college application form must be received by the college by Feb. 25 in order for the applicant to be considered for admission. The program starts with the Summer Session.

Radiologic technologists enjoy a variety of career opportunities. Most are employed in hospital radiologic departments, where they perform duties of diagnostic radiography. Others are employed in physicians' offices, public health organizations, veterinary clinics, and industrial radiography. Other possibilities include teaching and commercial positions connected with the manufacture, sales and servicing of radiographic equipment.

Students are required to achieve a 2.0 grade average for each RADT course. A cumulative grade-point average of 2.0 is required to continue in the program.

A portion of the clinical experience is obtained in hospitals outside Grand Junction. Students will be responsible for the additional travel and living expenses. At the completion of the 24-month program and with the recommendation of the director, students are eligible to take the national registry examination.

#### \*\*RADIOLOGIC TECHNOLOGY CURRICULUM FIRST YEAR

	Sem. Contact	
	Hrs.	Hrs.
Summer Session		
RADT 111 (Radiologic Orientation).....	1	16
RADT 111L (Radiologic Orientation Lab).....	1	32
NURS 124 (Nursing Procedures for Allied Health).....	1	16
RADT 121 (Radiologic Technology I).....	2	32
RADT 121L (Radiologic Technology Lab I).....	1	32
Social Science.....	3	48
Physical Education.....	1	32
*PSCI 101 (Chemistry and Physics for Dental Assistants).....	2	32
	12	240

\*Students with high school or college chemistry and physics will be exempt from this course.

## (RADT. con't.)

<i>Fall Semester</i>	<i>Sem. Contact</i>			<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
BIG 141 (Human Anatomy and Physiology).....	3	48	<i>Spring Semester</i>	3	48
BIO 141L (Anatomy and Physiology Lab).....	2	64	ENG 112 (English).....	3	48
ENG 111 (English).....	3	48	RADT 131 (Radiologic Technology II).....	2	32
*MATH 110 (Finite Mathematics).....	2	32	HAD1 131L (Radiologic Technology Lab II).....	1	32
RAD1 122 (Radiologic Principles I).....	2	32	RADT 132 (Radiologic Principles II).....	2	32
RADT 122L (Radiologic Principles Lab I).....	1	32	RADT 112 (Radiologic Physics).....	2	32
RADT 123 (Clinical Experience I).....	4	256	RADT 133 (Clinical Experience II).....	4	256
Physical Education.....	2	64	Physical Education.....	1	32
	19	576		18	512

\*Students with extensive math background may be exempt from this course (i.e., two years of high school algebra or college algebra).

## SECOND YEAR

<i>Summer Session</i>		<i>Sem. Contact</i>	
		<i>Hrs.</i>	<i>Hrs.</i>
RADT 243 (Clinical Experience III).....	10	640	
RADT 242 (Radiologic Pathology).....	1	16	
RADT 241 (Radiologic Research).....	1	16	
	12	672	

<i>Fall Semester</i>	<i>Sem. Contact</i>			<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
RADT 253 (Clinical Experience IV).....	10	640	<i>Spring Semester</i>	10	640
RADT 251 (Radiologic Technology III).....	3	48	RADT 261 (Radiologic Technology IV).....	3	48
RADT 252 (Radiologic Biology).....	2	32		13	688
	15	720			

\*\*Minimal curriculum revisions in progress at time of printing.

# SCHOOL OF SOCIAL AND BEHAVIORAL SCIENCES

Donald A. MacKendrick, Dean

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*Faculty:* Arosteguy, Beemer, Chapman, Chere, Cortese, Fink, Graves, J. Harper, Holloway, Humphries, Kershaw, Lachance, Meeker, Morton, Nelson, Nicholson, Perrin, Perry, A. Sanders, Schakel, Shepherd, Starbuck, Swanson, Tiemann, Thompson, Tooker, Wallace, Wiehe, Wignall.

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## DISCIPLINES

Anthropology	History
Archaeology	Human Services
Career Counseling and Guidance	Law Enforcement
Dance	Physical Education
Early Childhood Education	Political Science
Economics	Psychology
Education	Recreation
Geography	Social Science
	Sociology

## Bachelor of Arts in Social and Behavioral Sciences

This is an interdisciplinary curriculum designed around a general core of courses with several discipline options. Its purpose is to provide students with a broad background in the social and behavioral sciences together with more specialized knowledge and skills in a particular discipline or emphasis area. The curriculum seeks to serve the needs of students wishing to pursue careers as para-professionals in the human services or in career guidance and counseling, to obtain entry level positions in business and government service, or to pursue post-baccalaureate study leading to professional or graduate degrees in law, public administration, social work, psychology, sociology, history, education, economics and other related fields.

### General and Core Requirements for the Degree

1. *General Requirements.* Candidates for the degree in social and behavioral sciences must meet all college general requirements for the baccalaureate degree, including general education requirements, described in this catalog.
2. *Core Requirements:* Candidates for the degree in social and behavioral sciences must complete the following core requirements:
  - a. **Social Science** (15 semester hours)
    - 1) One of the following series of courses:  
ECON 201, 202 Principles of Economics  
HIST 101, 102 Western Civilizations  
HIST 131, 132 United States History  
POLS 101, 102 American Government
    - 2) Nine(9) additional semester hours of credit in social science selected from economics, geography, history, political science, or general social science.

**b. Behavioral Science (15 semester hours)**

- 1) One of the following series of courses:  
 ANTH 101, 102 Physical and Cultural Anthropology  
 PSY 121, 122 General Psychology  
 SOC 260, 264 General Sociology and Social Problems
- 2) Nine (9) additional semester hours of credit in behavioral science selected from anthropology, education, human services, career counseling and guidance, psychology or sociology.

**Degree Emphases**

In addition to meeting the above general and core requirements, each degree candidate must select one of the following disciplines as a degree emphasis and earn at least eighteen (18) hours of upper-division credit (courses numbered 300 or above) as outlined in detailed courses of study designed by the particular department charged with supervisory responsibility:

Economics History	Human Services Career Counseling and Guidance	General Social Science Psychology Sociology
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Courses of study for the various degree emphases are available from academic advisers or at the office of the Dean (Mary Rait Hall, Room 306).

**Bachelor of Arts in Leisure and Recreation Services**

**PROGRAM REQUIREMENTS**

	<i>Sem.</i>
	<i>Hrs.</i>
1. <i>Core Courses:</i>	
PER 210 (Introduction to Recreation and Leisure Services).....	2
PER 270 (Recreation and Special Populations).....	3
FA 101 (Man Creates).....	3
PER 380 (Planning and Design of Park and Recreation Facilities)....	3
PER 384 (Leisure in Contemporary Society).....	3
PER 480 (Organization and Administration of Recreation and Leisure Services).....	3
PER 454 (Programs in Recreation and Leisure Services).....	3
PER 486 (Recreation and Leisure Services Leadership and Supervision).....	4
PER 495 (Internship in Recreation and Leisure Services).....	12
	36
2. <i>Emphasis area:</i> In addition to the core courses listed above, each student must choose one emphasis area consisting of 20 hours of approved courses for concentrated study. These areas include:	
Municipal Parks and Recreation	
Therapeutic Recreation	
Art	
Dance	
Performing Arts	
Physical Education	

Detailed course requirements for each emphasis area are available from the Head, Department of Physical Education and Recreation or from Recreation staff members.

3. *Internship:* Each major must complete an internship during the senior year or the summer preceding the senior year. Interns are placed with recreation agencies for one full semester. Normally, no other courses may be taken while serving the internship, which requires 40 or more hours of work a week while in service. Students must plan their course of study to accommodate this requirement.



## Bachelor of Arts in Selected Studies

Daniel J. Arosteguy, Program Director

This program is designed to allow students, in close consultation with faculty advisers, to design a curriculum not otherwise available at Mesa College—one that is best suited to individual needs, background, interests and goals. Early consultation with the program director is essential since the student must make a formal declaration of major and file a curricular plan before admission to the program is granted. Students wishing to consider this program should contact the program director in Room 312, Mary Rait Hall.

### PROGRAM REQUIREMENTS AND LIMITATIONS

1. *Concentration Areas:* Students seeking a baccalaureate degree in this program must declare and submit a curricular plan for one major and two minor areas of concentration.
  - a. A major area of concentration consists of not less than 30 semester hours of credit in a discipline or in two or more closely related disciplines. At least one-half of these hours must be at the upper division level.
  - b. A minor area of concentration (two required) consists of not less than 16 semester hours of credit in a discipline or two or more closely related disciplines.
  - c. Schools of the College may set higher requirements for majors and/or minors. In any case, the School offering the courses that a student proposes to include in his/her program has final authority to determine whether a particular assortment of courses meets requirements.
  - d. If a vocational-technical minor area of concentration is selected, no more than 30 semester hours of credit in one area of study or more than 40 semester hours in two areas of study will count toward the degree. No more than one minor area of concentration may be in vocational-technical study. It is not possible to major in a vocational-technical area.
  - e. In addition, students must earn a total of 122 semester hours of credit and meet all general education and other academic requirements for the Bachelor of Arts degree. A minimum of one third of the total course work must be at the upper-division level.
2. *Program approval:* The degree program must be carefully planned and approved by a committee of faculty advisers, one adviser from each of the three concentration areas. To assure careful planning, a student must earn at least 48 hours of credit after admission to the program, and 24 semester hours of these credits must be in the student's major area of concentration, 16 semester hours at the upper division level.

## Early Childhood Education

*Associate in Applied Science*

Virginia Beemer, Program Director

This curriculum is offered to meet the needs of those presently employed in nursery schools or day-care centers and those contemplating work in the field of early childhood education. Students majoring in this curriculum take courses designed to increase their understanding of the education and care of children. Students are required to have laboratory experience in Mesa College's Early Childhood Education Center and other community early childhood education facilities. Students successfully completing the course may find employment in private and co-operative day-care centers, nursery schools, children's homes, institutions for ex-

ceptional children, hospitals, etc. Placement is dependent upon individual maturity and professional growth. A physical examination is required to enter program.

### PROGRAM SPECIFICATIONS

#### 1. Course distribution, not including electives:

	Sem. Hrs.	Contact Hrs.
English Composition .....	6	90
Social Science and Literature .....	6	90
Psychology .....	6	90
Early Childhood Education .....	42	770
Physical Education Activity .....	4	96
	64	1136

#### 2. Suggested Course Sequence:

##### FIRST YEAR

Fall Semester	Sem. Contact		Spring Semester	Sem. Contact	
	Hrs.	Hrs.		Hrs.	Hrs.
ENGL 111 (English Composition) .....	3	45	ENGL 112 (English Composition) .....	3	45
PSY 121 (General Psychology) .....	3	45	PSY 122 (General Psychology) .....	3	45
ECED 116 (Toddler Curriculum) .....	2	30	HEC 238 (Child Development) .....	5	75
THEA 213 (Creative Play Activities—Drama) .....	3	45	ECED 111 (Curriculum in Early Childhood Education) .....	3	45
ECED 121 (Introduction to Early Childhood) .....	2	30	MUS 135 (Music and Methods in Early Childhood) .....	2	30
ART 110 (Early Childhood Art) .....	3	45			
	16	240		16	240

##### SECOND YEAR

Fall Semester	Sem. Contact		Spring Semester	Sem. Contact	
	Hrs.	Hrs.		Hrs.	Hrs.
SOC 144 (Marriage and the Family) .....	3	45	HEC 141 (Meal Management in Early Childhood) .....	4	60
HEC 211 (Nutrition) .....	3	45	CDLC 121 (Children's Literature: Pre- school, Primary to 3rd Grade) .....	3	45
SPCH 111 (Introduction to Speech Pathology) .....	3	45	ECED 260 (Child-Care Center Management) .....	3	45
PER 265 (First Aid) .....	2	30	ECED 252 (Student Teaching) .....	5	240
Literature .....	3	30	Physical Education Activity .....	2	48
Physical Education Activity .....	2	46			
	16	256		17	438

### Certificate Program in Early Childhood Education

#### PROGRAM SPECIFICATIONS

#### 1. Courses Required for State Certification:

	Sem. Hrs.	Contact Hrs.
PSY 121 (General Psychology) .....	3	45
HEC 211 (Nutrition) .....	3	45
HEC 238 (Child Development) .....	5	75
ECED 252 (Student Teaching) .....	5	240
ECED 260 (Child-Care Center Management) .....	3	45
ECED 111 (Curriculum in Early Childhood Education) .....	3	45
SOC 144 (Marriage and the Family) .....	3	45
	25	540

#### 2. First Aid Certificate: Students must have a current Red Cross First Aid Certificate for certification in this program.

3. *Recommended Electives:*

	Sem. Hrs.	Contact Hrs.
ART 110 (Early Childhood Art) .....	3	45
EDUC 121 (Children's Literature: Pre-school, Primary to Third Grade).....	3	45
THEA 213 (Creative Play Activities—Drama) ...	3	45
MUS 135 (Music and Methods in Early Childhood).....	2	30

**Law Enforcement**

*Associate in Applied Science*

Paul A. Lachance, Program Director

The rapid expansion of the law-enforcement field has created a critical need for college-trained professionals who want a challenging and socially significant career. This program is designed to provide students with the necessary background in law enforcement as well as to provide in-service personnel with opportunities to upgrade their education. Students completing this program successfully are awarded the Associate in Applied Science degree. To make the program more accessible to in-service personnel, Mesa College offers courses from time to time in the evening school and by extension in other communities in Colorado West.

**PROGRAM SPECIFICATIONS**

1. *Course Distribution:*

	Sem. Hrs.	Contact Hrs.
English Composition .....	6	90
Social Science .....	16	240
Psychology .....	6	90
Science .....	6	90
Speech .....	3	45
Physical Education Activity .....	4	96
Law Enforcement.....	24	360
Electives .....	3	45
	68	1056

2. *Suggested Course Sequence:*

**FIRST YEAR**

<i>Fall Semester</i>	<i>Sem. Contact</i>		<i>Spring Semester</i>	<i>Sem. Contact</i>	
	<i>Hrs.</i>	<i>Hrs.</i>		<i>Hrs.</i>	<i>Hrs.</i>
ENGL 111 (English Composition) .....	3	45	ENGL 112 (English Composition) .....	3	45
POLS 101 (American Government).....	3	45	POLS 102 (American Government).....	3	45
PSCI 111 (Survey of Physics) or *Physical Science, Math or Computer Science.....	3	45	*Physical Science, Math or Computer Science.....	3	45
LEN 111 (Introduction to Administration of Justice) .....	3	45	LEN 112 (Police and Society) .....	3	45
LEN 121 (Criminal Law) .....	3	45	LEN 122 (Juvenile Delinquency and Procedures) .....	3	45
Physical Education Activity .....	2	48	Physical Education Activity .....	2	48
	17	273		17	273

\*Select from PSCI 111, 112, 113, 114, 115; MATH 110, 113; CSCI 100, 111.

(LEN con't.)

## SECOND YEAR

	Sem. Contact			Sem. Contact	
	Hrs.	Hrs.		Hrs.	Hrs.
<i>Fall Semester</i>			<i>Spring Semester</i>		
PSY 121 (General Psychology) . . . . .	3	45	PSY 122 (General Psychology) . . . . .	3	45
SOC 260 (General Sociology) . . . . .	3	45	SOC 144 or SOC 264 . . . . .	3	45
POLS 256 (State and Local Government) . . . . .	3	45	SPCH 102 (Speechmaking) . . . . .	3	45
LEN 222 (Police Patrol Operations) . . . . .	3	45	LEN 204 (Probation and Parole) . . . . .	3	45
LEN 251 (Laws of Arrest, Search and Seizure) . . . . .	3	45	LEN 275 (Management Principles in Criminal Justice) . . . . .	3	45
			Electives . . . . .	23	30-45
	15	225		17	18 255-270

## Physical Education

Students wishing to study Physical Education have two program options. In both cases, it is important that the student make an early decision to pursue a particular course of study and follow curriculum guidelines carefully. Failure to do so could result in a delay in earning the baccalaureate degree.

Students should understand, also, that Mesa College cannot recommend certification to teach in the public schools of Colorado. Though efforts are being made to establish a working arrangement with a sister institution to recommend such certification, no agreement has been reached at this time. Students who wish to teach should therefore understand that additional study beyond the baccalaureate degree will be required to obtain teacher certification.

However, teaching does not represent the only career option open to Physical Education majors. Opportunities exist for trained personnel in both private physical conditioning and training facilities and with public recreation departments. Teacher certification is not required for these positions.

The options for studying Physical Education at Mesa College are:

1. Degree program in Selected Studies with Physical Education as a major.
2. Degree program in Recreation and Leisure Services with Physical Education as an emphasis area.

Detailed courses of study for these options are available from Dr. Dan Arosteguy (Rait 312—Selected Studies), Mr. Ted Swanson (Saunders Fieldhouse 213—Recreation and Leisure Studies) or from Mr. Wayne Nelson, Head, Department of Physical Education and Recreation (Saunders Fieldhouse, 207).

## Reserve Officers Training Corps (ROTC)

The Department of Military Science presents instruction in general military subjects to provide the student with the opportunity to qualify for a commission as an officer in the United States Army, the United States Army Reserve, or the National Guard. Courses in the ROTC program are designed to complement a student's academic major and develop the qualities of leadership and citizenship which are desirable in both military and civilian enterprise.

### Basic ROTC.

Participation in the first two years of the ROTC program is completely voluntary. It is during these two years that a student is afforded the opportunity to evaluate the military as a career alternative and qualify for enrollment in Advanced ROTC.

*Advanced ROTC.*

Participation in the last two years of the ROTC program is both elective and selective. Completion of this program and completion of the degree requirements qualify the student for a commission as a second lieutenant in the U.S. Army Reserve or National Guard. Therefore, applicants must demonstrate academic proficiency indicating a reasonable likelihood of completing degree requirements and must exhibit leadership qualities during the first two years of ROTC. A physical examination is required. The Advanced Course includes four semesters of military-science courses on campus and a six-week summer camp to provide training and leadership opportunities not available on campus.

*ROTC Activities.*

To provide students with a variety of areas for developing leadership ability, the Department of Military Science sponsors several extracurricular activities in connection with the ROTC program. The activities include a physical training program, an outdoor adventure training program, a drill team and a color guard.

*ROTC Credit.*

Students enrolled for four years in ROTC receive a total of 14 credit hours toward graduation.

*Veterans.*

Students with prior military service may receive advanced placement credit and enter the ROTC program at the Advanced Course level.

*Military Supplies.*

All Military Science textbooks, uniforms and accessories are issued free of charge to students enrolled in both the Basic and Advanced ROTC Courses. Additionally, Advanced Course students receive a subsistence allowance of \$100 per month during the school year.

*Regular Army Commission.*

Senior military students who have demonstrated academic proficiency in all subjects and who have shown outstanding leadership may be designated as "Distinguished Military Students." This designation enables a student to apply for a regular Army commission during the senior year and, if appointed, enter military service as a second lieutenant, regular Army, upon graduation.

*ROTC Scholarships.*

The United States Army offers qualified male or female applicants three, two and one year fully paid ROTC Scholarships to attend Mesa College. ROTC scholarships pay all tuition and fees, buy all books and supplies required in college courses and pay the student a subsistence allowance of \$100 per month during the school year for the duration of the scholarship. Upon graduation, ROTC scholarship students receive commissions and are required to serve four years of active duty in the Army. Individuals interested in applying for an ROTC scholarship should contact high school counselors or the Assistant Professor of Military Science, Mesa College, Room 307, Mary Rait Hall.

## AREA VOCATIONAL SCHOOL

Recognizing the national need for better-trained manpower, the Mesa College Area Vocational School provides a large variety of learning opportunities for persons who wish to become skilled technicians. Thousands of jobs await those who have the skills and abilities demanded by business and industry.

Programs and course offerings are structured to provide job entry re-training or upgrading skills. The further the student progresses in a program area the greater the skill development.

Courses and curricula may lead to the Associate in Applied Science or Associate in Science degree, or a certificate. High school graduates may enroll in any of these programs. High school non-completers and adults who have not completed their secondary requirements may enroll in many of the Area Vocational School offerings.

Students who wish to earn a degree must have a high school diploma or a General Education Development (GED) certificate and must take the tests of the American College Testing (ACT) Program. They must also meet the general requirements and follow the suggested curriculum for the skill training in which they enroll. Students who do not seek a degree may enroll in the individual courses that they desire.

### OCCUPATIONAL EDUCATION COURSES AND PROGRAMS INCLUDE:

Accounting	Medical Office Assistant
Data Processing	Secretarial Programs and Upgrading
Business Job Entry	Travel, Recreation and Hospitality Management
Auto Body and Fender	Electronics Technology
Auto Mechanics	Graphic Communications
Electric Lineman	Welding
Mining/MSNA	Diesel-Hydraulic Mechanics
Production Agriculture	Engineering Technology—Drafting
Engineering Technology—Civil	Nursing, Associate Degree
Expanded Function	Nursing, Practical
Dental Auxiliary	Radiologic Technology
Emergency Medical Technician	Law Enforcement Technology
Early Childhood Education	

Courses designed to meet special employment needs may be designed and offered at various locations throughout Mesa County if minimum enrollment can be met.

## CONTINUING EDUCATION

One of Mesa College's finest traditions is providing special opportunities for members of the community to participate in academic, vocational, cultural, and recreational activities. The Office of Continuing Education serves many residents each year through offerings that include cultural, informational, vocational, basic education, and general education courses, self-improvement and hobby classes, recreation groups, parent-education and preschool classes, and public forums and discussion groups concerned with timely topics.

Most of these offerings are provided in the evenings for either credit or no-credit and for varying lengths of time. Many regular students register for night classes to facilitate schedules or to provide free time during the day for part-time job opportunities. Learning activities are varied and include discussions, demonstrations, laboratories, shop work, and field trips. Members of the regular Mesa College faculty are utilized in the evening program along with many qualified guest instructors from business, industry, the arts, and other academic institutions who add new experience and lend greater interest to the various offerings.

The College cooperates with various other colleges and universities in the state to provide facilities for on- and off-campus extension classes and other services. Most of the courses made available through this arrangement are at the upper-division or graduate level.

The Mesa College Continuing Education Outreach Program is part of a state-wide outreach education program sponsored by the Colorado Commission on Higher Education. The system, which is made up of public colleges and universities, encourages development of instructional programs to meet the needs of Colorado citizens who cannot regularly enroll in classes on a college campus. Mesa College's Outreach Program currently offers a number of non-credit classes and programs on campus and both credit and non-credit classes in several neighboring cities. The program is funded entirely by tuition and fees.

## SUMMER SESSION

Mesa College offers a summer program based upon needs and wishes expressed by students and residents of the community. Typical offerings in previous summers have included courses in the areas of Biology, Business, Data Processing, Engineering, Fine Arts, Home Economics, Humanities, Mathematics, Nursing and Allied Health, Physical Education, Physical Science, Social Science, and Occupational Education.

The 1981 session will include a twelve-week term and two six-week terms. Registration is scheduled May 18. Courses may be taken in more than one term if schedule permits. Classes are held during mornings only. Tentative bulletins on Summer Session offerings are usually available in early spring.

# COURSE DESCRIPTIONS

Subjects offered by Mesa College are indexed below alphabetically under the school holding academic responsibility, followed by an identifying prefix, followed by the page number having the detailed course description appropriate to the subject.

<i>School and Subject Area</i>	<i>Prefix</i>	<i>Page</i>	<i>School and Subject Area</i>	<i>Prefix</i>	<i>Page</i>
<b>School of Business</b>			<b>School of Natural Sciences and Mathematics</b>		
Accounting	BUAC	71	Agriculture	AG	73
Business, General	BUGH	86	Agriculture, Production	AGPR	76
Business, Management	BUMA	87	Biology	BIOL	83
Business, Marketing	BUMK	89	Chemistry	CHEM	91
Data Processing	BUDP	94	Computer Science	CSCI	93
Health	BUHL	113	Engineering	ENGH	102
Job-Entry Training	BUJT	117	Engineering Technology	ETEC	103
Office Administration	BUOA	126	Geology	GEOL	110
Travel, Recreation and Hospitality Management	BUTR	146	Home Economics	HEC	115
<b>School of Humanities and Fine Arts</b>			Mathematics	MATH	119
Art	ART	78	Physical Science	PSCI	134
English	ENGL	106	Physics	PHYS	135
Fine Arts	FA	109	Statistics	STAT	143
Foreign Languages	FLAN	109	<b>School of Nursing and Allied Health</b>		
French	FREN	109	Dental Auxiliary and Expanded Function	DENT	96
German	GERM	112	Emergency Medical Technician	EMT	102
Journalism	JOUR	118	Nursing	NURS	126
Music	MUS	123	Radiologic Technology	RADT	138
Music, Applied	AMUS	124	<b>School of Social and Behavioral Sciences</b>		
Music, Performing	PERF	125	Anthropology	ANTH	78
Philosophy and Religious Studies	PHIL	129	Career Counseling and Guidance	CCG	90
Reading	READ	140	Economics	ECON	98
Spanish	SPAN	141	Education	EDUC	99
Speech	SPCH	142	Education, Early Childhood	ECED	99
Theatre and Dance	THEA	144	Geography	GEOG	109
<b>School of Industry and Technology</b>			History	HIST	114
Auto Body and Fender	ABF	80	Human Services	HS	116
Auto Mechanics	AMEC	81	Interdisciplinary Study	INDI	116
Diesel Hydraulics	DIHY	97	Law Enforcement	LEN	118
Electric Lineman	ELIN	100	Military Science	MIL	122
Electronics Technology	ELEC	101	Physical Education and Recreation	PER	130
Graphic Communications	GRCO	112	Political Science	POLS	136
Welding	WELD	147	Psychology	PSY	137
			Social Science	SOCS	140
			Sociology	SOC	140

In the detailed course descriptions following, the course numbers after the prefix, indicate the college year in which the courses should ordinarily be taken. Courses numbered 1-99 are preparatory in nature and not intended for transfer purposes or degree requirements.

100-199	Freshman year
200-299	Sophomore year
300-399	Junior year
400-499	Senior year

NOTE: Course descriptions are arranged in alphabetical order by subject.



Credit for each course, in terms of semester hours, is indicated by a numeral in parentheses following the course title. In most instances, prerequisites for courses are stated in the description.

## Accounting

(School of Business)

### **BUAC 201 Principles of Accounting I (3)**

Suitable for all business and accounting majors and individuals interested in obtaining the basic skills necessary to understand an accounting system and financial statements. Includes the development of fundamental principles of double entry bookkeeping, balance sheet, profit and loss statement, controlling accounts and partnership accounting. (Fall, Spring.)

### **BUAC 202 Principles of Accounting II (3)**

A continuation of BUAC 201. Expands on the principles presented in BUAC 201 and introduces corporate accounting, accounting for bonds and interest, cost accounting, and managerial accounting. Prerequisite: BUAC 201. (Fall, Spring.)

### **BUAC 211 Managerial Accounting (3)**

A course designed to apply accounting information to managerial decision-making. Major topics are financial statement analysis, budgeting for planning or control, cost-volume-profit relationships, and capital budgeting. (Not open to accounting majors.) Prerequisite: BUAC 202. (Fall.)

### **BUAC 264, 265 Related Work Experience (1, 2)**

Working in a business at a position approved by the School of Business, the student receives practical experience and an opportunity to apply academic knowledge in a work situation. The student is responsible for securing the position and arranging work hours. Written papers are required as part of the course. Student must meet with adviser at least once every three weeks during the semester of work experience. Credit is awarded on the basis of one semester hour for each five hours of work performed weekly throughout the semester. A maximum of three semester hours (requiring 15 hours of work weekly) may be earned in this manner. Prerequisite: Nine semester hours of course work in a field chosen for work experience; cumulative grade point average of 2.50 or higher; and permission of the instructor. Students must apply for this course through their advisers at least three weeks prior to end of the semester preceding the semester in which they wish to take the course. A maximum of three credit hours of Related Work Experience may apply toward an associate degree. Credit not available through competency or challenge. (Fall, Spring.)

### **BUAC 321 Intermediate Accounting I (3)**

Designed to help develop a deeper understanding of accounting theory and methods for non accounting and accounting majors. Provides foundation necessary for specialized accounting courses. Prerequisite: BUAC 202. (Fall.)

### **BUAC 322 Intermediate Accounting II (3)**

Continuation of Intermediate Accounting I. Prerequisite: BUAC 321. (Spring.)

### **BUAC 331 Cost Accounting I (3)**

A course which gives the student a better understanding of costs and their relationship to planning, controlling and inventory valuation. Major topics are cost-volume-profit relationships, job-order accounting, budgeting, and standard cost systems. Prerequisite: BUAC 202. (Fall.)

### **BUAC 332 Cost Accounting II (3)**

A continuation of BUAC 331. Major topics are capital budgeting, cost allocation, process cost accounting, and internal control. Prerequisite: BUAC 331. (Spring.)

- BUAC 361, 362 Independent Study in Accounting** (1, 2)  
Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed 12 credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.75 or higher will be allowed to enroll for credit in this upper-division course. Consent of instructor required in all cases. (Fall, Spring, Summer.)
- BUAC 401 Advanced Accounting I** (5)  
This course is taught in two modules. One module covers accounting procedures related to governmental and non-profit institutions. The second module covers accounting theory as it relates to financial statements. Prerequisite: BUAC 322. (Fall.)
- BUAC 402 Advanced Accounting II** (5)  
This course is taught in two modules. One module provides in-depth coverage of consolidated financial statements. The other module covers partnership accounting, bankruptcy, estates and trusts and international operations. Prerequisite: BUAC 401. (Spring.)
- BUAC 411 Auditing I** (3)  
Study of the scope and purpose of the work of a certified public accountant. An in-depth study of the theory of auditing, the professional ethics of the profession, the legal liability of the auditor, the theory of accounting systems, and internal control. Prerequisites: BUAC 322 and STAT 214. (Fall.)
- BUAC 412 Auditing II** (3)  
A continuation of BUAC 411. This course concentrates on the application of auditing theory to the financial statements. Examines the audit programs and procedures used in each phase of the audit, the use of audit workpapers, and completion of the audit report. Prerequisite: BUAC 411. (Spring.)
- BUAC 421 CPA Review** (3)  
A course designed to help accounting students review and prepare for the CPA examination and the profession of public accounting through a study of difficult problems typical of those that appear on the CPA exam. Prerequisite: consent of instructor. Does not count toward the 34 hours of Accounting major requirements. (Arr.)
- BUAC 423 Controllership** (3)  
Deals with problems related to the job of corporate controller. Major topics covered: accounting controls, cash flow projections, budgets, inventory control, accounts receivable control, accounting systems. Prerequisites: BUAC 322, BUAC 332. (Spring.)
- BUAC 441 Income Tax** (5)  
This course, designed for accounting majors, covers the Federal Income Tax Law and filing requirements for individual taxpayers, partnerships, and estates and trusts. Prerequisites: BUAC 322 or consent of instructor. (Fall.)
- BUAC 442 Advanced Tax and Tax Research** (5)  
Covers the Federal Income Tax Law and filing requirements for corporations and various other areas of taxation. Also includes comprehensive and complex tax problems requiring the use of various tax reference sources and emphasizing research methods and techniques. Prerequisite: BUAC 441. (Spring.)
- BUAC 461, 462, 463 Internship in Accounting** (2, 3, 5)  
Supervised accounting work experience in business and industry. Prerequisites: junior status and consent of the Dean of the School of Business. (Arr.)
- BUAC 464, 465 Related Work Experience** (1, 2)  
Prerequisites: Minimum of 12 hours of course work completed in the field chosen for work experience; cumulative grade-point average of 2.75 or higher; junior or senior standing. A maximum of six semester hours of Related Work Experience (three lower-division and three upper-division) may apply toward a baccalaureate degree. See BUAC 284, 265 course description for additional information. (Fall, Spring.)

**BUAC 471 Computerized Accounting (3)**

This course is designed to follow Automated Systems emphasizing the Accounting aspects and requirements of computerized information processing. Attention will be given to the mini-computer applications in smaller businesses. This is not a systems design course, it is concerned with the interface of the computer processing with the accounting system, and accounting needs such as reporting requirements, internal control aspects, and systems currently available. (Fall.)

**BUAC 472 Computerized Auditing (3)**

This course is designed to cover the current professional requirements and auditing standards as they apply to audits of computer based accounting systems, the techniques used to meet the standards, and actual practical experience using these techniques on computerized systems. (Spring.)

## Agriculture

### (School of Natural Sciences and Mathematics)

**AG 101 Agricultural Profession (1)**

A survey of the various fields of agricultural study and their occupational opportunities. Guidance in choosing major and minor fields of study. One lecture per week.

**AG 112 Farm Power (2)****AG 112L Farm Power Laboratory (1)**

A theory and demonstration course on internal combustion engines, electrical systems, and power transfer, with special attention to operation and maintenance of farm equipment. Two lectures and one two-hour laboratory session per week.

**AG 113 Introductory Animal Science (3)****AG 113L Introductory Animal Science Laboratory (1)**

An introduction to the livestock industry including production, management and marketing of livestock products. Three lectures and one two-hour laboratory session per week.

**AG 142 Economic Organization of Agriculture (3)**

A study of economic principles as they apply to agriculture. Three lectures per week.

**AG 151 Basic Landscaping (2)****AG 151L Basic Landscaping Laboratory (1)**

Basic principles of home landscape design, construction and maintenance, with an emphasis on low maintenance and water conservation. Two lectures and one two-hour laboratory session per week.

**AG 201 Environmental Horticulture (3)****AG 201L Environmental Horticulture Laboratory (1)**

Principles of horticultural science as applied to the propagation and culture of horticultural crops, landscape design, and improvement of plants. Three lectures and one two-hour laboratory session per week.

**AG 202 Soils (3)****AG 202L Soils Laboratory (1)**

A study of the formation, properties, and management of soils. Special attention is given to all conditions that affect crop yields. Prerequisite: CHEM 121 or CHEM 131 for agriculture students, waived for forestry students. Three lectures and one two-hour laboratory session per week.

**AG 203 Artificial Insemination (1)****AG 203L Artificial Insemination Laboratory (1)**

Principles and practices employed in artificial insemination with emphasis on planning and conducting a successful artificial breeding program. One lecture and one two-hour laboratory session per week.

- AG 205 Farm and Ranch Management** (5)  
Economics applied to management of a farm or ranch. Emphasis on keeping and interpreting records for management and income tax purposes. Prerequisites: AG 142 or consent of instructor. Five lectures per week.
- AG 211 Introduction to Range Science** (3)  
**AG 211L Introduction to Range Science Laboratory** (1)  
An introduction to ecological principles and management practices required for proper utilization of rangeland. Three lectures and one two-hour laboratory session per week.
- AG 213 Crop Production** (3)  
**AG 213L Crop Production Laboratory** (1)  
A study of the principles of field-crop production with emphasis on cultural practices and botanical characteristics of crops grown in the intermountain region. Three lectures and one two-hour laboratory session per week.
- AG 222 Livestock Judging and Selection** (1)  
**AG 222L Livestock Judging and Selection Laboratory** (1)  
Evaluation and selection of livestock. One lecture and one two-hour laboratory session per week.
- AG 241 Agricultural Practicum** (2)  
Work experience in a wide variety of agricultural fields. Hours of work required for credit will be determined by the department.
- AG 248, 249 Individual Problems in Agriculture** (1, 2)  
A course which allows individualized study in some area of agriculture. Prerequisite: Approval of instructor and agricultural background.
- AG 251 Forage Crops** (3)  
**AG 251L Forage Crops Laboratory** (1)  
Study of the important aspects of forage crop production. Three lectures and one two-hour laboratory session per week.
- AG 254 Livestock Feeding** (3)  
Practical application of the analysis of feeds and requirements of various classes of livestock used in the formulation of balanced rations. Three lectures per week.
- AG 260 Functional Anatomy of Domestic Animals** (3)  
A survey of systematic anatomy and physiology of domestic animals as related to production, reproduction and health. Emphasis is placed on systems unique to domestic animals. Three lectures per week.
- AG 301 Principles of Genetics** (3)  
**AG 301L Principles of Genetics Laboratory** (1)  
A study of variation, breeding and evolution, emphasizing the physical basis of heredity, independent inheritance and linkage, as related to human, plant, and animal inheritance. Three lectures and one two-hour laboratory session per week.
- AG 303 Agriculture Marketing** (3)  
A study of agricultural markets and the various techniques which can be used in marketing agriculture products. Also includes a general discussion of the commodity futures market and its use in agriculture. Prerequisite: AG 142 or consent of instructor. Three lectures per week.
- AG 311 Range Ecology** (3)  
Structure, distribution, and interrelationship of rangeland plant and animal communities. Prerequisites: AG 211 and BIOL 107, or consent of instructor. Three lectures per week.
- AG 320 Irrigation and Drainage** (3)  
Principles of water conveyance, application, efficiency, consumptive use and drainage. Prerequisite: AG 202 or consent of instructor. Three lectures per week.

- AG 321 Fruit Production** (2)  
**AG 321L Fruit Production Laboratory** (1)  
 Principles and practices utilized in the production, harvesting and marketing of tree and small fruits. Site selection, harvesting methods, marketing procedures and the cultural practices of planting, pollination, pruning, thinning, soil management, fertilizing and irrigation. Prerequisite: Five hours of plant science, AG 201, or consent of instructor. Two lectures and one three-hour laboratory session per week.
- AG 322 Greenhouse Management** (2)  
**AG 322L Greenhouse Management Laboratory** (1)  
 Use of enclosed structures for manipulation of environment, effects on growth as applied to floricultural crops, methods of controls, production and marketing costs. Two lectures and one two-hour laboratory session per week.
- AG 323 Plant Propagation** (2)  
**AG 323L Plant Propagation Laboratory** (1)  
 A study of techniques used in propagation of plants. Two lectures and one two-hour laboratory session per week.
- AG 332 Weed Control** (3)  
**AG 332L Weed Control Laboratory** (1)  
 Study of weed control through predators, parasites, pathogens, attractants, irradiation, chemosterilants, and integrated control. Three lecture and one two-hour laboratory session per week.
- AG 333 Animal Breeding** (3)  
 Study of performance evaluation and prediction of genetic improvement in purebred and commercial livestock. Prerequisite: AG 113 or consent of instructor. Three lectures per week.
- AG 334 Animal Hygiene** (3)  
**AG 334L Animal Hygiene Laboratory** (1)  
 Principles of animal sanitation in relation to disease prevention and control. Prerequisite: AG 113 or consent of instructor. Three lectures and one two-hour laboratory session per week.
- AG 343 Environmental Insects** (2)  
**AG 343L Environmental Insects Laboratory** (1)  
 A study of insects with emphasis on major insect pests including anatomy, physiology, life cycles and recommended control procedures. Two lectures and one two-hour laboratory session per week.
- AG 345 Beef Production** (3)  
 Study of the production of purebred, commercial, and slaughter cattle. Range, farm, and feedlot principles. Breeds, breeding, market grades, feeding and management. Prerequisite: AG 113 or consent of instructor. Three lectures per week.
- AG 346 Horse Management** (3)  
 Study of the general principles and practices of stabling, training, and caring for horses. Three lectures per week.
- AG 347 Sheep Production** (3)  
 Management practices involved in commercial and purebred sheep enterprise. Marketing methods, performance testing, and carcass evaluation techniques. Wool grading, evaluation and merchandising of the wool clip. The application of nutritional, genetic, and physiological principles to the efficient production of sheep. Prerequisite: AG 113 or consent of instructor. Three lectures per week.
- AG 348 Swine Production** (3)  
 A study of commercial and purebred swine production and management. Both business aspects and applications of the principles of nutrition, genetics and physiology will be presented. Prerequisite: AG 113 or consent of instructor. Three lectures per week.

- AG 352 Applied Animal Nutrition** (2)  
**AG 352L Applied Animal Nutrition Laboratory** (1)  
 Composition, characteristics, and nutritive value of feeds and ration additives; qualitative and quantitative nutrient requirements of each of the classes of livestock with some consideration of wildlife; formulation of rations for each of the classes of livestock. Prerequisites: AG 254, BIOL 106, or consent of instructor. Two lectures and one two-hour laboratory session per week.
- AG 403 Soil Fertility and Fertilizer** (2)  
**AG 403L Soil Fertility and Fertilizer Laboratory** (1)  
 A study of the principles of soil fertility and fertilizer practices. Two lectures and one two-hour laboratory session per week.
- AG 411 Range Techniques** (2)  
**AG 411L Range Techniques Laboratory** (1)  
 Techniques used to inventory range resources, determine rangeland condition and trend, determine forage utilization and proper stocking rates, and develop management plans. Prerequisites: AG 311 or consent of instructor. Two lectures and one two-hour laboratory session per week.
- AG 421, 422, 423, 424, 425 Externship in Profession** (2, 4, 6, 8, 10)  
 A student may receive credit for work experience obtained on a job where the assignments are appropriately related to the agriculture program. The number of credit hours assigned to the student will be determined by the school. No more than ten hours of externship credit will be counted toward satisfaction of graduation requirements. Prerequisites: agriculture student, senior standing, and consent of instructor.
- AG 451, 452 Seminar in Agriculture** (1, 1)  
 Discussions of current problems, topics, and research procedures in agriculture. Topics of the seminar announced each semester. Prerequisite: Sophomore classification and consent of the instructor.

## ***Agriculture, Production***

**(School of Natural Sciences and Mathematics)**

- AGPR 112 Irrigation** (3)  
 A study of current irrigation systems with emphasis on efficient use of water and control of salinity.
- AGPR 114 Welding** (2)  
 Practice of gas and arc welding with emphasis on agricultural applications.
- AGPR 115 Insects and Control** (4)  
 A study of insect pests of both crops and livestock and their biological and chemical control.
- AGPR 118 Row Crops** (6)  
 A study of row-crop production with emphasis on crops produced in western Colorado.
- AGPR 119 Fruit Crops** (4)  
 A study of fruit production including planting, cultivation, irrigation, pruning and other cultural techniques.
- AGPR 120 Greenhouse Operation** (4)  
 A study of approved greenhouse management practices emphasizing building design and operation, plant-propagation practices and marketing.
- AGPR 121 Landscaping** (2)  
 A study of landscaping practices with emphasis on the use of materials and plants available locally.

- AGPR 122 Turf Management** (2)  
A study of turf production for commercial purposes and as a landscaping tool.
- AGPR 123 Horses** (2)  
An introduction to feeding, training, handling, and general management practices applicable to horse production.
- AGPR 124 Cattle** (2)  
An introduction to production systems and management practices used in the beef cattle industry.
- AGPR 125 Sheep** (2)  
An introduction to production systems and management practices used in the sheep industry.
- AGPR 126 Swine** (2)  
An introduction to production systems and management practices used in the swine industry.
- AGPR 127 Soils** (3)  
A study of soils with emphasis on efficient management of soils in agriculture.
- AGPR 128 Fertilizers** (2)  
A study of fertilizers emphasizing efficient utilization of both commercial and natural fertilizers.
- AGPR 130 Dairy Operation** (2)  
An introduction to production systems and management practices used in the dairy industry.
- AGPR 133 Marketing** (2)  
An exploration of the methods, systems, and channels used in the marketing of farm products. Includes a study of the commodity futures market as a method of increasing marketing efficiency.
- AGPR 135 Forage Crops** (2)  
A study of approved practices in forage crop production, particularly in western Colorado.
- AGPR 136 Vegetable Crops** (2)  
A study of approved practices in vegetable crop production with emphasis on practices employed in western Colorado.
- AGPR 137 Animal Health** (4)  
An introduction to the prevention and control of disease problems in horses, cattle, sheep, swine, and poultry.
- AGPR 138 Farm Facilities** (3)  
Study in the layout and interrelations of such farm facilities as materials handling systems, fencing, corrals, grain and feed structures and the effects of O.S.H.A. and E.P.A. regulations on them.
- AGPR 139 Farm Equipment** (3)  
Principles of safe operation, proper maintenance and efficient adjustment of tillage, planting, and harvesting equipment.
- AGPR 140 Grain Drying and Grading** (2)  
A study of grain drying systems, proper storing, and determining factors that affect the quality and grade of grain.
- AGPR 141 Farm Mechanics** (4)  
The study and practical application of skills required in farm carpentry, plumbing, electricity, and concrete.
- AGPR 142 Farm Management I** (3)  
A study of farm record keeping methods and systems and their use in planning and budgeting. This will include farm credit sources, investment credit and methods of depreciation.

**AGPR 143 Farm Management II (3)**

This course is designed to develop record analysis procedures for farmers. It includes taxes, farm leases, farm law, types of ownership, services of governmental agencies and farm organization.

**AGPR 144 Farm Engines (4)**

Demonstration and application of approved tune-up, maintenance, repair, and trouble-shooting practices as applied to small engines and large gas and diesel engines.

## **Anthropology**

### **(School of Social and Behavioral Sciences)**

**ANTH 101 Physical Anthropology (3)**

A survey of the basic concepts of physical anthropology such as: the biological nature of man, the evolution of man, and human variation.

**ANTH 102 Cultural Anthropology (3)**

A survey of basic concepts of cultural anthropology such as: the nature of culture, the development and history of culture, cultural institutions and the process of cultural change.

**ANTH 221 Old World Archaeology (3)**

A survey of the archaeology of Eurasia and Africa emphasizing the emergence of early man up to and including the Iron Age. Basic archaeological concepts such as excavation procedures and modern dating methods are discussed.

**ANTH 222 New World Archaeology (3)**

A survey of the archaeology of North, Middle and South America emphasizing origin of inhabitants, distribution and development of prehistoric cultures. The course will deal with such topics as: Paleo-Indian, Archaic and early agricultural traditions; the rise of Inca, Mayan and Aztec civilizations; and Southwestern archaeology.

**ANTH 230 Myth, Magic and Religion (3)**

Comparative studies of myth, magic and religion from the Upper Paleolithic through the earliest civilizations using anthropological, archaeological and psychological sources.

**ANTH 232 Primitive Science and Religion (3)**

A comparative study of primitive man's attempt to understand and control the world through ritual, magic, witchcraft and divination. The roles of shamans, ghosts and ancestor worship, astrology and alchemy, and anthropological theories which explain them are examined.

**ANTH 261, 262 Archaeological Excavation (3, 6)**

Training in archaeological field methods, including excavations of prehistoric sites, record-keeping, care of artifacts, mapping, and data analysis. Prerequisite: consent of instructor.

**ANTH 301 The North American Indian (3)**

A survey of the cultural systems of the North American Indians; major cultural areas, languages and behavior patterns. Case studies of selected groups. Prerequisites: ANTH 101, 102.

## **Art**

### **(School of Humanities and Fine Arts)**

*The Mesa College Art Department maintains and displays a collection of student art work and reserves the right to retain one piece of work from each student in every studio class.*

**ART 100 Art Foundations (3)**

An introduction to visual art form and content. Lecture: 2 hours; Studio: 1 hour.



**ART 110 Early Childhood Art** (3)  
 Theory and practice of art education for young children. Lecture, laboratory, and practice teaching culminate in resources for teaching. Lecture: 2 hours; laboratory: 1 hour, arranged.

**ART 120 Jewelry** (1)  
 An elective studio course, covering basic art-metal processes of cutting, joining, polishing, and casting. Functional and aesthetic considerations of jewelry design are emphasized. A tool kit deposit is required and a fee is charged for materials. Studio: 2 hours.

**ART 130 Fibers** (1)  
 An elective studio course in several fiber processes including weaving and dyeing. A fee is charged for materials. Studio: 2 hours.

**ART 140 Ceramics** (1)  
 An elective studio course dealing with the design and making of clay objects. Most hand-building processes are covered; pieces are fired and glazed. Fee charged for clay and glaze materials. Studio: 2 hours.

**ART 150 Sketching** (1)  
 An elective studio course for people who want to learn the basic skills of drawing what they see. Media used are graphite, pen and ink, and pastels. Studio: 2 hours.

**ART 151 Basic Drawing** (3)  
 An introduction to freehand drawing: Figural and environmental subjects, perceptual exercises, and common drawing media.

**ART 170 Printmaking** (1)  
 An elective studio course in beginning multiple image making. Students learn how to design for relief printing and what tools and papers are effective in producing good prints. Fee charged for materials. Studio: 2 hours.

**ART 180 Sculpture** (1)  
 An elective studio course for students who want to make an object in clay to be cast, using the waste mold process. Forms appropriate to the materials and processes are emphasized. Fee charged for materials. Studio: 2 hours.

**ART 190 Painting** (1)  
 An elective studio course in water media. Paintings are done indoors and outdoors in a variety of techniques and subjects. Basic composition and color-mixing. Studio: 2 hours.

**ART 211, 212 History of Art** (3, 3)  
 A chronological study of art periods and comparative analysis of styles in western art from prehistory to the present. Lecture: 3 hours.

**Art Processes and Media (200 Level)**  
 The following courses are introductory studies in the traditional materials of the visual arts. These are Studio experiences with some lectures on theory and history of the media. Fees are charged for some materials; other materials are obtained by the student. Lecture: 1 hour; studio, 5 hours.

<b>ART 221 Jewelry</b>	(3)	<b>ART 271, 272 Printmaking</b>	(3, 3)
<b>ART 231 Fibers</b>	(3)	<b>ART 281, 282 Sculpture</b>	(3, 3)
<b>ART 241, 242 Ceramics</b>	(3, 3)	<b>ART 291, 292 Painting</b>	(3, 3)

**ART 251 Figure Drawing** (3)  
 Studio drawing emphasizing the tradition of the human figure. Contemporary concepts of composition and technique, using quality drawing tools and surfaces. Nude models, bones and anatomy charts as well as reproductions of the work of figurative artists are utilized. Lecture: 1 hour; studio; 5 hours. Prerequisite: ART 151 or equivalent.

**ART 302 Independent Study in Art** (2)  
 By arrangement with the instructor.

**ART 311 Exhibitions and Management (2)**

Preparation and presentation of art work for exhibition. Exhibit design, installation, shipment, scheduling, insurance and other responsibilities of gallery management. Preparation of a professional portfolio is part of the laboratory work. Lecture: 2 hours; laboratory: 2 hours.

**ART 315 Twentieth Century Art History (3)**

A study of the sequence of movements and schools of art in the present century. The conditions and influences which have affected modern art are analyzed and the works of major artists are surveyed through slides and reading. Lecture: 3 hours. Prerequisite: ART 211, 212 or permission of instructor.

**Advanced Studios (300 level)**

These courses may be concerned with specific media or projects to be studied in a structured class, or a general studio may include a variety of media and individually contracted work. Prerequisites: ART 151, 152; 211, 212; and at least 3 hours of the same Processes and Media (200 level) Studio.

<b>ART 321, 322 Metalsmithing</b>	(3, 3)	<b>ART 371, 372 Printmaking</b>	(3, 3)
<b>ART 341 Pottery Production</b>	(3)	<b>ART 381, 382 Sculpture</b>	(3, 3)
<b>ART 342 Ceramic Sculpture</b>	(3)	<b>ART 391, 392 Painting</b>	(3, 3)
<b>ART 351, 352 Drawing</b>	(3, 3)		

**ART 402 Independent Study in Art (2)**

By arrangement with instructor.

**ART 415 Art History Seminar (3)**

A reading and seminar course for depth study of individually selected areas of world art history and the relationships of various periods to the art of today. Seminar: 3 hours. Prerequisites: ART 211, 212; 315.

**Advanced Studios (400 Level)**

Specialized studio problems contracted by senior-level students preparing for graduate schools. The work culminates in a faculty examination of each student's portfolio and an exhibition of the student's work. Prerequisite: At least 3 hours in the same studio at 300 level.

<b>ART 421, 422 Metalsmithing</b>	(3, 3)	<b>ART 471, 472 Printmaking</b>	(3, 3)
<b>ART 441 Glaze Calculation</b>	(3)	<b>ART 481, 482 Sculpture</b>	(3, 3)
<b>ART 442 Kiln Construction</b>	(3)	<b>ART 491, 492 Painting</b>	(3, 3)
<b>ART 451, 452 Drawing</b>	(3, 3)		

## **Auto Body and Fender**

(School of Industry and Technology)

**ABF 100 Applied Mathematics (3)**

A brief review of the arithmetic, shop mathematics, and algebra needed to handle the mathematical aspects of auto mechanics.

**ABF 110 Auto Body Repair and Refinishing I (8)**

An introduction to theory and practices of auto body repair and refinishing, including metal conditioners, primers, sealers, surfacers, reducers, thinners, the different types of paints and the techniques used to apply them. Also metal work, filler work and adjustment of panels and replacement of panels.

**ABF 120 Auto Body Repair and Refinishing II (8)**

A continuation of ABF 110. Prerequisite: ABF 110 or consent of instructor.

**ABF 130 Auto Reconditioning (3)**

Instruction in new-car preparation; glass removal and installation; minor panel repair and refinishing; spot painting; cleaning, dyeing and repair of upholstery; cleaning and airbrush painting; exterior finish buffing and polishing; general automotive detail procedures.

- ABF 140 Oxyacetylene Welding** (3)  
Theory and practice of oxyacetylene welding of mild steel; identification of base and filler metals and melting temperatures of various metals. Special emphasis on root penetration and fusion of welding materials.
- ABF 150 Arc Welding** (2)  
A beginning course in welding mild steel in down-hand position with electric arc welding equipment. Proper care, use of equipment, and safety precautions and practices are heavily stressed.
- ABF 200 Panel and Spot Painting** (3)  
Paint composition, refinishing products and their correct usage, color matching, and procedures to be used in making a lacquer or acrylic spot repair.
- ABF 210 Frame Repair** (2)  
Inspection, measurement and repair methods used to repair unitized and conventional frames.
- ABF 220 Shop Management** (3)  
Study of shop operation, expenditures, floor-plan design and equipment for the modern day shop. Expectations and management of employees.
- ABF 230 Auto Body Repair and Refinishing III** (5)  
A continuation of shop learning practices and severe collision repair procedures. Emphasis on metal work and spot painting. Concentration of shop and learning experiences in areas in which students wish to specialize. Prerequisite: ABF 120 or consent of instructor.
- ABF 240 Auto Body Repair and Refinishing IV** (5)  
A continuation of ABF 230. Prerequisite: ABF 230 or consent of instructor.
- ABF 250 Estimating** (3)  
Study of parts catalogs, flat rate, remove-and-replace procedures, insurance appraisals, and the writing of collision repair bids.
- ABF 295, 296 Special Studies in Auto Body** (1, 2)  
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent.

## **Auto Mechanics**

### **(School of Industry and Technology)**

- AMEC 105 Introduction to Automotive Systems** (2)  
An introduction to automotive systems and how they work. Identification of parts, components and tools. Required for students with no previous background.
- AMEC 110 Beginning Welding for Auto Mechanics** (2)  
A beginning course in gas and arc welding designed to help the auto mechanic develop basic skills for maintenance and repair welding on cars and trucks.
- AMEC 111 Applied Math for Auto Mechanics** (2)  
A brief review of the arithmetic, shop math, and algebra needed to handle the mathematical aspects of auto mechanics.
- AMEC 113 Internal Combustion Engines** (4)  
A basic study of internal combustion engines, dealing with types, design, construction, principles of operation, and application of engine components. Includes the disassembly and assembly of the four-cycle gasoline engine, measuring of parts, and the recognition of damaged and worn parts.
- AMEC 114 Engine Rebuilding and Repairs** (6)  
Designed to develop basic skills in the specialized field of automotive engine rebuilding. Includes reconditioning valve seats and guides, surface grinding, and general engine rebuilding and repair. Prerequisite: AMEC 113.

**AMEC 121 Clutches, Standard Transmissions and Overdrives (2)**

Designed to give a working knowledge of the pressure-plate assembly, clutch disk, clutch pedal and linkage, release bearing, pilot bearing, gears, gear ratios and synchromesh transmissions.

**AMEC 122 Drivelines and Differentials (2)**

A comprehensive study of U-joints, drive shafts, engine mounts, and conventional or limited-slip differentials. Nomenclature, gear and bearing failure, repair, and adjustment of components are included in the instruction.

**AMEC 123 Carburetors (3)**

A study of the chemical properties of fuels, fuel and air ratios, metering, atomizing, vaporizing and mixing. Single, dual and four-barrel carburetors, single and double-action fuel pumps of all popular makes are included in a thorough study of the fuel system.

**AMEC 124 Electrical Systems (3)**

Starters, generators, alternators, voltage regulators, solenoids, switches, relays, lights, wiring and cables. A complete lab for the servicing and adjustment of these units uses the latest equipment.

**AMEC 125 Automotive Brake Systems (3)**

Servicing and repair of the hydraulic brake system. Includes the basic principles of hydraulics; servicing the linings, drums, cylinders, lines, and power-booster units; adjusting and bleeding the system.

**AMEC 127 Automatic Transmissions (3)**

The principles of operation of planetary-gear sets, fluid couplings, torque converters, servo bands, clutch packs and control circuits.

**AMEC 133 Air Conditioning (2)**

An introduction to the principles of refrigeration; the methods of operation and control; assembly of connections and components; proper handling of refrigerants; use of testing equipment; conducting efficiency tests; and general maintenance work.

**AMEC 136 Ignition Systems (3)**

All units comprising the ignition system, including primary and secondary circuits, distributor and related parts, coil, ignition switch, resistors, spark plugs, cables and wiring, ignition timing, and all adjustments and service procedures.

**AMEC 139 Emission Control (3)**

A comprehensive study of emission-control systems dealing with types, design, and principles of operation; problems encountered with these systems; and the necessary adjustments and repairs.

**AMEC 140 Alignment and Wheel Balance (3)**

The alignment section includes pre-alignment inspection and the theory and practice of the five basic angles of front-end geometry. The strobelight on-car method is studied in the wheel-balancing section.

**AMEC 141 Suspension Repair (3)**

Shocks, springs, axles, suspension components, and steering gears. Theory and practice.

**AMEC 295, 296 Special Studies in Auto Mechanics (1, 2)**

Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent.

# Biology

## (School of Natural Sciences and Mathematics)

### **BIOL 010 Survey of Biology (2)**

The origin of life and its relation to chemistry and physics. The student is introduced to the structural concepts of life, beginning with the cell and progressing through the tissue, organ-system, organism, and population levels. Classification allows one to explore the living and non-living interactions which direct life. The role of energy as it affects cell divisions, growth, development, and diversity is studied. An introductory course for students with limited background in the sciences.

### **BIOL 101, 102 General Biology (2, 2)**

### **BIOL 101L, 102L General Biology Laboratory (1, 1)**

Lectures and laboratory work on such topics as ecology, pollution, drugs, sex education, behavior, disease problems, body structure and function, phylum relationships, plant growth and development, and organic gardening. Fulfills general education requirement in life sciences for students of subjects other than biology. Biology majors will not receive graduation credit for this course. Two lecture and one two-hour laboratory session per week.

### **BIOL 105 Attributes of Living Systems (3)**

### **BIOL 105L Attributes of Living Systems Laboratory (1)**

A study of organization, stability and change in living systems. Three lectures and one two-hour laboratory session per week.

### **BIOL 106 Principles of Animal Biology (3)**

### **BIOL 106L Principles of Animal Biology Laboratory (2)**

The broad morphological, physiological, and ecological features of the principal phyla of animals and the relationships between them. Prerequisite: BIOL 105 or consent of instructor. Three lectures and two two-hour laboratory sessions per week.

### **BIOL 107 Principles of Plant Biology (3)**

### **BIOL 107L Principles of Plant Biology Laboratory (2)**

Survey of plant cells and the plant kingdom. Includes fundamental concepts about roots, stems, leaves, and reproductive structures as well as the morphology, reproduction, and phylogeny of all plant phyla. Prerequisite: BIOL 105 or consent of instructor. Three lectures and two two-hour laboratory sessions per week.

### **BIOL 110 Natural Resource Occupations (1)**

An orientation program designed to acquaint the student with the varied natural resource professions and job characteristics. One lecture per week.

### **BIOL 111 Conservation of the Environment (2)**

A survey of natural resources including forests, range, minerals, water, and wildlife as well as national, state and local policies and programs for the use of such resources. Two lectures per week.

### **BIOL 113 Outdoor Survival (3)**

A course involving vigorous physical activity which covers survival in many different situations. Requires memorization and recognition of poisonous and non-poisonous plants, snow camping, and eating unusual items. Personal camping equipment required. Two three-hour lectures each week and four overnight weekend field trips.

### **BIOL 141 Human Anatomy and Physiology (3)**

### **BIOL 141L Human Anatomy and Physiology Laboratory (2)**

A general introduction to human physiology for the student who has little or no training in the biological and physical sciences at the college level. For the general student as well as students of nursing, physical education, and paramedical fields. Three lectures and two two-hour laboratory sessions per week.

**BIOL 143 Human Anatomy and Physiology for Dental Assistants and Medical Office Assistants (3)**

Intended to provide a basic knowledge of anatomy and physiology with emphasis on the structures and functions which are important in treating dental and medical patients. Three lectures per week.

**BIOL 201 Developmental Biology (4)**

**BIOL 201L Developmental Biology Laboratory (1)**

Study of the embryonic growth and development of both plants and animals. Errors in normal development, cancer, aging, and related topics are presented. Four lectures and one two-hour laboratory session per week.

**BIOL 202 Cellular Biology (3)**

**BIOL 202L Cellular Biology Laboratory (1)**

The form, function, and bioenergetics of the cell. Prerequisite: BIOL 105 and BIOL 106 or consent of instructor. Three lectures and one two-hour laboratory session per week.

**BIOL 203 Evolution (3)**

A study of evolution emphasizing its importance as the unifying theory of biology. The consequences of natural selection on the genetic structure of plant and animal populations. Prerequisites: BIOL 101, BIOL 102, or BIOL 105. Three lectures per week.

**BIOL 211 Ecosystem Biology (4)**

**BIOL 211L Ecosystem Biology Laboratory (1)**

A course to provide an elementary understanding of ecology utilizing the population biology concepts of population genetics, energetics, dynamics, distribution, and sociology. Overnight and/or weekend field trips may be required. Four lectures and one two-hour laboratory session per week.

**BIOL 220 Plant Systematics (2)**

**BIOL 220L Plant Systematics Laboratory (2)**

Systematics of the flowering plants, chiefly of this region. Emphasis is on family characteristics and use of keys in identification. Assumes a knowledge of basic principles of botany. Two lectures and two two-hour laboratory sessions per week.

**BIOL 231 Invertebrate Zoology (3)**

**BIOL 231L Invertebrate Zoology Laboratory (1)**

A study of the invertebrate phyla; their structure, physiology, classification and life histories. The insects and parasitic worms are introduced but not emphasized. Work on independent project is required. Three lectures and two two-hour laboratory sessions per week.

**BIOL 241 Pathological Physiology (4)**

A study of the functions of the human body with emphasis on interpretation of those functions in relation to disease processes. Prerequisite: BIOL 141 or BIOL 341. Four lectures per week.

**BIOL 250 General Microbiology (2)**

**BIOL 250L General Microbiology Laboratory (2)**

An introductory program covering the general biology of the microorganisms. Two lectures and two two-hour laboratory sessions per week.

**BIOL 261 Independent Study in Biology (1)**

A course which allows a student to pursue individual study in some area of biology. Prerequisites: consent of instructor and biology background in the area of study.

**BIOL 262 Independent Study in Biology (2)**

See description and prerequisites under BIOL 261.

**BIOL 311 Multiple Resource Management (3)**

**BIOL 311L Multiple Resource Management Laboratory (1)**

A broad study of natural resources and their management, especially various mineral and biological resources, land uses and personal resources. Prerequisites: BIOL 105, BIOL 106, BIOL 107, and BIOL 211. Three lectures and one three-hour laboratory session per week.

- BIOL 315 Epidemiology** (3)  
A study of the characteristic patterns of communicable disease occurrence as related to individuals, geographic location, and time. The factors affecting disease occurrence, the nature of vital statistics, and study design and sampling procedures also introduced. Three lectures per week.
- BIOL 321 Taxonomy of Grasses** (1)  
**BIOL 321L Taxonomy of Grasses Laboratory** (2)  
A study of the grass family, its relationships and identification. Emphasis will be placed on the floristic composition, distribution of grass communities, and field identification in the forest and range related environments. One lecture and two two-hour laboratory sessions per week.
- BIOL 341 General Physiology** (3)  
**BIOL 341L General Physiology Laboratory** (1)  
A study of the functions of the circulatory, nervous, respiratory, digestive, urinary, reproductive and endocrine systems of the human body. Prerequisite: BIOL 106 or consent of instructor. Three lectures and one two-hour laboratory session per week.
- BIOL 342 Histology** (2)  
**BIOL 342L Histology Laboratory** (2)  
Microscopic study of tissues and organs. Prerequisites: BIOL 105 and BIOL 106 or BIOL 107 and consent of instructor. Two lectures and two two-hour laboratory sessions per week.
- BIOL 351 Independent Study in Biology** (1)  
See description and prerequisites under BIOL 261.
- BIOL 362 Independent Study in Biology** (2)  
See description and prerequisites under BIOL 261.
- BIOL 401, 402 Seminar** (1)  
Discussions of current problems, topics, and research procedures in biological sciences and medicine. Topics of the seminar announced each semester. Prerequisites: sophomore classification and consent of instructor. One one-hour session per week.
- BIOL 411 Mammalogy** (2)  
**BIOL 411L Mammalogy Laboratory** (1)  
The classification, life histories, and ecology of mammals together with practice in the preparation of skins for study. Overnight and/or weekend field trips may be required. Two lectures and one two-hour laboratory session or three-hour field trip per week.
- BIOL 412 Ornithology** (2)  
**BIOL 412L Ornithology Laboratory** (1)  
The classification and life histories of birds, including identification in the field. Overnight and/or weekend field trips may be required. Two lectures and one two-hour laboratory session or three-hour field trip per week.
- BIOL 413 Fauna of Western Colorado** (2)  
**BIOL 413L Fauna of Western Colorado Laboratory** (1)  
A field course to investigate the ecological, behavioral, and environmental physiology of all classes of western Colorado animals. Offered summer sessions only. Prerequisite: one year of biology or consent of instructor. Two lectures and twenty hours of field work per week.
- BIOL 414 Aquatic Biology** (2)  
**BIOL 414L Aquatic Biology Laboratory** (1)  
Classification, life history, and ecology of aquatic animals. Overnight and/or weekend field trips may be required. Two lectures and one two-hour laboratory session per week.

- BIOL 421 Plant Physiology** (3)  
**BIOL 421L Plant Physiology Laboratory** (2)  
 Study of plant growth and development at the molecular and cellular level to understand plant growth at the organismic level. Three lectures and two two-hour laboratory sessions per week.
- BIOL 422 Field Botany** (2)  
**BIOL 422L Field Botany Laboratory** (1)  
 A field-oriented botany course dealing with the structure and analysis of plant communities. This course will encompass plant identification (not classification), vegetation sampling, data analysis (i.e., dominant species determination), and plant collection techniques. Two lectures and one two and one-half hour field session per week.
- BIOL 423 Plant Anatomy** (3)  
**BIOL 423L Plant Anatomy Laboratory** (2)  
 Study of the form, variability, and structure of the tissues comprising the higher plant body. Prerequisites: BIOL 105, BIOL 107, and BIOL 107L. Three lectures and two two-hour laboratory sessions per week.
- BIOL 430 Penned Animal Hygiene** (2)  
**BIOL 430L Penned Animal Hygiene Laboratory** (1)  
 Study of management and care of laboratory animals and wild animals kept in captivity. Field trips are required. Two lectures and one two-hour laboratory session per week.
- BIOL 431 Animal Parasitology** (3)  
**BIOL 431L Animal Parasitology** (1)  
 Study of the most common and important parasites of domestic animals and man. Included are their ecology, epidemiology, diagnosis, and control. Three lectures and one two-hour laboratory session per week.
- BIOL 441 Endocrinology** (3)  
**BIOL 441L Endocrinology Laboratory** (1)  
 Lectures cover the anatomy and physiology of the endocrine system of vertebrates while the laboratory emphasizes its normal and abnormal functions. Prerequisite: BIOL 106 or consent of instructor. Three lectures and one two-hour laboratory session per week.
- BIOL 442 Pharmacology** (3)  
 Principles underlying absorption, distribution, metabolism, and excretion of drugs. Special emphasis is given to the interaction between chemical substances or drugs and living organisms at all levels of organization. Prerequisite: BIOL 141 or consent of instructor. Three lectures per week.
- BIOL 460, 461, 462, 463, 464 Externships** (2, 4, 6, 8, 10)  
 A student may receive credit for work experience obtained on a job where the assignments are primarily biological projects. The number of credit hours awarded to the student is determined by the school. Prerequisites: biology major and senior standing with either a 2.8 grade-point average in major courses or consent of faculty.

## **Business, General**

### **(School of Business)**

- BUGB 101 Introduction to Business** (3)  
 How the American business system operates and its place and role in the economy. American business system survey with emphasis on business functions and interrelations between the businessman and his environment. (Fall, Spring.)
- BUGB 141 Business Mathematics** (3)  
 Begins with a fundamental review of whole numbers, decimals and fractions. Emphasis is placed on percentage applications to solving various business problems



in the areas of buying and selling merchandise; inventory computations; interest computations on notes and savings, consumer credit and installment computations; home mortgage loans; business depreciation computations; and tax and payroll computations. Electronic calculators are utilized in solving problems. (Fall, Spring.)

**BUGB 211 Business Communications (3)**

The student develops a non-defensive, supportive communication system effectively applied to interpersonal and written transactions within the business organization. Prerequisite: ENGL 111. (Fall, Spring.)

**BUGB 221 Insurance (3)**

A study of the common types of protection offered by insurance, including fire, theft, comprehensive, life, automobile, accident, and health. Emphasis will be on the application of insurance to individuals and small business firms. (Spring.)

**BUGB 241 Income Tax (3)**

Covers the following areas of personal income tax: filling out personal tax returns, exemptions, determining taxable income, adjustments to gross income, itemized deductions, rental income, depreciation, capital gains and losses. Not for Accounting majors. (Spring.)

**BUGB 249 Personal Finance (3)**

Managing personal finances, including income, personal budgeting, taxes, securing loans, consumer credit, insurance, buying a home, introduction to investment. (Spring.)

**BUGB 251 Business Law I (3)**

Covers contracts (formation, requirements, interpretation, discharge, and enforcement); agency law; other contracting parties. Includes analysis of the concepts of real and personal property and an introduction to the partnership form of ownership (Fall.)

**BUGB 252 Business Law II (3)**

Explores the corporate form of ownership as artificial persons doing business, and introduces the Uniform Commercial Code as the primary law covering: sales (terms of sales contracts, product liability, performance and breach); commercial paper (instruments used as a monetary substitute, such as checks, drafts, and promissory notes); credit (security interests in real and personal property). Prerequisite: BUGB 251. (Spring.)

## ***Business, Management***

### **(School of Business)**

**BUMA 121 Human Relations in Business (3)**

Explores the human side of organizations: morale, motivation, human needs, minorities as working partners, leadership styles, organizational environment and other human forces having an impact on business structures. (Fall, Spring.)

**BUMA 201 Principles of Management (3)**

An in-depth study of management as the process of achieving organizational goals or objectives by and through others. Emphasis will be placed on the functions performed by managers and how they are influenced by forces both within and outside the organization. Managers' use of resources will be investigated. (Fall, Spring.)

**BUMA 221 Supervisory Concepts and Practices (3)**

Designed for practicing or potential supervisors and managers who hold or will hold first-line to middle-level management positions. Focuses on the management functions of planning, organizing, staffing, directing, and controlling and their relation to the daily job of the supervisor. (Spring.)

**BUMA 264, 265 Related Work Experience (1, 2)**

See BUAC 264, 265 course description.

**BUMA 301 Organization Theory (3)**

Study of essential elements necessary to any business' organizational structure from the point of view of both management theory and practice. Case studies of business organizations are included. Prerequisite: BUMA 201 or consent of instructor. (Fall.)

**BUMA 302 Problems in Small Business Operations (3)**

Analysis of managerial problems of the small business. Case studies, outside speakers, and individual reports of local small business enterprises supplement class discussions. Students must have an understanding of elementary accounting, finance, and business law, or have experience in small business operation. Prerequisites: BUMA 201, BUMK 231 and three hours of BUAC courses beyond 202.

**BUMA 331 Quantitative Decision-Making (3)**

Includes application of inferential statistics to realistic business situations and use of quantitative tools to enhance business decision-making ability. Covers such areas as descriptive statistics for data summarization, probability theory, distributions, estimation, and index numbers. Particular emphasis is given to hypothesis testing. Analysis of variance, regression/correlation analysis, and time series analysis. Introduction to operations research and linear programming. Prerequisites: MATH 121, STAT 214. (Spring.)

**BUMA 339 Managerial Finance (3)**

Acquisition, allocation, and management of funds within the business enterprise. Financial goals, funds flows, capital budgeting, and financing strategies. Prerequisites: BUAC 201, MATH 121, STAT 214. (Fall.)

**BUMA 351 Preparing for Job Placement (3)**

A study of the principles and techniques involved in a successful job search. Emphasis is placed on conducting a career research, identification of goals, preparing a successful job campaign and elements of a successful job interview. The student prepares a job kit including a prospect list, resume, cover letter, advertisements, prospect letters, and sales and follow-up letters which can be used in a job search. Prerequisite: junior or senior standing or permission of the instructor. (Fall.)

**BUMA 361, 362 Independent Study in Management (1, 2)**

An opportunity for a student with a previously developed interest in and knowledge of a specialized subject to continue the work. Students must apply for the course through their advisers at least three weeks prior to the end of the semester preceding the semester in which they wish to take the Independent Study. Only students who have completed 12 credit hours of work in the field chosen for the study and who have a cumulative grade-point average of 2.75 or higher will be allowed to enroll for credit in this upper-division course. Consent of instructor required. (Fall, Spring.)

**BUMA 371 Personnel Management (3)**

A study of the effective use and adaptation to the human resources of an organization through the management of people related activities. Emphasis will be placed on the interface activities forming the core of personnel management: work, staffing, compensation, appraisal, training and development, organizational maintenance, and unions. Offered even years only. (Spring.)

**BUMA 401 Advanced Problems in Small Business Operations I (6)**

Sponsored by the Mesa College School of Business and the Small Business Administration, a Small Business Institute program enables upper-division business students to furnish management assistance to members of the small business community. The program provides students practical training which supplements academic theory by permitting them to handle problems in a real business environment. Students must apply to the School of Business at least three weeks before the end of the semester preceding the semester in which they wish to participate. Prerequisite: BUMA 302 and/or permission of instructor. Credit not available through competency or challenge. (Fall.)

**BUMA 402 Advanced Problems in Small Business Operations II (6)**

Continuation of Advanced Problems in Small Business Operations I. Prerequisites: BUMA 302 and/or permission of instructor. (Spring.) (Not necessary to complete BUMA 401 before 402)

**BUMA 421 Credit and Collection Management (3)**

The various kinds of consumer and commercial credit are studied in relationship to the management of credit by business firms. The legal aspects of credit extension as well as current legislation are investigated. Provides information and understanding of credit operations of business for both students of business and practicing businessmen. Prerequisites: BUAC 202 and BUMA 201 or permission of instructor. (Spring.)

**BUMA 439 Problems in Managerial Finance (3)**

Case studies and readings in financial management involving concepts, practices, and techniques introduced and developed in BUMA 339. Prerequisite: BUMA 339. (Spring.)

**BUMA 451 Management Internship (15)**

An opportunity for the student to learn more about management functions and activities through exposure to an actual business or agency environment. Students observe and participate in management activities which enable them to relate classroom theory to on-the-job experiences. Students must apply for this course at least five weeks prior to the end of the semester preceding the semester in which they wish to take the course. Credit not available through competency or challenge. Prerequisites: Management major and permission of the instructor. (Fall, Spring.)

**BUMA 464, 465 Related Work Experience (1, 2)**

See BUAC 264, 265, 464, 465 course descriptions.

**BUMA 471 Production Management (3)**

Use of resources in producing goods and services. Concepts of planning, scheduling, and controlling productive activities and physical resources. Prerequisites: BUMA 301 and 339. Offered odd years only. (Spring.)

**BUMA 491 Business Policies and Management (3)**

Duties and responsibilities of top management in establishing policies, objectives and future plans for business organizations. Study of complex cases and actual experience in real situations involving policy decisions. Required of all BBA majors during the last semester of the senior year. Prerequisites: All required management and accounting courses and senior standing. (Spring.)

## **Business, Marketing**

### **(School of Business)**

**BUMK 135 Salesmanship (3)**

The salesperson is viewed as a counselor whose role is to help buyers make better decisions, and professional salesmanship is recognized as an integral function in modern society. Basic sales techniques are studied and practiced in sales presentations. (Fall.)

**BUMK 231 Principles of Marketing (3)**

The use and development of marketing strategy and the effects of buyer motivation are the overall theme as the major functions of marketing are explored: buying, selling, distribution, pricing, advertising and storage. A contrast is made between the two marketing institutions, wholesaling and retailing. (Fall.)

**BUMK 232 Advertising (3)**

An introductory course in modern advertising principles, including a study of advertising practices, terminology, the communication process, advertising agencies, media, and methods. The course looks at advertising from the business viewpoint but also emphasizes its importance to the consumer and the economy. (Spring.)

- BUMK 325 Retailing** (3)  
A look at the retailing environment including retail opportunities, sales stimulation, operating policies and practices, control, and service. Case studies and outside speakers supplement the class lectures. Prerequisites: BUMK 231 Principles of Marketing. (Fall.)
- BUMK 432 Advanced Marketing** (3)  
An in-depth study of the complex marketing problems which confront modern business and the development of marketing strategy which will allow the firm to progress toward its corporate objectives. Prerequisite: BUMK 231. (Fall.)
- BUMK 433 Marketing Research** (3)  
A study of marketing research theory and techniques. Specific objectives are to educate the student in the use of the scientific method, to develop the student's analytical ability, to familiarize the student with basic marketing research tools, and to develop the student's proficiency in the art of writing research reports. Cases and actual research projects will be utilized. Prerequisites: BUMK 432, BUMA 331.

## **Career Counseling and Guidance**

(School of Social and Behavioral Sciences)

- CCG 290 Occupational Studies** (30)  
This general program requirement may be completed in the following ways: (1) Work experience may be submitted for evaluation for a possible maximum credit award of 24 semester hours; (2) the student may use coursework in business, vocational technical, or other career oriented courses approved by the Program Director; or, (3) a combination of options (1) and (2).
- CCG 320 Principles of Career Guidance and Job Development** (3)  
Topics include career education, career development theory, factors influencing career development, individual and group counseling. Job development and placement are analyzed as a coordinated cooperative activity.
- CCG 324 Career Information and Decision Making** (3)  
Analysis of the types and sources of career information and its various uses in career counseling with special emphasis on decision making theories and processes.
- CCG 420 Counseling Processes and Techniques** (3)  
Exploration and examination of counseling principles and practices which facilitate interpersonal communication and effective career development. Counseling skills in attending behavior, listening, problem exploration, responding, understanding and modes of action are examined, discussed, and applied in classroom counseling situations.
- CCG 422 Personnel and Guidance Interviewing** (3)  
Career guidance and personnel interviewing methods are discussed and practiced in classroom situations. Topics include various types of interviews used in personnel and management situations, questioning techniques, and interpretation of interview findings. Counts as management course for all BBA candidates.
- CCG 424 Group Guidance Processes and Techniques** (3)  
Emphasis is on group procedures and processes for helping others to develop self-understanding leading to effective personal and career plans and decisions. Recently developed career guidance and counseling materials and programs are discussed.

- CCG 440 Practicum—Business (4)  
 CCG 442 Practicum—Education (4)  
 CCG 444 Practicum—Government (4)

Students are required to select two practicum areas from among the three offered by Mesa College and are placed under professional supervision to gain useful experience and practice in personnel, counseling, and guidance activities. Selection of practicums to be taken will be made with the approval of the program director. Primary consideration will be given to previous work experience and personal career goals. A typed paper must be submitted for approval and course credit. All students will meet at least one hour per week on campus with college faculty for consultation and evaluation of individual progress. Students who have received credit for work experience under CCG 290 may be allowed to substitute coursework for one or both practicums with the approval of the Program Director.

## Chemistry

### (School of Natural Sciences and Mathematics)

#### CHEM 121 General Chemistry (4)

A lecture course in fundamental principles of chemistry and their application. Includes atomic structure, bonding, periodic law, gas laws, mass relationships, solution theory, oxidation-reduction, electrochemistry, and ionic equilibrium. Designed for students in liberal arts, nursing, homemaking, and agriculture. Prerequisite: high school algebra or satisfactory entrance examination scores. Four lectures per week.

#### CHEM 121L General Chemistry Laboratory (1)

Laboratory work designed to acquaint the student with procedures and techniques of basic chemistry. Work involves measurement and observation of physical properties and chemical changes. One three-hour session per week. (CHEM 121L usually offered also in Summer Session.)

#### CHEM 122 Introductory Organic Chemistry (4)

A lecture course in fundamental principles of organic chemistry. Included are nomenclature and chemical and physical properties of selected classes of compounds. Carbonium ion and acid-base theories are introduced. Intended to be a continuation of CHEM 121. Four lectures per week. Prerequisite: CHEM 121 or CHEM 131.

#### CHEM 122L Introductory Organic Chemistry Laboratory (1)

Laboratory work designed to acquaint the student with several fundamental organic laboratory procedures, properties of selected classes of compounds, and some of the methods of preparative organic chemistry. One three-hour session per week.

#### CHEM 131, 132 General Inorganic Chemistry (4, 4)

A lecture course in fundamental principles of general inorganic chemistry. Included are atomic structure, bonding, periodic law, kinetic theory, gas laws, stoichiometry, solution theory, oxidation-reduction, electrochemistry. Ionic equilibrium in solution is emphasized. Intended for students of chemistry, engineering, pre-medicine, pre-veterinary medicine, and other sciences. Corequisite: MATH 113. Prerequisites: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.

#### CHEM 131L, 132L General Inorganic Chemistry Laboratory (1, 1)

Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week.

**CHEM 151 Engineering Chemistry (4)**

Selected fundamentals of chemistry. Included are stoichiometry, periodic law, chemical bonding, gas laws, thermodynamics, equilibrium, oxidation and reduction, and electrochemistry. Not recommended for non-engineering students or chemical engineering students. Corequisite: MATH 113. Prerequisites: high school chemistry and satisfactory ACT scores or CHEM 121. Four lectures per week.

**CHEM 151L Engineering Chemistry Laboratory (1)**

Experiments in descriptive chemistry, gas laws, equilibrium, electrochemistry, and inorganic qualitative analysis. One three-hour session per week.

**CHEM 201 Life Science Organic Chemistry (4)**

A lecture course on the chemical and physical properties of the major classes of organic compounds. Nomenclature, structure, stereoisomerism, and reactions are stressed. Particular emphasis is placed on biological applications. Prerequisite: CHEM 132 or consent of instructor. Four lectures per week.

**CHEM 201L Life Science Organic Chemistry Laboratory (1)**

Laboratory work providing experience with fundamental techniques as well as with reactions and properties of organic compounds. Selected synthetic and analytical methods are introduced. Particular emphasis is placed on life science applications. One three-hour session per week.

**CHEM 202 Biochemistry (4)**

A lecture course on metabolism in its broadest sense and the parts played in it by carbohydrates, lipids, proteins, and enzymes. Prerequisites: CHEM 132 and CHEM 201 or CHEM 212. Four lectures per week.

**CHEM 202L Biochemistry Laboratory (1)**

Laboratory work providing experience with fundamental biochemical techniques as well as with enzymatic reactions and some reactions of carbohydrates, lipids, and proteins. One three-hour session per week.

**CHEM 211, 212 Organic Chemistry (3, 3)**

A lecture course on the chemical and physical properties of the major classes of organic compounds. Mechanistic, stereochemical, acid-base, and related theories are used throughout to relate types of reactions and unify the study. Prerequisite: CHEM 132 or consent of instructor. Three lectures per week.

**CHEM 211L, 212L Organic Chemistry Laboratory (2, 2)**

Laboratory work providing experience with fundamental techniques as well as with reactions and syntheses of many classes of compounds. Classical qualitative analysis is introduced. Some experience with methods used to establish theoretical principles is also obtained. Two three-hour sessions per week.

**CHEM 221 Instrumental Methods of Analysis (1)**

A lecture course in fundamental principles of instrumental analysis. Prerequisite: CHEM 132 or consent of instructor. One lecture per week. Not offered every year.

**CHEM 221L Instrumental Methods of Analysis Laboratory (2)**

Laboratory work providing experiences in instrumental analytical methods. Because of the instruments available, emphasis is on inorganic analyses by spectroscopic methods. Two three-hour sessions per week. Not offered every year.

**CHEM 248 Independent Study in Chemistry (1)**

A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her work. It is expected that most such work will be original; however, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of instructor. Work schedule by arrangement.

**CHEM 249 Independent Study in Chemistry (2)**

See Independent Study course description under CHEM 248.

# Computer Science

## (School of Natural Sciences and Mathematics)

### **CSCI 100 Computers in our Society (3)**

An introduction to the organization of computer systems. Study of the techniques and applications of computing in non-technical disciplines. Application of computational techniques to problems in such fields as art, education, economics, political science, literature, archaeology, history and medicine. Discussion of the role of the computer in society. Emphasis is upon recognizing and understanding both the power and limitations of the computer in various fields. Topics will include physical and logical aspects of computing; flowcharting and programming in high level languages; data bases and information retrieval; numerical and nonnumerical computation; simulation. Three lectures per week.

### **CSCI 111 Introduction to Computing (3)**

History of computers, descriptions of a typical computer, computer elements and symbolism, computer control and data flow, peripheral components, memory devices, problem solving using a programming language. Three lectures per week.

### **CSCI 131 Introduction to Fortran Programming (3)**

Various mathematics, science and engineering problems are put in FORTRAN language and then run on the high-speed computer. Problems using function subprograms; external statements; transferring data to and from tape; name-list statements; computer solution of engineering problems. Prerequisite: MATH 113 or consent of instructor. Three lectures per week.

### **CSCI 131L Introduction to Fortran Programming Laboratory (1)**

Various FORTRAN programs are run on the high-speed computer. Laboratory work consists of running and debugging them. It also includes operating the console, printer, and reader as well as using the disk and tape drives connected with the computer. Prerequisite: MATH 113. Two one-hour sessions per week.

### **CSCI 133 Introduction to Pascal Programming (3)**

An introduction to PASCAL and the concepts of structured programming. Various programming topics and techniques such as character manipulation, arrays, modular programming, searching and sorting techniques, files and records, data structures. Prerequisite: CSCI 111. Three lectures per week.

### **CSCI 133L Introduction to Pascal Programming Laboratory (1)**

An introduction to PASCAL and the concepts of structural programming. Work consists of running and debugging programs. Prerequisite: CSCI 111. Two one-hour sessions per week.

### **CSCI 135 Cobol Programming (3)**

See the BUDP 131 course description. Computer science students normally enroll in BUDP 131 but are offered this course upon demand when BUDP is not being taught. Three lectures per week.

### **CSCI 230 Assembly Language Programming (3)**

Computer structure and machine language; addressing techniques; digital representation of data; symbolic coding and assembly systems; selected programming techniques. Prerequisite: At least one high level language or consent of instructor. Three lectures per week.

### **CSCI 230L Assembly Language Programming Laboratory (1)**

Various Assembly Language programs are run on the high speed computer. Work consists of running and debugging them. It also includes operating the console, printer, and reader as well as using the disk and tape drives connected with the computer. Prerequisite: CSCI 133. Two one-hour sessions per week.

### **CSCI 240 Computer Architecture (3)**

A survey of computer architectures, memory structures and addressing, arithmetic schemes, data channels, order codes, microprogramming, and multiprocessors. Prerequisite: CSCI 230. ENGR 251 recommended. Three lectures per week.

**CSCI 250 Information Structures (3)**

A study of information representations and relationships between forms of representations and processing techniques. Transformation between storage media; referencing of information as related to the structure of its representation. Concepts of arrays, records, files, trees, list and list structure, sorting and search techniques. Corequisite: CSCI 230. Three lectures per week.

**CSCI 330 Programming Languages (3)**

Algorithmic languages, declarations, storage allocation, subroutines, coroutines and tasks. Principles and concepts which characterize various classes of high-level computer-programming languages. List-processing language development and use. Analysis of strengths and weakness of list processors: SNOBOL, IPL-V, LISP, etc. Prerequisites: CSCI 111, 230, 250. Three lectures per week.

**CSCI 341 Analog and Digital Computer Electronics (3)**

Basic elements and technologies used to fabricate analog and digital computers; laboratory experience in constructing simple computer subsystems. Theory and application of hybrid computers. Prerequisite: MATH 260. Three lectures per week.

**CSCI 373 Computer Software Systems (3)**

Assembly systems, macros, I/O programming, executive systems, protection techniques, generation and maintenance, priority and scheduling techniques for batch-processing. Prerequisite: CSCI 240. Three lectures per week.

**CSCI 380 Operations Research (3)**

Methods of linear and dynamic programming; inventory and replacement models; queuing theory; game theory; PERT and CPM and simulation. Prerequisites: MATH 152, STAT 200, CSCI 131. Three lectures per week.

**CSCI 450 Compiler Structure (3)**

A review of major problem-oriented languages; bootstrapping techniques and metacompilers; languages for compiler writing, storage allocation and mapping, dynamic allocations, scanners, code emitters, one pass and multi-pass systems, code optimization. Prerequisites: CSCI 330, 373. Three lectures per week.

**CSCI 460 Data Base Design (3)**

An introduction to the design and implementation of data base systems. The network, hierarchical, and relational approaches to design will be discussed. Also, the problems of security and integrity will be described. Prerequisite: CSCI 230. Three lectures per week.

**CSCI 470 Operating Systems Design (3)**

Aspects of computer operating system design and implementation including memory management, processor management, device management, information management. Performance evaluation methods. Prerequisite: CSCI 330. Three lectures per week.

**CSCI 491, 492 Independent Study (1, 2)**

Provides the student a means to pursue an area of interest which is not in the normal curriculum. The assistance and direction of a department faculty member and the consent of the instructor are requisites.

**CSCI 495, 496 Seminar (1, 1)**

Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit.

## **Data Processing**

(School of Business)

**BUDP 101 Business Data Processing (3)**

An introduction to computers and business data processing systems. Fundamentals of computer programming are developed by writing programs in BASIC. An opportunity to investigate this rapidly growing area. (Fall, Spring).



**BUDP 111 Basic Programming Keypunch (1)**

An introductory five-week course in the basic operations and applications of the keypunch with special emphasis on keypunching computer-programming languages. Not recommended for data processing majors or those seeking keypunch job-entry skills. Offered only upon sufficient demand.

**BUDP 112 Keypunch and Verifier (2)**

A preliminary course in the fundamentals of the keypunch and verifier to develop the necessary operational skills for job entry. Includes IBM Sorter operation. Recommended for data processing majors and those interested in job entry skills. Prerequisite: Typing or consent of the instructor. Offered only upon sufficient demand.

**BUDP 113 Production Keypunch (1)**

An advanced course in the operation of the keypunch, verifier, and sorter. Speed and efficiency are developed through application of business problems and community business experience. Includes methods of using companion equipment. Offered only upon sufficient enrollment. Prerequisite: typing or consent of instructor.

**BUDP 121 Computer Operations (3)**

Students learn to operate the computer and compile programs written by programmers. Emphasis is placed on knowledge of the operating system of the computer and the control language used to run it. Hands on running of the computer offers opportunity to solve problems arising from operation of the equipment. Prerequisite: BUDP 101 or consent of instructor. Night course. (Spring.)

**BUDP 131 Cobol Programming I (3)**

Students write program in COBOL using modern methods of top-down, structured design. Emphasis is placed on traditional business applications such as payroll, accounts receivable, and inventory control. Students learn to debug and document their programs. Prerequisite: BUDP 101 or consent of instructor. (Spring.)

**BUDP 231 Assembler Language (3)**

A beginning course in assembler language programming. Includes data representation concepts, instruction formats, core dump analysis, basic assembler language instructions, and register usage. Students write programs in IBM 360 Assembler. Prerequisite: at least one programming course. (Fall.)

**BUDP 233 Fortran IV (3)**

An introductory course in FORTRAN programming. Emphasis is placed on development of programming logic, flow-charting, input and output routines. Prerequisite: BUDP 101 or consent of instructor. (Fall, Spring.)

**BUDP 234 RPG Programming (3)**

Writing business programs in RPG, with emphasis on learning the internal logic cycle of RPG. Development of programming logic through use of decision tables. Prerequisite: BUDP 101 or consent of instructor. (Spring.)

**BUDP 261, 262 Independent Study in Data Processing (1, 2)**

Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required in all cases. (Fall, Spring.)

**BUDP 264, 265 Related Work Experience (1, 2)**

See BUAC 264, 265 course description.

**BUDP 332 Cobol Programming II (3)**

A continuation of BUDP 131. Disk processing, including sequential, indexed sequential, and random processing; sub-routines; overlays; and use of operating system resources for systems development. Prerequisite: BUDP 131. (Fall.)

**BUDP 441 Computers in Management (3)**

The use of computers by management to run their business more effectively. Particular attention is paid to the advantages of using computers, the problems associated with computerized processing and the controls which are necessary to insure that output is correct. An indepth look at the primary applications of A/R, A/P, P/R, G/L, and Inventory Control as well as the latest concepts such as Data Base allow the student to see the practical application of data processing. The course is appropriate for management and accounting majors as well as data processing majors. Prerequisites: BUDP 101. (Fall.)

**BUDP 491. Automated Systems (3)**

Students analyze actual business applications and convert them to a computerized system, gaining an indepth knowledge of systems design procedures and an appreciation of the intricacies and detail involved in designing a complete system. Prerequisites: At least 2 programming languages or consent of instructor. (Spring.)

## **Dental Auxiliary and Expanded Function**

(School of Nursing and Allied Health)

**DENT 110 Orientation to Dentistry (2)**

An introduction to the dental health team, including the specialties. The study of the history of dentistry and the organization and function of the professional organizations of the ADA and the ADAA. Emphasis on ethics, professionalism, and communication.

**DENT 112 Dental Science I (3)**

Study of tooth anatomy and surrounding tissues. Identification of individual teeth, descriptions of individual teeth, (externally and internally), occlusion and eruption. Tooth drawings.

**DENT 120 Dental Science II (3)**

Study of the growth and development of the face and nose, tongue, palate and teeth. Head and neck anatomy includes bones, muscles and nerves. Course includes microbiology and sterilization techniques.

**DENT 122 Oral Pathology (3)**

An introduction to oral disease, its causes, its process, and its effects.

**DENT 130 Chairside I (2)****DENT 130L Chairside I Lab (2)**

Introduction to basic chairside procedures, dental equipment, laboratory procedures, and preventive dentistry. Students gain knowledge of instruments, tray set-ups and procedures, and basic public relations in dealing with dental patients during reception, operative procedures, and education.

**DENT 140 Dental Materials I (2)****DENT 140L Dental Materials I Lab (2)**

Comprehensive study of all materials used in the practice of dentistry. This includes cements, amalgams, impression materials, gypsum compounds, waxes, gold and its alloys, basic metal alloys, plastics for prosthetic applications, porcelain, direct anterior esthetic materials, and sealants.

**DENT 150 Radiology I (2)****DENT 150L Radiology I Lab (1)**

The history, basic principles of radiation, biological effects of radiation, radiation protection, basic intra-oral techniques, film-processing techniques, normal anatomical landmarks, and mounting and storage of processed films.

**DENT 160 Chairside II (2)****DENT 160L Chairside II Lab (2)****DENT 160E Chairside II Externship (6)**

Clinical experience in community offices and clinics augmented by classroom instruction in dental specialties—armamentarium and procedures for each—and advanced chairside procedures.

- DENT 170 Dental Materials II** (1)  
**DENT 170L Dental Materials II Lab** (2)  
 Application of dental restorative materials and laboratory techniques. Placement of temporary restorations, bases, and liners. Also fabrication of custom trays, temporary bridges, and temporary crowns.
- DENT 180 Radiology II** (1)  
**DENT 180L Radiology Lab** (1)  
 Introduction to extra-oral radiographs, continued laboratory and clinical experience in exposing intra-oral films, as well as introduction to abnormal anatomical landmarks and pathological findings.
- DENT 190 Dental Office Procedures** (2)  
**DENT 190L Dental Office Procedures Lab** (1)  
 This course is designed to give the student sufficient knowledge to maintain appointment control and recall system, place and receive telephone calls, record financial transactions, maintain a bookkeeping system (pegboard, computer), complete insurance forms, and maintain a supply inventory.
- DENT 200 Introduction to Expanded Function Dental Auxiliary** (2)  
**DENT 200L Introduction to Expanded Function Dental Auxiliary** (1)  
 Advanced study of Odontography (external features, descriptions of individual teeth), including carving individual teeth. Course will include a review of concepts of occlusion and restorative materials.
- DENT 210 Expanded Function Dental Auxiliary** (4)  
**DENT 210L Expanded Function Dental Auxiliary** (4)  
**DENT 210E Expanded Function Dental Auxiliary** (6)  
 Review of tooth morphology and occlusion and restorative materials. Clinical practice in placement, carving, and finishing composite and amalgam restorations.

## **Diesel Hydraulics**

### **(School of Industry and Technology)**

- DIHY 111 Introduction to Heavy Equipment and Shop Processes** (3)  
 A course to introduce occupational outlook, places for employment, steps in shop work, shop safety, tools, measuring devices and test equipment.
- DIHY 115 Internal Combustion Engine Maintenance** (2)  
 A study of engine operating principles, diesel fuels, engine lubricants, coolants, bearings, seals, lubrication systems, cooling systems and preventive maintenance.
- DIHY 120 Internal Combustion Engine Reconditioning** (5)  
 A study of the engine's cylinder block, crankshaft and bearings, piston and connecting rod assemblies, cam shaft, gear train, engine timing, cylinder head assembly, intake and exhaust systems and components.
- DIHY 135 Fuel Systems** (3)  
 A study of design, construction, repair, and maintenance of fuel injection and carburetion system components.
- DIHY 140 Diesel Engine Troubleshooting** (5)  
 A study of trouble shooting analysis techniques and performance problems: includes adjustment necessary for normal performance.
- DIHY 145 Clutches, Transmissions and Drivelines I** (4)  
 A study of the operating principles, construction, repair and maintenance of power train components.

**DIHY 146 Clutches, Transmissions and Drivelines II**

A continuation of DIHY 145 with emphasis on specialized equipment and repair.

**DIHY 150 Hydraulic Systems I (2)**

A study of hydraulic terminology, principles of hydraulic operations, and basic hydraulic systems design. Includes analysis techniques.

**DIHY 160 Hydraulic Systems II (2)**

A study of hydraulic fluids, conductors, reservoirs, pumps, pressure control, volume control, check valves, actuator, flow controls, cylinders. Includes testing and adjusting for optimum performance.

**DIHY 195, 196 Special Studies in Heavy Equipment/Diesel (1, 2)**

Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Second semester standing or equivalent.

## **Economics**

### **(School of Social and Behavioral Sciences)**

**ECON 201, 202 Principles of Economics (3, 3)**

A survey of basic concepts of economics. Not open to freshmen. Must be taken in sequence.

**ECON 301 Labor-Management Relations (3)**

A study of the organized labor movement, employer labor policies, collective bargaining, wages and wage regulation, social insurance, and public labor policy. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for BBA candidates.

**ECON 310 Money and Banking (3)**

A study of the monetary, credit and banking systems in the United States. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for BBA candidates.

**ECON 312 Economic History of the United States (3)**

A course tracing the economic development of the United States and the nation's economic institutions from the colonial period to the present. Prerequisites: ECON 201, 202 or HIST 131, 132 or permission of the instructor.

**ECON 320 History of Economic Ideas (3)**

The development of economic analysis, thought, theories and doctrines from the ancient world to recent times. Prerequisites: ECON 201, 202 or equivalent.

**ECON 351 Independent Study in Economics (1)****ECON 352 Independent Study in Economics (2)**

Prerequisites: six hours of economics and permission of the instructor.

**ECON 401 Government and Business (3)**

A study of structure, conduct and performance in relevant markets including competitive and non-competitive behavior in relation to anti-trust activities and federal regulations. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for BBA candidates.

**ECON 410 Public Finance (3)**

A study of revenue and expenditure policies of governments and their relation to the national economy. Prerequisites: ECON 201, 202 or equivalent. Counts as a Management course for BBA candidates.

**ECON 420 International Economics (3)**

An introductory study of international trade theory and policy such as: balance of payments analysis, international investment flows, and the position of the dollar in foreign exchange transaction. Prerequisites: ECON 201, 202 or equivalent.

**ECON 431, 432 Topics in Economics (3, 3)**

Selected topics relating to the theories, concepts and institutions in natural resource use and economic analysis designs for evaluating alternative resource-use patterns, private and public. Prerequisites: ECON 201, 202 or equivalent.

**ECON 442 Intermediate Macroeconomic Theory (3)**

Study of major aggregate economic models including the rates of consumption, investment and government decisions on aggregate economic activity. Prerequisites: ECON 201, 202 or permission of instructor.

**ECON 443 Intermediate Microeconomic Theory (3)**

Study of production, price and distribution theory, including value and distribution theories under conditions of varying market structures. Prerequisites: ECON 201, 202 or permission of the instructor.

## Education

### (School of Social and Behavioral Sciences)

**EDUC 121 Children's Literature (Pre-School, Primary to Third Grade) (3)**

History of children's literature; introduction to authors and illustrators of picture books, stories, and poetry for pre-school and early primary; field project.

**EDUC 122 Children's Literature (Upper Elementary-Early Adolescent) (3)**

Reading and evaluating classic and contemporary literature for grades 4-6 and 7-9; children's magazines; problems in reading guidance.

**EDUC 251 Introduction to Education (3)**

Survey of the field of education. Aspects considered: history of American education, philosophies of education, problems in education, the school as a social institution. Required for Education majors.

**EDUC 252 Introduction to the Classroom (3)**

A basic course for the future educator. The student is placed in a local school to observe and take part in the educational process. Prerequisite: Education 251.

## Education, Early Childhood

### (School of Social and Behavioral Sciences)

**ECED 110 Infant and Toddler Curriculum (2)**

Includes curriculum for the one- to three-year-old age group. Emphasis on maintaining healthful, safe environmental activities to stimulate social, language, intellectual, and motor development.

**ECED 111 Curriculum in Early Childhood Education (3)**

A course in the philosophy and theory of preschool education, including laboratory experiences for learning about children and the philosophy, goals, and operation of the nursery school. Students spend time in assigned laboratory and participate in group meetings for discussion and evaluation.

**ECED 121 Introduction to Early Childhood (2)**

To acquaint new students with the field of early childhood, to gain knowledge of the facilities and programs offered for young children, and to observe young children at work and play. Licensing and health regulations for children's centers are considered in this course.

**ECED 252 Student Teaching (5)**

Students spend a minimum of three hours per day working in licensed centers under a qualified teacher. Students are also supervised by a college instructor, with conference periods and evaluation of student's progress.

- ECED 258 \*Independent Study in Early Childhood Education (1)  
 ECED 259 \*Independent Study in Early Childhood Education (2)

\*Prerequisite: Permission of instructor.

- ECED 260 Child-Care Center Management (3)  
 A study of record-keeping, budgeting, personal relations, and administrative techniques required in the operation of a child care center.

## **Electric Lineman**

(School of Industry and Technology)

- ELIN 111 Applied Mathematics (5)

Emphasis is placed on mathematical formulas used in voltage, amperage, resistance, and power determination; also, metering problems, power factor correction, and line design problems are studied.

- ELIN 120 Fundamentals of Electricity (5)

A study of the generation, transmission, and distribution of electricity, beginning with the basic unit the electron and its function, which is to transport electric power to homes and industry.

- ELIN 131 Electrical Distribution Theory I (4)

Covers pole setting techniques, framing methods and specifications, climbing, sagging and splicing of conductors, energizing and deenergizing of lines, and installation of protective grounds.

- ELIN 132 Electrical Distribution Theory II (4)

Installation and operation of protective equipment, transformer hookups, voltage regulation, hotstick maintenance, troubleshooting, and gloving from the pole.

- ELIN 136 Related Fundamentals I (4)

Examination of the national electric safety code, truck maintenance, equipment operation, material records, electrical test meters, and introduction to transformers.

- ELIN 137 Related Fundamentals II (4)

First aid, meter safety, connector installation, street lighting, rubber coverup, and public relations are studied.

- ELIN 140 Underground Procedure (5)

Safety practices, terminology, fault finding, cable locating, switching procedure, installation of terminal devices, splicing and transformer application.

- ELIN 145 Hotline Procedures (2)

Two weeks of training by outside specialists in hotline maintenance and underground installation.

- ELIN 150 Applied Theory and Fundamentals (10)

Field training or on the job training providing actual work experience in the electrical industry.

- ELIN 195, 196 Special Studies in Electric Lineman (1, 2)

Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Second semester standing or consent of instructor.

## **Electronics Technology**

**(School of Industry and Technology)**

<b>ELEC 117</b>	<b>DC Passive Circuits</b>	<b>(3)</b>
<b>ELEC 117L</b>	<b>DC Passive Circuits Laboratory</b>	<b>(1)</b>
Basic DC circuits with resistors, capacitors and inductors. Applications of Ohm's and Kirchhoff's laws.		
<b>ELEC 118</b>	<b>AC Passive Circuits</b>	<b>(3)</b>
<b>ELEC 118L</b>	<b>AC Passive Circuits Laboratory</b>	<b>(1)</b>
Basic AC circuits, capacitors, inductors, transformers and filters.		
<b>ELEC 121</b>	<b>Shop Processes I</b>	<b>(1)</b>
<b>ELEC 121L</b>	<b>Shop Processes I Laboratory</b>	<b>(1)</b>
Soldering and circuit construction techniques. Requires the purchase of two electronics kits.		
<b>ELEC 122</b>	<b>Shop Processes II</b>	<b>(1)</b>
<b>ELEC 122L</b>	<b>Shop Processes II Laboratory</b>	<b>(1)</b>
Continuation of ELEC 121.		
<b>ELEC 251</b>	<b>Wave Shaping Circuits</b>	<b>(3)</b>
<b>ELEC 251L</b>	<b>Wave Shaping Circuits Laboratory</b>	<b>(1)</b>
Solid state multivibrators, delay lines and wave shaping circuits.		
<b>ELEC 253</b>	<b>Solid State I</b>	<b>(3)</b>
<b>ELEC 253L</b>	<b>Solid State I Laboratory</b>	<b>(1)</b>
Solid state diodes and bipolar transistor amplifier circuits.		
<b>ELEC 254</b>	<b>Industrial Circuits</b>	<b>(3)</b>
<b>ELEC 254L</b>	<b>Industrial Circuits Laboratory</b>	<b>(1)</b>
Solid state circuits in industrial applications.		
<b>ELEC 256</b>	<b>Communication Circuits I</b>	<b>(3)</b>
<b>ELEC 256L</b>	<b>Communication Circuits I Laboratory</b>	<b>(1)</b>
Covers the applied aspects of electronic communication technology in circuits, systems and transmission.		
<b>ELEC 257</b>	<b>Communication Circuits II</b>	<b>(3)</b>
<b>ELEC 257L</b>	<b>Communication Circuits II Laboratory</b>	<b>(1)</b>
Continuation of ELEC 256.		
<b>ELEC 263</b>	<b>Solid State II</b>	<b>(3)</b>
<b>ELEC 263L</b>	<b>Solid State II Laboratory</b>	<b>(1)</b>
Field effect transistors, operational amps, and voltage regulators.		
<b>ELEC 265</b>	<b>Digital Circuits I</b>	<b>(3)</b>
<b>ELEC 265L</b>	<b>Digital Circuits I Laboratory</b>	<b>(1)</b>
Digital integrated circuits, boolean algebra, and truth tables.		
<b>ELEC 266</b>	<b>Microprocessors I</b>	<b>(2)</b>
<b>ELEC 266L</b>	<b>Microprocessors I Laboratory</b>	<b>(1)</b>
Microprocessor systems, programming and applications.		
<b>ELEC 270</b>	<b>Linear Integrated Circuit Applications</b>	<b>(2)</b>
<b>ELEC 270L</b>	<b>Linear Integrated Circuit Applications Laboratory</b>	<b>(1)</b>
Integrated circuits as utilized in amplifiers, filters and oscillators.		
<b>ELEC 275</b>	<b>Digital Circuits II</b>	<b>(3)</b>
<b>ELEC 275L</b>	<b>Digital Circuits II Laboratory</b>	<b>(1)</b>
Continuation of ELEC 265.		
<b>ELEC 276</b>	<b>Microprocessors II</b>	<b>(2)</b>
<b>ELEC 276L</b>	<b>Microprocessors II Laboratory</b>	<b>(1)</b>
Continuation of ELEC 266.		

**ELEC 295, 296 Special Studies in Electronics** (1, 2)  
Specialized studies in an area related to the field but which is beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration for the course. Prerequisite: Sophomore standing or equivalent.

## **Emergency Medical Technician**

(School of Nursing and Allied Health)

**EMT 141, 142 Emergency Medical Technician I and II** (2, 2)

The EMT role and responsibility, anatomy and physiology, vital signs, physical condition assessment, airway obstruction, pulmonary arrest, mechanical aids to breathing, cardiac arrest, cardiopulmonary resuscitation, bleeding and shock, wounds and bandaging, fractures and splinting. Injuries of the head, neck, face and spine; practical lab on handling spine injuries, injuries of the eye, chest and abdomen; Medical Emergencies I; Medical Emergencies II; water safety; childbirth; medical-legal consideration. Lifting and moving patients, auto extrication with field practice; environmental emergencies; crises intervention; driving an emergency vehicle; radio communications; intravenous therapy. Student spends a minimum of 20 hours working in an emergency room at a local hospital.

## **Engineering**

(School of Natural Sciences and Mathematics)

**ENGR 105 Basic Engineering Drawing** (2)

**ENGR 105L Basic Engineering Drawing Laboratory** (1)

This course in fundamentals of drawing includes instrumental drawing; lettering; geometric constructions; sketching and shape description; multiview projection; sectional views; auxiliary views, revolutions; dimensioning; tolerancing; axonometric projection and oblique projection. Three lectures and three one-hour laboratory sessions per week.

**ENGR 111 Engineering Graphics and Design** (2)

**ENGR 111L Engineering Graphics and Design Laboratory** (1)

A course in engineering design which covers the design process from the project conception to the completion of working drawings. It emphasizes drawing techniques such as freehand sketching, projection system, dimensioning, descriptive geometry, and vectors as applied to the design process. Prerequisite: ENGR 105 or one year high school drafting. Three lectures and three one-hour laboratory sessions per week.

**ENGR 230 Topographical Surveying** (2)

**ENGR 230L Topographical Surveying Laboratory** (1)

The fundamentals of map-making. Includes use of plane table and alidade, basic control, contour mapping, map reading. Taught primarily for non-engineers who are students in related fields, i.e., forestry, geology, archaeology, etc. Offered only if sufficient demand. Prerequisite: MATH 130 or consent of instructor. Two lectures and two two-hour laboratory sessions per week.

**ENGR 231 Surveying I** (2)

**ENGR 231L Surveying I Laboratory** (1)

An introduction to the principles of surveying and mapping; familiarization with the basic instruments and their use. Includes calculations and field procedures for surveying circular, spiral, and parabolic curves and route planning. Prerequisite: MATH 130 or consent of instructor. Two lectures and two two-hour laboratory sessions per week.



**ENGR 232 Surveying II (2)**

**ENGR 232L Surveying II Laboratory (1)**

Topics include location and design; measurement and computation of earthwork quantities; and slope staking. Celestial observations to determine latitude, longitude, and true azimuth, photogrammetry, triangulation, state plane coordinate systems, and computer applications in surveying. Prerequisite: ENGR 231. Two lectures and two two-hour laboratory sessions per week.

**ENGR 240 Statics (3)**

Topics include principles of statics, study of vectors, forces and couples, force systems and their resultants, force systems of equilibrium (truss analysis, flexible cables, cranes), static friction (pivot and belt), centroids, radii of gyration of areas and masses, and moments of inertia. Prerequisites: MATH 152 and PHYS 221. Co-requisites: MATH 253 and PHYS 222. Three lectures per week.

**ENGR 241 Dynamics (3)**

Principles of dynamics. Topics include angular and linear displacement, velocity and acceleration of particles and rigid bodies in motion, simple vibrations, and applications of principles of force-mass-acceleration, work-kinetic energy, the impulse momentum to solution of problems of force systems acting on moving particles and rigid bodies. Prerequisite: ENGR 240 and MATH 253. Three lectures per week.

**ENGR 251, 252 Circuit Analysis I, II (3, 3)**

**ENGR 251L, 252L Circuit Analysis I, II Laboratory (1, 1)**

An introduction to the fundamental principles of electrical engineering. Basic analysis techniques as applied to linear, lumped parameter, time invariant circuits. Principles of electronics, electromechanics and instrumentation. Prerequisite: MATH 152 and PHYS 221 with concurrent enrollment in MATH 253 and PHYS 222. Three lectures and two two-hour laboratory sessions per week.

**ENGR 253 Electromechanical Devices (2)**

Operating principles and analysis of electromechanical devices including transformers, motors, and generators. Prerequisite: ENGR 251. Two lectures per week.

**ENGR 255 Introduction to Thermal Sciences (3)**

Energy systems and processes, conservation of energy, environmental applications, pollution, heat transfer, laws of thermodynamics. Prerequisite: MATH 253 and PHYS 222. Three lectures per week.

**ENGR 259 Introduction to Energy (3)**

A survey of energy and modern energy production technology for nonengineering students. Topics include elementary treatments of mechanics, heat transfer, chemical energy, electrical energy, nuclear energy and the energy producing devices which utilize these principles. Prerequisite: MATH 130 or consent of instructor. Three lectures per week.

**ENGR 291, 292 Independent Study (1, 1)**

Provides the student a means to pursue, with the assistance and direction of a department faculty member, an area of interest which is not in the normal curriculum.

## **Engineering Technology**

**(School of Natural Sciences and Mathematics)**

**ETEC 101 Technical Mathematics I (4)**

A review of algebra including fundamental concepts and operations, functions and graphs, systems of linear equations, determinants, factoring and fractions, quadratic equations, exponents and radicals. A concentrated study of trigonometry and additional topics of algebra with emphasis on applications in technical fields. Logarithms, trigonometric functions of angles, radian measure, vectors and oblique triangles. Prerequisite: MATH 020 or high school algebra. Four lectures per week.

**ETEC 102 Technical Mathematics II (4)**

Graphs of trigonometric functions, complex numbers and the  $j$ -operator, inequalities and variation. Electronic calculators used in problem solution. Advanced topics in algebra and trigonometry with an introduction to analytic geometry. Matrix algebra, graphical solutions of non-algebraic equations of higher degree, progressions and the binomial theorem, trigonometric identities, inverse functions, straight lines, conic sections, parametric forms, introduction to statistics and empirical curve fitting. Prerequisite: ETEC 101. Four lectures per week.

**ETEC 125 Soils Engineering (2)****ETEC 125L Soils Engineering Laboratory (1)**

Properties of soils with compaction, consistency, classification, moisture, frost-action, permeability, strength, lateral pressures, bearing capacity, piling foundations, soil exploration, spread-footings, subgrades and pavements. Earth dams. Prerequisite: MATH 020 or high school algebra. Three lectures and two one-hour laboratory sessions per week.

**ETEC 158 Drafting and Design—Architectural (2)****ETEC 158L Drafting and Design—Architectural Laboratory (1)**

Architectural fundamentals of perspective drawings, shadows and architectural rendering. Symbols, use of templates and special equipment. Working drawings and specifications. Corequisite: ENGR 111. Three lectures and three one-hour laboratory sessions per week.

**ETEC 162 Drafting and Design—Technical Illustrating (2)****ETEC 162L Drafting and Design—Technical Illustrating Laboratory (1)**

The study of techniques used to prepare illustrations for advertising, marketing, and educational purposes. Basic rendering, airbrush, and scratchboard techniques are applied to pictorial, exploded, and orthographic views resulting in a variety of illustrations and transparencies. Prerequisite: ENGR 111. Three lectures and three one-hour laboratory sessions per week.

**ETEC 220 Specifications and Cost Estimates (3)**

Preparation of specifications and contract documents. Quantity estimating of excavation work, construction materials and labor. Prerequisite: ENGR 105 and ETEC 102. Three lectures per week.

**ETEC 223 Concrete (2)****ETEC 223L Concrete Laboratory (1)**

An introduction to cement, aggregates, selection and design of concrete mixtures, and sampling and testing procedures. Corequisite: ETEC 242. Three lectures and two one-hour laboratory sessions per week.

**ETEC 241 Statics and Strength of Materials I (3)**

Basic principles of statics involving the application of equilibrium equations to coplanar, noncoplanar, concurrent and nonconcurrent force systems. Stress and strain of members in tension, compression, shear and torsion. Properties of riveted and welded joints. Prerequisite: ETEC 102. Three lectures per week.

**ETEC 242 Strength of Materials II (3)**

Centroids and moments of inertia. Beam and column deflection and design. Design of rotating shafts and couplings. Prerequisite: ETEC 241. Three lectures per week.

**ETEC 245 Fluid Mechanics and Hydraulics (2)****ETEC 245L Fluid Mechanics and Hydraulics Laboratory (1)**

Properties of fluids, viscosity, steady, laminar and turbulent flow. Reynolds number. Hydrostatic pressure on submerged plane surfaces. Bernoulli's energy theorem. Pitot tube, venturi, orifice nozzles and weirs. Critical velocity in pipes. Head loss in pipe fittings, valves, friction coefficients. Hydraulic turbo machinery. Flow in pipe nets and open channels. Prerequisite: ETEC 102. Three lectures and three one-hour laboratory sessions per week.

**ETEC 251 Drafting and Design—Electrical/Electronics (2)**

**ETEC 251L Drafting and Design—Electrical/Electronics Laboratory (1)**

A course in the basic principles of drafting as applied to electricity and electronics. Included are techniques and lettering, projections, device symbols, component outlines, printed circuit boards, integrated circuits, block and schematic diagrams. Prerequisite: ENGR 111 or consent of instructor. Three lectures, three one-hour laboratory sessions per week.

**ETEC 252 Drafting and Design—Structural (2)**

**ETEC 252L Drafting and Design—Structural Laboratory (1)**

Principles of design are applied in arriving at solutions to structural problems. These solutions are presented in the form of detailed drawings using proper drafting techniques. Prerequisite: ENGR 111 or consent of instructor. Corequisite: ETEC 242. Three lectures and three one-hour laboratory sessions per week.

**ETEC 253 Drafting and Design—Topographical (2)**

**ETEC 253L Drafting and Design—Topographical Laboratory (1)**

A study of the history, fundamentals, and methods of mapmaking. Prerequisite: ENGR 111 and either ENGR 230, ENGR 231, or consent of instructor. Three lectures and three one-hour laboratory sessions per week.

**ETEC 254 Drafting and Design—Piping (2)**

**ETEC 254L Drafting and Design—Piping Laboratory (1)**

This course helps develop skills in designing and drawing piping and plumbing systems ranging from an industrial to a residential scope. Prerequisite: ENGR 111 or consent of instructor. Three lectures and three one-hour laboratory sessions per week.

**ETEC 255 Drafting and Design—Heating, Ventilating and Air Conditioning (2)**

**ETEC 255L Drafting and Design—Heating, Ventilating and Air Conditioning Laboratory (1)**

The basic principles of refrigeration and psychrometrics are explored and used in the design of various types of air conditioning systems. Ventilation air handling and heating are covered. Modern techniques in energy conservation and solar heating also considered. Prerequisite: ENGR 111 or consent of instructor. Three lectures and three one-hour laboratory sessions per week.

**ETEC 256 Drafting and Design—Machine (2)**

**ETEC 256L Drafting and Design—Machine Laboratory (1)**

Applying design principles to machine members. Drawing designed members to standards of industry. Utilizing standard joining techniques and available stock items in designs. Prerequisite: ENGR 111. Corequisite: ETEC 242. Three lectures and three one-hour laboratory sessions per week.

**ETEC 257 Drafting and Design—Electrical Systems (2)**

**ETEC 257L Drafting and Design—Electrical Systems Laboratory (1)**

Introduction to electricity. Planning of feeder and branch circuits for commercial buildings and residences. Interpretation of National Electric Code. Lighting fundamentals and design. Prerequisite: ENGR 111 or consent of instructor. Three lectures and three one-hour laboratory sessions per week.

**ETEC 291, 292 Independent Study (1, 2)**

With the assistance and direction of a department faculty member and the consent of the instructor, a student may pursue an area of interest which is not in the normal curriculum.

## English

### (School of Humanities and Fine Arts)

#### ENGL 101, 102, 103 English Skills (Modular Concept)

Designed for students who have specific deficiencies in one or more of the following:

<b>MODULE 1 (ENGL 101):</b>	<b>Basic Grammar</b>	<b>(1)</b>
<b>MODULE 2 (ENGL 102):</b>	<b>The Sentence</b>	<b>(1)</b>
<b>MODULE 3 (ENGL 103):</b>	<b>Punctuation</b>	<b>(1)</b>

#### ENGL 110 English Grammar (3)

Review of grammar and usage. Students with low ACT scores should take ENGL 110 before ENGL 111. All students must take ENGL 111, 112 to meet general education requirements.

#### ENGL 111, 112 English Composition (3, 3)

First semester: grammar, formal and informal writing; second semester: research paper, study of the novel, critical writing.

#### ENGL 115 Technical Writing (3)

An emphasis on writing in one's major field, including two research papers, letters, graph, description, questionnaire, and speech. Prerequisite: ENGL 111.

#### ENGL 117, 118 Vocational Communications (3, 3)

Designed for students enrolled in the School of Industry and Technology. Emphasis on business communications. Meets requirements for the AAS degree.

#### ENGL 121 English: Spelling/Vocabulary (3)

Spelling improvement based on 600 most commonly misspelled words. Emphasis is on basic rules and pronunciation. Vocabulary has emphasis on Greek and Latin roots, prefixes and suffixes.

#### ENGL 126, 127 Honors English (3, 3)

Designed for students whose high school records and ACT scores are in the 85th percentile or higher. Concentration: sentence structure, patterns of organization, panel discussions, impact of scientific thought on the humanities and fine arts. Requirements during the two semesters include critical reviews, a short thesis, a long research paper, and an essay involving a critical analysis of a novel.

#### ENGL 131 World Literature (3)

Survey of major works of Western literature from the Classical, Medieval and Renaissance periods including Homer and Dante.

#### ENGL 132 World Literature (3)

Survey of major works of Western literature from the post-Renaissance through modern periods including Goethe and Cervantes.

#### ENGL 134 Mythology (Classical) (3)

Survey of Greek and Roman mythology.

#### ENGL 135 Mythology (Medieval) (3)

Survey of Ancient, Norse, Oriental, and Medieval mythology.

#### ENGL 141 Introduction to Literature—Fiction (3)

Short stories, novels, and plays by American, English and European authors of the 19th and 20th centuries.

#### ENGL 142 Introduction to Literature—Poetry (3)

A study of the techniques of literature as used by the poets from ancient to modern times.

#### ENGL 143 Introduction to Literature—Drama (3)

An introductory course in the reading of dramatic literature from the Greeks to the modern dramatists.

#### ENGL 145 Introduction to Literature—Oriental Literature (3)

Prose, poetry, and plays of early India, China, and Japan.

- ENGL 251 Creative Writing** (3)  
The art of creating fiction through the design of the short story and narrative technique.
- ENGL 252 Creative Writing** (3)  
Stylistic methods are studied through the creation of short works and continued focus on narrative technique.
- ENGL 254, 255 English Literature** (3, 3)  
From Beowulf to the present.
- ENGL 256 Introduction to Shakespeare** (3)
- ENGL 261, 262 United States Literature** (3, 3)  
Development of American literature from 17th century to the present.
- ENGL 285 Independent Study** (1, 3)
- ENGL 311 Seminar/Advanced Writing** (3)  
Professional writing through the creation of magazine fiction and non-fiction.
- ENGL 316 American Novel** (3)  
Distinctive American novels, from beginning to present.
- ENGL 318 Frontier American Literature** (3)  
Regional literature of U.S. frontier.
- ENGL 324 Short Story** (3)  
Introduces the genre of the short story; provides the history and examples of short stories which reveal the development of plot, setting, character, symbol, point of view, theme, humor, satire, and fantasy.
- ENGL 326 World Drama I** (3)  
Survey of drama: Greek through Elizabethan. ENGL 326 and 327 may count for either Humanities or Fine Arts requirement for the Bachelor of Arts degree in Liberal Arts.
- ENGL 327 World Drama II** (3)  
Continuation of ENGL 326.
- ENGL 330 Women in World Thought and Literature** (3)  
A thought-provoking course for men and women willing to explore the contributions of women to the fields of literature, religion, philosophy, sociology, psychology, and the fine arts.
- ENGL 335 Bible as Literature** (3)  
Study of the Old Testament as a literary masterpiece.
- ENGL 340 Classical Literature in Translation: The Greek Tradition** (3)  
Readings in English of outstanding Greek authors. Major classical genres emphasizing the development of comedy, tragedy, lyric poetry and satire against the background of Greek history, philosophy, and religion.
- ENGL 341 Classical Literature in Translation: The Latin Tradition** (3)  
Works by Virgil, Ovid, Lucretius, Petronius, Terence and Plautus, Horace and Catullus in English translation are considered in the light of the humane and religious tradition of Europe.
- ENGL 350 Chaucer** (3)  
A study of the major works of the 14th century poet.
- ENGL 360 Milton** (3)  
Survey of thought and poetry of John Milton.
- ENGL 370 18th Century English Literature** (3)  
The writers will be selected from such figures as Locke, Hume, Burke, Fielding, Defoe, Gay, Pope, Johnson and Dryden.

**ENGL 380, 381 19th Century British Literature (3, 3)**

A study of 19th century British literature based upon representative works of major poets, novelists, and prose writers, English 380 encompasses Romantic Period writers and Early Victorians to 1850; English 381, Late Victorian writers through the eighteen nineties. Prerequisite: 6 hours of literature.

**ENGL 385 Independent Study (1, 3)****ENGL 410 The British Novel (3)**

Survey of the themes and styles of representative novelists of British literature, including the works of Defoe, Fielding, Conrad, Dickens, Lawrence, Bronte, Austen, Huxley.

**ENGL 411 American Drama (3)**

A study of American plays from the first American playwright to the plays of today.

**ENGL 413 Contemporary Drama (3)**

A study of the realistic and absurd playwrights of the world within the past 25 years.

**ENGL 415 American Folklore (3)**

Introduction to American folklore with an emphasis on collecting Colorado and especially Western Colorado lore.

**ENGL 416 Contemporary American Poetry (3)**

Survey of contemporary American poets since 1940.

**ENGL 421 Seminar: History of Literary Criticism (3)**

The development of literary criticism from the classical period through the 19th century emphasizing the relationship between criticism and tradition in developing the art and substance of western literature.

**ENGL 422 Seminar: Forces in Contemporary Criticism (3)**

A study of 20th century critics, critical schools and theories.

**ENGL 424 Literature and Science (3)**

Study of literature's relations with science affecting the fine arts, social thought, and value theory. Meets the literature requirement for Bachelor of Science degree.

**ENGL 430 Advanced Shakespeare (3)****ENGL 435 Literary Masterworks of the 17th Century (3)**

Survey of the poetry and prose of the 17th century, including the works of Donne, Herbert, Vaughan, and Crashaw and the works of the cavalier poets (Herrick, Carew, Suckling, and Lovelace).

**ENGL 440 History of the English Language (2)**

The historical development of English at different periods; provides a sound basis for understanding modern English through its inflectional and social influences.

**ENGL 445 American Poetry from 1870 to 1940 (3)**

A survey of traditionalist and experimental schools in American Poetry from 1870 to 1940. Poets studied will include Whitman, Robinson, Sandburg, Masters, Stevens, Frost, Williams, Cummings, Crane, Moore, Jeffers, Eliot, and MacLeish.

**ENGL 450 Linguistics (3)**

Designed for those who need to know something about the structure of their native language or a foreign language as opposed to simply being able to use them. The first half of the course covers the basic principles of and provides practice in language analysis and description in the areas of phonology, morphology and syntax of English and other selected languages using the transformational-generative mode. The second half of the course covers language universals, semantics, sociolinguistics, psycholinguistics, stylistics, applied linguistics, historical linguistics and field linguistics.

## **Fine Arts**

### **(School of Humanities and Fine Arts)**

**FA 101 Man Creates (3)**

An interdisciplinary survey of human creative efforts as they relate to each other. Art, drama, and music are compared, with similarities stressed.

**FA 301, 302 Civilization and the Arts (3, 3)**

A history course bringing together the viewpoints of social scientists, the historian, humanist, writer, performer, and artist in relation to economics, politics and religion.

**FA 401 Seminar in Critical Analysis of the Arts (3)**

Theory and practice of arts criticism.

**FA 402 Arts Management (3)**

The business aspects of producing a play or concert: publicity, dealing with agents, artists, union representatives, tickets, accounting, and scheduling. Practical experience gained from working with college productions.

**Fine Arts, Practicum in the (4)**

Visual and Performing Arts majors are required to take a minimum of four hours from this group. Students with a strong background in one of the arts areas will be required to take qualifying classes outside their strength area, preferably three hours in each of the other two disciplines. Practicum requirements may be met by selecting four hours from the following freshman and sophomore classes:

ART 101, 110, 120, 140, 150, 151, 170, 180, 190, 221, 231, 241, 271, 272, 281, 291, 292, THEA 114, 117, 118, 119, 121, 122, 123, 124, 125, 126, 129, 142, 143, 147, 148, 149, 214, 215, 217, 218, 222, 244, 246, 247, 248, 249, 251, 252, 253.

MUS 127, 128, 137, 138, or any course carrying the prefix AMUS or PERF.

## **Foreign Languages**

### **(School of Humanities and Fine Arts)**

**FLAN 250, 350 Independent Study in Foreign Language (1-3)**

Offered on demand and with the availability of an instructor.

## **French**

### **(School of Humanities and Fine Arts)**

**FREN 111, 112 First-Year French (3, 3)**

An introduction to the French language and culture.

**FREN 251, 252 Second-Year French (3, 3)**

Grammar review, vocabulary distinction, readings in the French language. Prerequisites: Two years of high school French; FREN 111, 112; or permission of instructor.

## **Geography**

### **(School of Social and Behavioral Sciences)**

**GEOG 101, 102 Introduction to Geography (3, 3)**

A survey of the essentials of college geography including vocabulary, basic principles, and techniques.

# Geology

(School of Natural Sciences and Mathematics)

**GEOL 101, 102 Introductory Geology (4, 4)**

A lecture course dealing with the earth and its origin, structure, composition, atmosphere and hydrosphere. In a general approach to geology and closely related fields, physical changes and evolution of life through the history of the earth are included. Recommended for students of disciplines other than the sciences. Four lectures per week.

**GEOL 101L, 102L Introductory Geology Laboratory (1, 1)**

Laboratory work with rocks, minerals, fossils, and topographic maps. Problems in astronomy, meteorology, and earth history. One two-hour session per week.

**GEOL 111 Principles of Physical Geology (4)**

A lecture course dealing with the earth, its materials, the processes producing its landforms, and the interaction between its surface and interior. Intended for Environmental Geoscience majors and others wishing to obtain an understanding of their physical world. Four lectures per week.

**GEOL 111L Principles of Physical Geology Laboratory (1)**

Laboratory studies of rocks, minerals, landforms, topographic maps, earthquakes, mountain building, the sea floor, and plate tectonics. One two-hour session per week.

**GEOL 112 Principles of Historical Geology (4)**

A lecture course dealing with the origin of the earth, the geologic time scale, the evolution of life forms as revealed in the fossil record, physical changes in the earth, and predictions that can be based on such studies. Intended to be a continuation of GEOL 111. Prerequisite: GEOL 111. Four lectures per week.

**GEOL 112L Principles of Historical Geology Laboratory (1)**

Laboratory work employing topographic and geologic maps, reconstruction exercises, and fossils to interpret regional and general geologic history. One two-hour session per week.

**GEOL 201 Stratigraphy (2)**

Lectures on the fundamentals of sedimentary rock classification, correlation, sedimentary environments, and regional stratigraphic column. Prerequisite: GEOL 112 or consent of instructor. Two lectures per week.

**GEOL 201L Stratigraphy Laboratory (1)**

Laboratory and field studies of sedimentary rock descriptions and field procedures with local sedimentary outcrops. Two one-day field trips required. One two-hour laboratory session per week.

**GEOL 203 Introduction to Environmental Geology (3)**

A lecture course on the relationship of man and his geological environment. Such current and future factors as pollution, waste disposal, mineral and fuel depletion, and governmental policy are studied. Geologic hazards are emphasized. Prerequisite: consent of instructor. Three lectures per week.

**GEOL 270, 271 Independent Study in Geology (1, 2)**

Courses in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her own work. Combinations of conferences, reading, laboratory work, and field work.

**GEOL 301 Earth Tectonics (2)**

Lectures on the nature and origin of rock structures. Included are both local and large-scale deformation. Prerequisite: GEOL 111. Two lectures per week.

**GEOL 301L Earth Tectonics Laboratory (1)**

Structural problems solved by graphical, geometrical, and stereographic methods. Included is work with maps and cross sections. One two-hour session per week.

**GEOL 302 Mineral and Energy Resources (5)**

Lectures on metallic and non-metallic mineral deposits as well as fuels. Includes



locations, minerals involved, ore genesis, alteration, associations, zonation, and extraction methods of mining. Students are expected to participate in an overnight field trip. Prerequisite: consent of instructor. Five lectures per week.

**GEOL 315 Mine Mapping and Geologic Illustration (3)**  
Lectures on transit and plane table surveying as well as basic drafting. Included are geologic maps, cross sections, contours, profiles, rock symbols, and lettering aids. One off-campus mine is surveyed. Prerequisite: consent of instructor. Three lectures per week.

**GEOL 315L Mine Mapping and Geologic Illustration Laboratory (2)**  
Surveying with transit and plane table and preparation of geologic illustrations. Two two-hour sessions per week.

**GEOL 321 Field Methods (6)**  
Methods of mapping and gathering field data, including section measuring, use of aerial photographs, and preparation of geologic maps and reports. Regional geologic features studied from field camps. Conducted the first six weeks of the summer session. Prerequisite: GEOL 111, GEOL 112, GEOL 201, GEOL 301, GEOL 331. Four eight-hour field sessions and one eight-hour laboratory session per week.

**GEOL 331 Mineral Studies (3)**  
Lectures on the morphology and classification of crystals, the chemistry of minerals and their genesis, and modern laboratory techniques. Prerequisite: consent of instructor. Three lectures per week.

**GEOL 331L Mineral Studies Laboratory (1)**  
Laboratory work in identification of crystals, simple determination tests, some modern identification equipment, and identification of minerals in hand specimen. One two-hour session per week.

**GEOL 340 Petrology (3)**  
Lectures on the origin, composition, and classification of igneous, metamorphic, and sedimentary rocks. Prerequisite: GEOL 331. Three lectures per week.

**GEOL 340L Petrology Laboratory (1)**  
Laboratory work on the composition and identification of igneous, metamorphic, and sedimentary rocks in hand specimen and occasionally thin section. One two-hour session per week.

**GEOL 351 Applied Geochemistry (2)**  
Lectures on the principles of geochemistry and their relationship to weathering and soils. Included are discussions of geochemical surveys and prospecting techniques. Prerequisites: GEOL 112 and CHEM 122 or CHEM 132, or consent of instructor. Two lectures per week.

**GEOL 370, 371 Independent Study in Geology (1, 2)**  
See Independent Study course description under GEOL 270, 271.

**GEOL 401 Advanced Topics In Geoscience (3)**  
Discussions of recent ideas, concepts, and data relating to petroleum, mineral deposits, plate tectonics, and other topics of current interest. Three one-hour sessions per week.

**GEOL 402 Applications of Geomorphology (4)**  
Lectures on landforms and land-forming processes with applications to problem solving. Predictions of hazards and other problems from study of past active processes. Emphasis on local soils, slopes, rivers and erosional surfaces. Included are statistical and computer techniques of data analysis. Participation in at least two field trips is required. Prerequisite: consent of instructor. Four lectures per week.

**GEOL 402L Applications of Geomorphology Laboratory (1)**  
Laboratory and field studies of such factors as streams, frost, slope movement, ground water, wind, and glaciers which have affected the local environment. Emphasis on techniques of measurement and interpretation. One two-hour laboratory session or one four-hour field trip per week.

**GEOL 404 Geophysical Prospecting (4)**

Lectures on the principles and applications of refraction and reflection seismic, gravity, magnetic, and electric methods in hydrocarbon and mineral exploration and preliminary construction site investigations. Prerequisites: GEOL 111, GEOL 112, PHYS 212 (Calculus is recommended but not required) or consent of instructor. Four lectures per week.

**GEOL 404L Geophysical Prospecting Laboratory (1)**

Field work employing geophysical instruments and laboratory work interpreting data from various sources. One two-hour session per week.

**GEOL 405 Solid Earth Geophysics (3)**

Lectures on application of classical physics to the study of the earth. Included are origin of the earth, its gravitational, geomagnetic, and geothermal characteristics, seismicity, and the dynamics of the earth's crust, plate tectonics, and continental drift. Field trips are required. Prerequisite: GEOL 404 or consent of instructor. Three lectures per week.

**GEOL 411 Paleontology (2)**

Lectures on the taxonomy, morphology, and geologic age of most groups of invertebrate fossils. Also included is recognition of depositional environments of rock formations based on the fossils present. Prerequisite: GEOL 201 or consent of instructor. Two lectures per week.

**GEOL 411L Paleontology Laboratory (1)**

Laboratory and field studies of fossils; their identification and geologic age. One one-day field trip required. One two-hour laboratory session per week.

**GEOL 445, 446, 447, 448, 449  
Field Experience in Geology (2, 4, 6, 8, 10)**

A student may receive credit for work experience obtained on a job where the assignments are primarily geological projects. The number of credit hours awarded to the student is determined by the School. No more than ten hours of credit for field experience will count for credit toward satisfaction of requirements for graduation. Prerequisites: geology major and senior standing or consent of faculty.

**GEOL 470, 471 Independent Study in Geology (1, 2)**

See Independent Study course description under GEOL 270, 271.

## German

**(School of Humanities and Fine Arts)****GERM 111, 112 First-Year German (3, 3)**

An introduction to the German language.

**GERM 251, 252 Second-Year German (3, 3)**

Grammar review, vocabulary distinction, readings in the German language. Prerequisites: Two years of high school German; GERM 111, 112; or permission of instructor.

**GERM 261, 262 Independent Study (1, 2)**

Offered on demand and in consultation with instructor.

## Graphic Communications

**(School of Industry and Technology)****GRCO 110 Introduction to Graphic Communications (2)**

Introduction to graphic arts technology as related to reproduction through various printing techniques, including choice of printing method, type selection, paper selection, quantity and quality desired, and special finishing techniques.

- GRCO 120 Graphic Art Layout and Design** (3)  
Study of fundamental principles and techniques of pattern and design concepts, typography, and preparation of art work in both black-and-white and color media.
- GRCO 130 Basic Photography** (2)  
Development of skills in the production of black and white photography, including camera and printmaking techniques. Two hours laboratory per week.
- GRCO 140 Typesetting** (3)  
Study of cold-type composing machines with emphasis on operation and production. Four hours laboratory per week.
- GRCO 230 Process Photography I** (3)  
Basic techniques of process camera work and darkroom procedures, including calibration, line work, photo mechanical transfer, flat preparation and platemaking. Four hours laboratory per week.
- GRCO 231 Process Photography II** (3)  
Advanced techniques of process camera and darkroom techniques, including half-tone, duotone, special effects, advanced flat preparation, and an introduction to 4-color separation and mask-up. Prerequisite: GRCO 230. Four hours laboratory per week.
- GRCO 240 Image Preparation I** (3)  
Basics of camera-ready copy preparation for reproduction using composing machines and paste-up techniques. Four hours laboratory per week. Prerequisite: GRCO 140.
- GRCO 241 Image Preparation II** (3)  
Advanced techniques of preparing camera-ready copy, including multiple-forms, two or more opaque color printing requirements, four-color transparency printing requirements, and newspaper copy preparation. Four hours laboratory per week. Prerequisite: GRCO 240.
- GRCO 250 Offset Press I** (3)  
Basic offset press operation; principles of offset including inks, fountain solutions, and plates; and maintenance of presses. Four hours laboratory per week.
- GRCO 251 Offset Press II** (3)  
Advanced offset press operation, multiple-color printing, basics of paper-press relationships, and a web offset press operation. Four hours laboratory per week. Prerequisite: GRCO 250.
- GRCO 260 Printing Cost Estimating** (3)  
For Graphic Communications majors only. A study of costs and cost-estimating techniques specifically related to the printing industry.
- GRCO 295, 296 Special Studies in Graphic Communications** (1, 2)  
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent.

## Health

### (School of Business)

- BUHL 147 Medical Terminology** (2)  
Basic medical terminology as applied to major systems of the body and related diseases. Special applications as related to medical practice, with emphasis on spelling. (Fall).
- BUHL 154 Laboratory Techniques** (2)  
The student becomes acquainted with basic laboratory procedures such as blood counts, urinalysis, EKG, etc. Actual laboratory experiences are provided. (Spring).

**BUHL 159 Medical Office Procedures** (3)  
A study of medical office management, patient reception, record-keeping, care of equipment and supplies, communication skills, and assisting the physician and patient including examination-room techniques. (Spring).

## History

### (School of Social and Behavioral Sciences)

**HIST 101, 102 Western Civilizations** (3, 3)  
A study of the political, social, economic and cultural history of Western mankind from ancient times to modern times.

**HIST 105, 106 Eastern Civilizations** (3, 3)  
A survey of the history of the Asian world both before and after Western penetration.

**HIST 120 History of Colorado** (3)  
A survey of the history of the State of Colorado from pre-historic times to modern times.

**HIST 131, 132 United States History** (3, 3)  
A survey of United States history from the Colonial period to modern times.

**HIST 300 History of England** (3)  
A survey of English history from ancient times to the opening of the Modern period. Prerequisites: HIST 101, 102, or equivalents or permission of instructor.

**HIST 310 Latin American Civilization** (3)  
A study of the historical development of Latin America from Pre-Columbian times to the present. Prerequisite: HIST 102 or permission of the instructor.

**HIST 320 History of the Southwest** (3)  
A history of Southwestern United States from pre-Columbian times to 1912 with special attention to the interrelationships among Indian, Spanish, Mexican, and Anglo-American influences. Prerequisites: HIST 131, 132, or HIST 125, 126 or equivalents or permission of instructor.

**HIST 330 History of Modern Europe** (3)  
History of modern Europe from the Congress of Vienna (1814) to the present. Prerequisites: HIST 101, 102 or permission of instructor.

**HIST 340 History of the Islamic World** (3)  
A study of the origins, spread and influence of the Islamic world, including the Middle East and North Africa with emphasis on its position in modern world affairs. Prerequisites: HIST 101, 102 or permission of instructor.

**HIST 351, 352 Independent Study in History** (1, 2)  
Prerequisites: 6 hours of history and permission of the instructor.

**HIST 400 The Russian Revolution and the Soviet Regime** (3)  
A history of Russia since 1917 emphasizing the revolution, the rise of communism and the development of the Soviet state in the 20th century. Prerequisites: HIST 101, 102 or equivalents or permission of instructor.

**HIST 401 East Asia: The Formative Period** (3)  
A study of the history of China, Japan, Korea and Vietnam before the coming of the West. Prerequisites: HIST 105, 106 or permission of instructor.

**HIST 403 East Asia and the Modern World** (3)  
A history of China, Japan, Korea and Vietnam since 1840. Prerequisites: HIST 105, 106 or permission of instructor.

**HIST 410 Environmental History of the U.S.** (3)  
A course designed to trace historically the evaluation of public attitudes and governmental policies and practices relative to the wilderness, natural-resource development, and the natural environment from colonial times to the present. Prerequisites: HIST 131, 132 or equivalents or permission of instructor.

**HIST 420 Civil War and Reconstruction** (3)  
A study of the causes and outcomes of the American Civil War and reconstruction periods. Prerequisites: HIST 131, 132 or permission of instructor.

**HIST 430 The Ancient Mediterranean World** (3)  
A study of the Mediterranean world from pre-classical times to the fall of the Roman Empire. Prerequisites: HIST 101, 102 or permission of instructor.

## **Home Economics**

**(School of Natural Sciences and Mathematics)**

**HEC 101 Careers in Home Economics** (1)  
Lectures exploring the opportunities in the branches of home economics. One lecture per week.

**HEC 110 Clothing Construction** (1)

**HEC 110L Clothing Construction Laboratory** (2)  
Lectures and laboratory work in the use of commercial patterns in the construction of garments. One lecture and two two and one-half-hour laboratory sessions per week.

**HEC 111 Clothing Selection and the Consumer** (2)  
Principles of line and design in the selection of clothing; consumer problems and guidelines in connection with clothing the family. Two lectures per week.

**HEC 115 Textiles** (3)

**HEC 115L Textiles Laboratory** (1)  
Textile fibers and fabrics, with emphasis on selection, care, finishes, and wearing qualities. Three lectures and one two-hour laboratory per week.

**HEC 136 Home Furnishing and House Planning** (3)

**HEC 136L Home Furnishing and House Planning Laboratory** (1)  
Functional and aesthetic considerations affecting the selection and arrangement of furnishings for the home. Lectures on design principles and laboratory work consisting of designing and making simple furnishings. Three lectures and one two-hour laboratory per week.

**HEC 141 Meal Management in Early Childhood** (2)

**HEC 141L Meal Management in Early Childhood Laboratory** (2)  
Principles of food preparation and meal service for pre-school children and laboratory work on their application. Two lectures and two two-hour laboratories per week.

**HEC 151 Foreign Food Cookery** (1)

**HEC 151L Foreign Food Cookery Laboratory** (1)  
Preparation and service of foods as they are commonly prepared and served in countries outside the United States. One lecture and one two-hour laboratory per week.

**HEC 211 Nutrition** (3)

Nutrients and their relation to physical and mental health. Three lectures per week.

**HEC 212 Infant and Child Nutrition** (2)

Principles of nutrition for maternal, infant, and child health. Prerequisite: HEC 211. Two lectures per week.

**HEC 233 Personal and Family Decision-Making** (2)

Values, goals, and standards and their relation to personal decision-making. Two lectures per week.

**HEC 238 Child Development** (5)

Physical, emotional, intellectual, and social growth and development of young children; the effect of prenatal maternal behavior on fetus development; behavior and guidance of the child from birth to six years of age. Five lectures per week.

- HEC 251 Food Selection and Preparation** (2)  
**HEC 251L Food Selection and Preparation Laboratory** (2)  
 Lectures and laboratory work dealing with the principles of selecting and preparing foods, with emphasis on retention of nutrients, color, and texture. Prerequisite: CHEM 121 or consent of instructor. Two lectures and two two-hour laboratories per week.
- HEC 252 Preparation and Service of Meals** (1)  
**HEC 252L Preparation and Service of Meals Laboratory** (2)  
 Planning, preparation and service of meals, with emphasis on cost, time management, and selection of table appointments. Prerequisite: HEC 251. One lecture and two two-hour laboratories per week.
- HEC 261 Tailoring** (1)  
**HEC261L Tailoring Laboratory** (2)  
 Lectures on and laboratory execution of planning and construction of a tailored garment. Prerequisite: HEC 110 or consent of instructor. One lecture and two two-and-one-half-hour laboratories per week.
- HEC 264 Pattern Designing** (2)  
**HEC 264L Pattern Designing Laboratory** (1)  
 Lectures on dress design and how knowledge of it contributes to understanding of pattern alterations and fitting. Laboratory work consists of changing basic commercial patterns to create new designs. Two lectures and one two-hour laboratory per week.

## **Human Services**

### **(School of Social and Behavioral Sciences)**

- HS 301 Introduction to Human Services** (3)  
 An introduction to the field: human services agencies, programs, funding, philosophies, history and career opportunities. Prerequisites: PSY 121, 122 and SOC 260, 264 or permission of the instructor.
- HS 310 Sex Role Identification and Human Sexuality** (3)  
 An interdisciplinary study of sex role differences (stereotypes), sexual biology, cross-cultural comparisons of attitudes toward sexuality, trends in sexual moralities, sexual deviance, and sexual dysfunctions and their treatment. Prerequisites: 6 hours of social science or consent of instructor.
- HS 401, 402 Special Studies** (4, 4)  
 A course allowing social and behavioral science students to pursue special interests or to gain knowledge of topics not otherwise provided for in the curriculum. Credit for senior year human services internships will be granted through registration in this course. This course requires regular weekly meetings on campus with a faculty supervisor in addition to an off-campus internship. Prerequisites: senior status in the Bachelor of Arts program in social and behavioral sciences and permission of the instructor.

## **Interdisciplinary Study**

### **(School of Social and Behavioral Sciences)**

- INDI 400 San Juan Symposium** (6)  
 An interdisciplinary study of regional biology, geology and history, combining classroom study on campus with field study in the San Juan Mountains of Colorado. Elective credit only. May not be used to meet requirements of a discipline in Mesa College degree programs. Prerequisites: upper-division standing and permission of instructors. Not open to freshmen and sophomores.

## Job-Entry Training

(School of Business)

*NOTE: All BUJT courses are restricted to students enrolled in the Job Entry Training Program. Any exception must be approved by the Job Entry Training professor.*

### **BUJT 21 Bookkeeping (3)**

Clerical record-keeping: Sales slips, invoices, simple routine office tasks are studied as an introduction to bookkeeping. Bookkeeping: Twenty-six chapters in double-entry bookkeeping help the student learn basic procedures in payroll accounts, taxes, and financial reports. Workbook materials, special problems, and supplementary projects are used. (Fall, Spring, Summer.)

### **BUJT 31 Business Mathematics and Office Machines (3)**

Includes basic mathematics, as needed, and opportunity to develop mathematics and machine skills on the 10-key adding machine and electronic calculator. Reviews fractions, decimals, interest, percentage, mark up and other business applications. Tests must be passed covering basic computations on the machines. Additional materials are available for the development of speed. (Fall, Spring, Summer.)

### **BUJT 41 Business English (3)**

A comprehensive review of functional grammar and punctuation, followed by work in various types of business communications such as employment letters, sales letters, or social business letters. Emphasis is placed on mailable copy for written work and on following instructions for all work. (Fall, Spring, Summer.)

### **BUJT 51 Typewriting (3)**

The student may cover the equivalent of a year of college typewriting. Gregg-programmed texts, keyboard learning tapes, skill development materials, centering, tabulation, letter forms, business forms, reports, manuscripts, medical forms, composing and answering business letters, workbooks, self tests and related office problems are taught and practiced. Duplicating machines and transcribing machines are used in the instruction program. Goal: 50 words per minute. (Fall, Spring, Summer.)

### **BUJT 61 Word Study (3)**

This course combines spelling and vocabulary-building. It also allows opportunity to combine knowledge acquired in Business English and Word Study in an office-practice setting. (Fall.)

### **BUJT 71 Speech (3)**

Directed toward giving the student confidence in dealing with people in an office. Job interviews, telephone manners, receptionist techniques, and short speeches before the classroom are techniques employed. (Summer.)

### **BUJT 91 Office Procedures and Work Experience (Arr.)**

Course covers basic techniques of finding, applying for, and securing a job; how to get along with people; improving typing skills; working with office forms and supplies (qualities of paper, carbon, etc.); knowledge of postal and shipping services; handling mail; telephone techniques; communication equipment available for modern office use; how to handle banking and credit services; financial transaction; and mechanizing office operations. Helps the student understand the modern office. Selected students are given an opportunity to receive actual work experience while in training. Job assignments, many on campus, depend on student's ability and positions available. (Fall, Spring, Summer.)

*NOTE: Courses numbered 1-99 are preparatory in nature and not intended for transfer purposes or degree requirements.*

## Journalism

### (School of Humanities and Fine Arts)

#### JOUR 131, 132 Introduction to Journalism (3, 3)

A survey course introducing news and feature reporting and writing for print and broadcast media; advertising, and legal/ethical considerations of news gathering. Includes in-class practice with interviewing local community newsmakers.

#### JOUR 231 Journalism: Reporting (3)

Fundamentals of newsgathering and writing. Interviewing, reporting and writing of newsworthy events and personalities are stressed. Stories are submitted for publication. Prerequisites: JOUR 131 and 132 or permission of instructor.

#### JOUR 232 Journalism: Broadcast News Writing (3)

Techniques and practice in preparing news for radio and television broadcasting. Prerequisites: JOUR 231 or permission of instructor.

#### JOUR 331, 332 Publications Practicum (1, 1)

Experience with campus publications under faculty supervision. Prerequisites: JOUR 131, 132.

#### JOUR 431, 432 Publications Practicum (1, 1)

Experience with campus publications under faculty supervision. Prerequisites: JOUR 231, 232.

## Law Enforcement

### (School of Social and Behavioral Sciences)

#### LEN 111 Introduction to the Administration of Justice (3)

A study of the history and philosophy of the administration of justice in America. A recapitulation of the system identifying the various sub-systems, the ethics, education and training for professionalism in the system.

#### LEN 112 Police and Society (3)

An analysis of the institution of law enforcement in a generic sense as encompassing a wide variety of formal social control mechanisms with particular attention to the relationship between major police problems and the cultural context in which they exist.

#### LEN 121 Criminal Law (3)

An analysis of the origin and history of common-law crimes, distinction between civil and criminal laws, and the distinction between federal and state laws and municipal ordinances. The recognition of criminal acts and their respective elements.

#### LEN 122 Juvenile Delinquency and Procedures (3)

A survey of the various federal and state statutes and court decisions involved in the juvenile justice procedures. A discussion of the causes and effects of juvenile crime.

#### LEN 141 Breath-Examiner Specialist (3)

Designed to develop practical skills related to the drinking-driver counter measures, basis of chemical testing, suspect processing, courtroom presentations and breath-equipment theory, operation and laboratory.

#### LEN 204 Probation and Parole (3)

A course tracing the history of the personnel and problems related to delivering probation and parole services including a discussion of the current thinking in organizational goals and structure, the roles of treaters, and the use of volunteers and ex-offenders.

#### LEN 222 Police Patrol Operations (3)

Responsibilities, techniques, and methods of police patrol in the protection of life



and property; includes an examination of reporting systems, communication systems, and law enforcement equipment; highway traffic management, accident investigation, crowd control and disaster operations.

**LEN 251 Laws of Arrest, Search and Seizure (3)**  
 Constitutional and procedural considerations affecting arrest, search and seizure, constitutional basis of evidence, kinds and degrees of evidence and rules governing admissibility; focus upon the case-study approach.

**LEN 275 Management Principles in Criminal Justice (3)**  
 The responsibility of the first-level supervisor in management, employee morale, discipline, selection and placement, training and performance ratings, and the techniques of leadership.

**LEN 281, 282 Independent Study in Criminal Justice (1, 2)**  
 Designed for in-service students completing approved criminal justice seminars sponsored by approved institutions of higher learning. Permission to enroll must be obtained from the coordinator of Law Enforcement Program. The coordinator will determine the number of credit hours to be awarded. As many as two credit hours may be approved.

## Mathematics

(School of Natural Sciences and Mathematics)

**MATH 015 Basic Mathematics (3)**  
 Helps students reinforce knowledge and, as needed, relearn the basic arithmetic processes. Includes a review of addition, subtraction, multiplication and division, followed by a careful treatment of decimals and fractions. Also may be taken in three five-week modules as follows: Three lectures per week.

<b>MATH 014 (Module 1)</b> .....	(1)
<b>MATH 016 (Module 2)</b> .....	(1)
<b>MATH 017 (Module 3)</b> .....	(1)

**MATH 020 Basic Algebra (3)**  
 An introduction to algebra for the student having no algebra background or who is not sufficiently prepared to undertake college algebra. A study is made of basic algebraic processes: operations with signed numbers and literal expressions, linear equations, fractions, factoring, simultaneous equations, graphs, and quadratic equations. Three lectures per week.

**MATH 101 Hand-Held Calculators (1)**  
 Theory and operation of calculators as applied to problems in mathematics, business, psychology, electronics, vocational-technical studies, physical sciences, and biological sciences. One lecture per week.

**MATH 105, 106 Elements of Mathematics I, II (3, 3)**  
 A course for prospective teachers in the elementary schools. Presents some of the basic principles which underlie mathematical processes and mathematical reasoning. Includes some areas of classical mathematics which are necessary for a working knowledge of the subject. Topics include logic and mathematical reasoning, number systems, some fundamental properties of geometric forms, the concept of a function, linear and quadratic functions, and some characteristics of modern mathematics. Prerequisite: consent of instructor. Three lectures per week.

**MATH 108 Agricultural Mathematics (3)**  
 Mathematical problems and examples in agricultural production, management, marketing, and mechanization. Problems in agriculture as they relate to environmental quality are also included. Three lectures per week.

**MATH 110 Finite Mathematics (2)**

Presents essential concepts of algebra to students in social science, sociology, guidance and others. Topics include graphing, equations, sets, binomial theorem, permutations and combinations, and difference equations. Two lectures per week.

**MATH 113 College Algebra (4)**

The systems of integers, rational numbers, real numbers, and complex numbers are studied. Sets and set theory, linear and quadratic relations, exponential and logarithmic functions are included. Also included are functions and graphs, systems of equations, matrices, complex numbers, higher-degree equations, inequalities, progressions and the binomial theorem. Prerequisite: MATH 020 or one year of high school algebra. Five lectures per week.

**MATH 119 Precalculus Mathematics (5)**

A course in freshman mathematics for the mathematics or science student. Topics include polynomial, exponential, circular functions, inverse circular functions and conditional equations, matrices and determinants, systems of equations, complex numbers and vectors, sequences, series, mathematical induction, binomial theorem, rational and trigonometric functions, and some probability. Prerequisite: MATH 113 or three years of high school mathematics and a good mathematics entrance exam score. Trigonometry recommended. Five lectures per week.

**MATH 121 Mathematical Foundations of Business (3)**

Designed to provide business students with basic quantitative tools and methods for solving business problems. Includes an intuitive study of functions and their graphs, linear programming, and differential and integral calculus techniques important to development of analytical competence in administrative decision-making. Prerequisite: MATH 113 or two years of high school algebra. Three lectures per week.

**MATH 127 Mathematics of Finance (3)**

Discussions of mathematical methods in the solution of business problems. The topics range from simple interest and simple discount to compound interest, annuities, perpetuities, bonds, and depreciation. Prerequisite: MATH 113 or consent of instructor. Three lectures per week.

**MATH 130 Trigonometry (3)**

Emphasizes the circular and trigonometric functions and methods of solving right and oblique triangles. The inverse trigonometric functions, conditional equations, and trigonometric identities are included. Complex numbers are covered through DeMoivre's theorem. Prerequisite: MATH 113 or equivalent. Trigonometry may also be taken in one-hour modules. Three lectures per week.

**MATH 131 Logarithms (1)**

**MATH 132 Right and Oblique Triangles (1)**

**MATH 133 Conditional Equations and Trigonometric Identities (1)**

**MATH 134, 135 Advanced Trigonometry (1, 1)**

A modularized continuation of MATH 130. Includes inverse functions and vectors. One lecture per week.

**MATH 146 Calculus for Biological Sciences (5)**

Topics include elementary set theory, functions and relations, derivatives, trigonometry, series and sequences, integration, exponential and logarithmic function, multiple integration, and partial derivatives. Taught from an intuitive point of view and with many examples from the biological sciences. Prerequisite: MATH 113 or consent of instructor. Five lectures per week.

**MATH 151 Analytic Geometry with Calculus (5)**

A combined course of analytic geometry and calculus. Fundamental principles of beginning analytic geometry, including different forms of the equations of straight line, circles and parabolas. Elementary phases of limits, continuity, derivations, and various applications of these topics are considered. Differential and integral calculus combined with analytic geometry, together with applications. Prerequisite: MATH 119 or consent of instructor. Five lectures per week.

- MATH 152 Calculus** (5)  
Special emphasis in calculus on the transcendental functions and polar coordinates, conic sections, hyperbolic functions and vectors in a plane. The formulas and methods of integration and application of integration are included. Prerequisite: MATH 151. Five lectures per week.
- MATH 161 Programmable Calculator** (1)  
Theory and operation of the programmable calculator. Prerequisite: MATH 130 or consent of instructor. One lecture per week.
- MATH 253 Calculus** (4)  
The last course in the sequence of courses in analytic geometry and calculus. Covers the topics of vectors in three-dimensions, partial derivatives of functions of several variables, multiple integration, and infinite series. Prerequisite: MATH 152. Four lectures per week.
- MATH 260 Introduction to Differential Equations** (3)  
An introduction to the formal study of differential equations with applications. Some of the topics covered are: equations of order one, elementary applications, nonhomogeneous equations, variation of parameters, inverse differential operators. Laplace transforms, and nonlinear equations. Prerequisite: MATH 253 or consent of instructor. Three lectures per week.
- MATH 265 Introduction to Linear Algebra** (3)  
This course is designed to give students a foundation so that they can apply the notions and techniques of the algebra and geometry of vector spaces, linear transformations and matrices, linear equations, quadrant forms and symmetric matrices, and elementary eigenvalue theory. Also prepares students for advanced work by developing their powers of abstract reasoning. Prerequisite: MATH 253 or consent of instructor. Three lectures per week.
- MATH 291, 292 Independent Study** (1, 1)  
Provides the student a means to pursue an area of interest which is not in the normal curriculum. The assistance and direction of a faculty member of the department and the consent of the instructor are requisites.
- MATH 361 Numerical Analysis** (4)  
Elementary numerical analysis using the high-speed computer. Taylor's theorem, truncating errors, iteration processes, least square methods, numerical solution of algebraic and transcendental equations, systems of equations, ordinary and partial differential equations and integral equations, interpolation, finite differences, eigen-value problems, relaxation techniques, approximations and error analysis. Prerequisites: CSCI 131 and MATH 152. Four lectures per week.
- MATH 370 Mathematical Logic and Theory** (2)  
Mathematical logic, algebra of sets, equivalence and order relations, functions, cardinal and ordinal numbers, and the paradoxes of naive set theory. Prerequisite: MATH 265. Two lectures per week.
- MATH 380 History of Mathematics** (2)  
A survey of the history of mathematics from antiquity to the present with emphasis upon both the development of mathematics concepts and the people involved in this development. Prerequisite: MATH 253. Two lectures per week.
- MATH 385, 386 Modern Geometry I, II** (2, 2)  
Courses designed to prepare the prospective teacher of high school geometry in the way the subject matter will be covered in a modern course. The structure of geometry will be emphasized through the axiomatic approach. The basic ideas of points, lines and planes will be given along with primitive concepts and axioms needed to structure the geometry rigorously. Topics such as separation on curves and surfaces, congruence, measure, and parallelism are covered. Prerequisite: MATH 253. Two lectures per week.
- MATH 390 Abstract Algebra** (3)  
Preliminary examination of algebraic systems: groups, rings, fields, vector spaces, linear transformations, matrices, etc. Prerequisite: MATH 265. Three lectures per week.

**MATH 450 Introduction to Complex Variables** (3)  
Complex differentiation and integration, analyticity, Cauchy's integral theorem and formula, Taylor and Laurent series, calculus of residues. Prerequisites: MATH 253. Three lectures per week.

**MATH 452 Advanced Calculus** (3)  
Calculus of one variable, the real number system, continuity differentiation, integration and Reimann-Stieltjes integration. Prerequisite: MATH 253. Three lectures per week.

## **Military Science**

(School of Social and Behavioral Sciences)

**MIL 010, 011, 012, 013 Leadership Laboratory** (0)  
Practical application of techniques learned in the classroom with emphasis on physical conditioning, small unit movement, and development of leadership presence. Required in the ROTC program; 1 hour per week for first and second year students and 2 hours per week for third and fourth year students. Prerequisite: concurrent enrollment in appropriate level military course.

**MIL 101 Introduction to Military Science** (1)  
Organization and history of the army and army ROTC, including consideration of army missions in the modern world and the benefits and obligations of military service.

**MIL 102 Leadership and Management** (1)  
An introduction to the principles of leadership. Application of principles to management in an organizational environment. Prerequisite: MIL 101 or consent of instructor.

**MIL 201 Effective Communication** (2)  
Introduction to the principles of effective oral and written communications. Forms of military communication are the vehicles of instruction. Includes at least three oral presentations by each student.

**MIL 202 Military Organization and Management** (2)  
Small unit organization of the army. Application of leadership and management principles to the handling of small units. Prerequisite: MIL 201.

**MIL 203 Military Leadership** (3)  
A condensation of MIL 101, 102, 201 and 202 to qualify students for enrollment in the Advanced Course. Available in special cases only. Prerequisite: Consent of instructor.

**MIL 301 Fundamentals of Military Instruction** (1)  
Introduction to the theory and practice of military training, including practical application in the preparation of lesson plans, organization of a unit training program and the conduct of small unit training. Prerequisite: MIL 201.

**MIL 302 Leadership Application** (3)  
Application of leadership and management principles to the conduct of small unit operations in the field. Weapons orientation and basic tactical training are included. Open to all students who qualify for attendance at the Advanced ROTC Summer Camp.

**MIL 401 Pre-Commission Orientation** (3)  
Military justice system and the officers' place in it, development of national defense policy and budget and military involvement in foreign policy. Prerequisite: enrollment in the ROTC Advanced Course.

**MIL 402 Introduction to Military Life** (1)  
Customs and courtesies of the service, assignment, transfer and promotion policies and orientation on initial assignments. Prerequisite: enrollment in ROTC Advanced Course.

## Music

(School of Humanities and Fine Arts)

### MUS 114, 115 Elementary Theory (3, 3)

Thorough groundwork in the elements of music. Detailed study of keys, scales, modes, intervals, triads, seventh chords, etc. Techniques and rules of simple, four-part harmony are studied and practiced, and keyboard techniques for the above are developed. Requires prior knowledge of or concurrent enrollment in piano.

### MUS 116, 117 Sight-Singing and Ear Training (2, 2)

Sight-singing is developed by practice in vocal recognition of tonal and rhythm patterns and by singing graded musical exercises. Ear training is developed by means of rhythmic, melodic, and harmonic dictation exercises. The course should be taken in conjunction with MUS 114, 115 since materials in both sequences correlate.

### MUS 127, 128 Piano Class (2, 2)

Open to all students but recommended for beginners. The electric piano laboratory makes it possible to provide individual instruction in a class situation. Sections are designated for music majors, beginners, and intermediate level students.

### MUS 129 Woodwind Class (2)

Offers the serious student an opportunity to obtain elementary playing proficiency on the flute, oboe, clarinet, bassoon, or saxophone.

### MUS 130 String Class (2)

Study of the violin, viola, cello, and string bass in a class situation. Emphasis is on the fundamentals of playing techniques at an elementary level.

### MUS 135 Music and Methods in Early Childhood (2)

Designed for students who will be working with preschoolers, kindergarten, and early elementary students. Through the creative process, students develop simple tunes and gain knowledge and appreciation of music. Includes the creating of musical instruments from simple objects.

### MUS 136 Music Fundamentals (2)

Fundamentals of music for non-music majors. Covers names of notes; key signatures; meter; scales; major, minor, diminished, and augmented chords and intervals; keyboard familiarity, with emphasis on accompanying simple songs.

### MUS 137, 138 Voice Class (2, 2)

Fundamentals of singing, including vocal tone, breath control, phrasing, range and diction. Standard song literature is studied. Open to all students.

### MUS 167, 168 Conducting (2, 2)

An introductory study of conducting; choral and instrumental.

### MUS 214, 215 Advanced Theory (3, 3)

In-depth continuation of MUS 114, 115.

### MUS 251, 252 Music Theatre (2, 2)

Class offering methods and experience in all phases of music theatre, including selection, vocal style, techniques and staging of music literature. Individual needs are stressed. Microphone techniques for pop, cafe, and night club and staging of scenes from musical plays and variety shows are included. Prerequisite: Voice class and/or demonstration of proficiency, with permission of the instructor.

### MUS 310, 311 Comprehensive Musicianship (3, 3)

First semester: study and writing of 18th century (Bach) counterpoint; analysis of contrapuntal forms, including two- and three-part inventions and fugue. Second semester: arranging for jazz groups, starting with small groups or sections and working toward arrangements for the full jazz ensemble; analyses of harmonic styles.

**MUS 324, 325 History of Music Literature and Styles (3)**

Includes an in-depth study of the literature and styles of music. Ancient, Medieval, Renaissance, Baroque, Classic, Romantic and Modern music are covered. The course work is planned for the Fine Arts major; however, any student with sufficient background may take the course. Offered alternate years.

**MUS 343, 344 Jazz History (3, 3)**

Evolution of the historical and stylistic aspects of rock and jazz music. Particular emphasis is placed on performers and titles. A text is utilized in conjunction with tapes and records. Film strips and guest lectures augment the presentation. Offered alternate years.

**MUS 351, 352 Music Theatre (2, 2)**

Concentration at this level is in experience with operetta and Gilbert and Sullivan productions. Prerequisite: Voice class and/or demonstration of proficiency, with permission of the instructor. Public performances may be given if the students show sufficient expertise; otherwise, studio performance will be utilized for practical experience.

**MUS 446, 447 Independent Study (3, 3)**

Independent research or project in the student's strength area to be decided by instructor and student.

**MUS 451, 452 Music Theatre (2, 2)**

Practical application of techniques and presentation of opera, including children's opera; concert stage department; art song staging. Prerequisite: Voice class and/or demonstration of proficiency, with permission of the instructor. Public performances may be given if the students show sufficient expertise; otherwise, studio performance will be utilized for practical experience.

**MUS 467, 468 Advanced Conducting (3, 3)**

Concentrated effort in development of performance score mastering, rehearsal and performance techniques. In-depth continuation of MUS 167, 168.

## Music, Applied

(School of Humanities and Fine Arts)

AMUS 111, 112; 211, 212; 311, 312; 411, 412	VOICE	(Arr.)
AMUS 114, 115; 214, 215; 314, 315; 414, 415	PIANO	(Arr.)
AMUS 117, 118; 217, 218; 317, 318; 417, 418	ORGAN	(Arr.)
AMUS 121, 122; 221, 222; 321, 322; 421, 422	VIOLIN	(Arr.)
AMUS 124, 125; 224, 225; 324, 325; 424, 425	CELLO	(Arr.)
AMUS 127, 128; 227, 228; 327, 328; 427, 428	BASS	(Arr.)
AMUS 130, 131; 230, 231; 330, 331; 430, 431	GUJITAR	(Arr.)
AMUS 133, 134; 233, 234; 333, 334; 433, 434	TRUMPET	(Arr.)
AMUS 136, 137; 236, 237; 336, 337; 436, 437	TROMBONE	(Arr.)
AMUS 139, 140; 239, 240; 339, 340; 439, 440	FRENCH HORN	(Arr.)
AMUS 142, 143; 242, 243; 342, 343; 442, 443	TUBA	(Arr.)
AMUS 145, 146; 245, 246; 345, 346; 445, 446	CLARINET	(Arr.)
AMUS 148, 149; 248, 249; 348, 349; 448, 449	OBOE	(Arr.)
AMUS 151, 152; 251, 252; 351, 352; 451, 452	FLUTE	(Arr.)
AMUS 154, 155; 254, 255; 354, 355; 454, 455	PERCUSSION	(Arr.)
AMUS 161, 162; 261, 262; 361, 362; 461, 462	SAXOPHONE	(Arr.)

Individual music lessons in piano, voice, and most of the orchestral and band instruments. The credit earned is to be determined for each student by the music staff. Students who register for one lesson per week may receive one semester hour of credit. Two semester hours of credit will be granted only by permission of the music staff. See Department of Music section for fee and scholarship information.

## Music, Performing

### (School of Humanities and Fine Arts)

**PERF 110, 120; 210, 220; 310, 320; 410, 420 Jazz Ensemble (1 ea.)**

By audition. This group utilizes stage band instrumentation and performs many local and national concert engagements. Audition preference is given to members of Stadium Band and/or Symphonic Band.

**PERF 131; 231; 331; 431 Stadium Band (1 ea.)**

Open to all students who demonstrate sufficient ability on wind or percussion instruments or have previous training in auxiliary units (flags, twirlers, pompons). The band performs in the stands for home football games and marches in several parades. At mid-semester the band converts to concert band instrumentation to prepare for the annual Christmas concert.

**PERF 132, 133; 232, 233; 332, 333; 432, 433 Symphonic Band (1 ea.)**

Open to any wind and percussion student who demonstrates the ability to perform advanced wind ensemble literature. The group presents formal concerts on campus and in selected high schools and performs for the Commencement ceremony.

**PERF 137, 138; 237, 238; 337, 338; 437, 438 Instrumental Ensemble (1 ea.)**

Groups are organized upon the basis of talents and interests of the members. These groups may consist of various combinations of woodwind, string, bass, and percussion instruments.

**PERF 140, 240, 340, 440 Pep Band (1 ea.)**

Membership is by invitation of director based upon ability and instrumentation. Rehearsals begin fall mid-semester in preparation for musical entertainment at basketball games.

**PERF 141, 142; 241, 242; 341, 342; 441, 442 Symphony Orchestra (1 ea.)**

Mesa College students who demonstrate proficiency on orchestra instruments, through auditions with the conductor, can become members of the Grand Junction Symphony and receive credit. Auditions will be arranged at the beginning of the semester.

**PERF 144, 145; 244, 245; 344, 345; 444, 445 Vocal Ensembles (1 ea.)**

Include men's and women's trios, quartets, double quartet, etc. Groups are organized according to talents and interests of the students.

**PERF 147, 148; 247, 248; 347, 348; 447, 448 College Choir (1 ea.)**

Open to all men and women who wish to sing the best in all styles of choir literature. Performs several concerts each year.

**PERF 151, 152; 251, 252 Piano Accompanying (1 ea.)**

A course designed to give piano majors actual experience in supervised accompanying with emphasis on interpretation of various styles.

**PERF 154, 155; 254, 255; 354, 355; 454, 455 Clarinet Ensemble (1 ea.)**

Composed of interested clarinet players who desire an outlet to rehearse and perform clarinet literature. Offered alternate years.

**PERF 157, 158; 257, 258; 357, 358; 457, 458 Community Choir (1 ea.)**

Open to faculty, students, and community members. Performs at times with the community symphony.

**PERF 161, 162; 261, 262; 361, 362; 461, 462 Dance Band (1 ea.)**

Open to any student wishing to improve stylistic or rhythmic reading skills in dance band literature.

**PERF 165, 166; 265, 266; 365, 366; 465, 466 Recorder Ensemble (1 ea.)**

Fundamental approach is used in teaching students to obtain proficiency on the Baroque recorder. Literature from all eras is utilized after basic skills are obtained. Offered alternate years.

**PERF 168, 169 Beginning Jazz Improvisation (1, 1)**

Instrumentalists learn basic techniques of performing rock and jazz solos. Prerequisite: performing knowledge of major and minor scales on instrument.

**PERF 171, 172; 271, 272; 371, 372; 471, 472 Modern Choir (1 ea.)**

A performing group that sings Broadway show tunes, jazz, and popular music for campus and community audiences. Auditions held for membership.

**PERF 184, 185; 284, 285; 384, 385; 484, 485 Combo (1 ea.)**

Interested students team up with a rhythm section in learning tunes and "head" charts. Various combinations of instrumentalists and vocalists find this class the best medium for improving performing skills and making practical application of improvisation techniques.

**PERF 368, 369 Advanced Improvisation (1, 1)**

Emphasis is placed on learning riffs, figures, and sequences as they are utilized in various chord structures. Most of the tunes utilized involve altered chords and substitute chords. Beginning improvisation is a prerequisite or special permission of the instructor.

## **Nursing**

**(School of Nursing and Allied Health)**

**NURS 112 Introduction to Nursing (2)**

Orientation to organization of health care facilities, composition and ethical standards of the health team, basic mental and personal health concepts, the problem solving approach, ethnocultural aspects of nursing and nurse patient relationships.

**NURS 113 Nursing Concepts I (5)**

**NURS 113L Nursing Concepts I Lab (2)**

Introduction to the concept of man as a biopsychosocial being. Covers principles of nursing care to meet activities of daily living through developing skills in basic nursing procedures. Includes beginning content in assessment, body responses to illness, physical and mental health problems, pharmacology and drug administration.

**NURS 123 Nursing Concepts II (5)**

**NURS 123L Nursing Concepts II Lab (4)**

Expansion and application of NURS 113 and Introduction to Nursing, including nursing care of patient/clients of all ages who manifest common, recurring mental and physical health problems. Integrates concepts of care of the childbearing family.

**NURS 124 Nursing Procedure for Allied Health (1)**

This course serves to introduce the student to the various ethical considerations and nursing procedures pertinent to the allied health worker. The student practices such techniques as obtaining vital signs, proper syringe technique, first-aid measures, and CPR.

**NURS 141 Personal Vocational Relations (2)**

Emphasis on the ethical and legal responsibilities of the nurse. Includes an overview of nursing history and job opportunities.

**NURS 142 Health in the Home and Community (2)**

Measures taken by the community, state, and federal governments to maintain and improve the health of the people of the nation. Includes concepts of emergency and disaster nursing and care of the patient in a home situation.

**NURS 143 Clinical Nursing (7)**

Functioning in the role of a licensed practical nurse. Student functions under less direct supervision of instructor and begins to assume the more independent role of working directly on the nursing team under the direction of a team leader. Weekly nursing seminars are held, allowing the students to correlate and discuss theory and practice pertinent to common nursing problems.

**NURS 210 Nursing Concepts III (5)**

**NURS 210L Nursing Concepts III Lab (5)**



- NURS 230 Nursing Concepts IV** (5)  
**NURS 230L Nursing Concepts IV Lab** (5)  
 Provides increased depth of knowledge of the human adaptive capabilities throughout the life span. Emphasis is placed on the use of the nursing process. Content and experience are related to the management of larger groups of clients and health team relationships. Experience in rural nursing is provided during spring semester.
- NURS 273 Issues in Nursing** (2)  
 Important components of nursing history and current issues in nursing and health care.
- NURS 320 Matrix Course** (3)  
 An entrance level seminar course with in-depth discussion of transition, change and other topics related to current and future trends in professional nursing.
- NURS 330 Research Techniques** (3)  
 Introduction to research and its relevance to the development of nursing theory and improvement of patient care. Incorporates selected methods of research appropriate to nursing practice and studies. Prerequisite: a course in statistics or concurrent enrollment.
- NURS 340 Health Assessment—Physical** (3)  
**NURS 340L Health Assessment—Physical Laboratory** (1)  
 Provides instruction and guided experience in obtaining a health history and in performing a physical examination. Prerequisite: BIOL 241, Pathological Physiology or permission of the instructor.
- NURS 350 Concepts of Community Health Nursing I** (3)  
 Provides an orientation to the field of community public health, including a study of background, development and trends with emphasis on nursing in community health settings.
- NURS 420 Concepts—Community Health Nursing II** (2)  
**NURS 420L Practicum—Community Health Nursing II** (5)  
 Opportunities provided for the observation and application of concepts from Introduction to Concepts of Community Health (NURS 350). Practicum in the community health setting are an integral part of the course. Prerequisites: NURS 340-340L, NURS 350.
- NURS 430 Health Assessment—Psychosocial** (2)  
**NURS 430L Health Assessment—Psychosocial Laboratory** (2)  
 Develops skills in assessing an individual's achievement of developmental tasks, interactions with others, and responses to stress. Emphasis is placed on evaluation of coping mechanisms, support systems and group dynamics.
- NURS 441 Nursing Management I** (2)  
**NURS 441L Nursing Management I Laboratory** (1)  
 Provides a practical guide to the understanding and implementation of management concepts, functions, techniques and skills as they apply in health care agencies, utilizing a humanistic management process.
- NURS 442 Nursing Management II** (2)  
**NURS 442L Nursing Management II Laboratory** (1)  
 Continuation of NURS 441, Nursing Management I. Prerequisite: NURS 441-441L.
- NURS 460 Health Delivery System** (2)  
 An exit level course providing an overview of the multiple roles of health care delivery systems, including both traditional and alternative methods, with emphasis on the rural setting. Includes discussion of the impact of the federal government, insurance programs and consumerism on health care delivery.
- NURS 481 Independent Study in Nursing** (1)  
**NURS 482 Independent Study in Nursing** (2)  
 Designed to allow the student to pursue an area of interest in nursing. Must have completed a minimum of 8 semester hours in upper division nursing courses and have a cumulative grade point average of 2.75 or higher before enrolling.

**NURS 491 Seminar in Selected Nursing Topics (1)**

**NURS 492 Seminar in Selected Nursing Topics (2)**

Discussion of current topics, issues and problems in nursing and health care. Topics of the seminar announced each semester. Prerequisites: senior classification and consent of instructor.

## **Office Administration**

**(School of Business)**

**BUOA 101 Secretarial Accounting (3)**

For persons required to keep accounting records in a legal, medical, or other professional office or for those who will work in the accounting department of a small retail firm. Includes fundamental accounting principles from opening a set of books through the closing process. This one-semester course is not advised for those who plan to take Principles of Accounting. No credit allowed if credit already established in Principles of Accounting. (Fall, Spring.)

**BUOA 111 Beginning Shorthand (3)**

For students with no previous knowledge of Gregg shorthand. A presentation of the theory of Gregg shorthand with a limited amount of dictation given at rates of 40 to 60 words per minute. No credit will be given if student has high school credit in Gregg shorthand. (Fall.)

**BUOA 112 Intermediate Shorthand (3)**

Review of principles of shorthand, application of office standards for mailable transcripts, dictation at rate of 70 to 90 words a minute and transcription at the rate of 20 to 35 words a minute. Prerequisite: one semester of shorthand theory or the equivalent plus BUOA 152, concurrent enrollment in BUOA 152, or permission of the instructor. (Fall, Spring.)

**BUOA 151 Beginning Typewriting (3)**

For students with no previous training in typing. No credit will be given if student has received one year of high school credit. Introduction to the keyboard and parts of the machine and development of minimum skill. Instruction and practice on simple business letters, tabulation and manuscripts. Consent of instructor required. Priority given to students in office occupations. Others may register on a space-available basis. (Fall, Spring.)

**BUOA 152 Intermediate Typewriting (3)**

Emphasis on typing mailable letters, manuscripts, and business forms. Development of speed required in the average office. Prerequisite: BUOA 151 or one year of high school typing or equivalent. (Fall, Spring.)

**BUOA 201 Office Management (3)**

Functions of the office and office organization: work in the office, office layout, equipment, supplies and forms, personnel problems, costs and control of office work. Methods of recognizing and solving office communication problems; awareness of successful human relations; changing technologies and philosophies of business; technical terminology used in business. (Spring.)

**BUOA 221 Transcription Machines (3)**

Fundamental skills on various types of dictation and transcription machines. Emphasis is placed on machine operation and speed and accuracy of transcription on the typewriter. Prerequisites: One year of high school typing, BUOA 152, or concurrent enrollment in BUOA 152. (Fall.)

**BUOA 231 Medical Transcription (4)**

Helps develop competency with transcribing machines through use of medical correspondence and professional records. Prerequisites: BUOA 152, concurrent enrollment in BUOA 152 or permission of instructor, and BUHL 147 (Medical Terminology) or equivalent. (Spring.)

**BUOA 244 Legal Procedures I (3)**

Helps prepare student for work as secretary in a law office through study of American court systems, branches of civil and criminal law, and secretarial procedures relating to ethical behavior and office-management techniques. Includes practice in preparing legal forms and documents with emphasis on speed, accuracy, and mailability, along with procedures to help develop confidence and poise necessary in a professional office. Prerequisites: Shorthand and typing proficiency and permission of instructor. (Fall.)

**BUOA 251 Advanced Typewriting (3)**

Skill development for rapid, mailable production of all typing jobs encountered in the business office. Prerequisite: BUOA 152. (Spring.)

**BUOA 261, 262 Independent Study in Secretarial Science (1, 2)**

Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required in all cases. (Arr.)

**BUOA 265 Electronic Word Processing (3)**

An introduction to electronic typing equipment. Basic proficiency in recording, editing, and storing documents. Provides an understanding of the utilization of such equipment in business and stresses the terminology unique to word processing. Consists of both classroom and laboratory instruction. Prerequisite: BUOA 152 or permission of instructor. (Fall, Spring.)

**BUOA 271 Office Simulation (3)**

The interrelationship of typing, shorthand, transcription, office machines and filing skills in the office environment. Concepts of personal development, interpersonal relations, and business ethics are also emphasized. Prerequisites: BUOA 112 and 152. (Spring.)

**BUOA 281 Secretarial Co-Op (8)**

On-the-job training for a minimum of 20 hours a week at an approved work station in the business community. Job placement is on the basis of the student's program of study and employment goals. Prerequisite: Sophomore status and/or approval of instructor. (Fall, Spring.)

**BUOA 282 Secretarial Co-Op (15)**

On-the-job training for a minimum of 40 hours a week at an approved work station in the business community. Job placement is on the basis of the student's program of study and employment goals. Prerequisites: Sophomore status and approval of the instructor. (Fall, Spring.)

**BUOA 285, 286 Related Work Experience (1, 2)**

See BUAC 264, 265 course description.

## **Philosophy and Religious Studies**

**PHIL 251 History of Philosophy I (3)**

Philosophical problems, including relation of the individual to the state, death and the after life, the physical universe, and existence of God, as seen through Greek and Medieval thinkers such as Socrates, Plato, Aristotle, and St. Thomas Aquinas.

**PHIL 252 History of Philosophy II (3)**

Continuation of topics raised in PHIL 251, as seen through thinkers of the modern period, such as Machiavelli, Luther, Galileo, Descartes, Nietzsche, and the existentialists.

**PHIL 275 Introduction to Logic (3)**

The study of different forms of reasoning, valid vs. fallacious, inferences, strong vs. weak arguments, various techniques for deciding when the conclusions met in any area of life and study are supported by logical reasoning and the proper sorts of evidence. A course designed to increase students' ability to reason clearly and correctly, and students' ability to following and critically evaluate the reasoning of others.

**PHIL 351 Aesthetics (3)**

Classical and contemporary theories of art; analysis of works in visual arts, music, dance, literature, theatre and film. Recommended for fine arts, education, and English majors.

**PHIL 352 Ethics (3)**

A course designed to help the student achieve a personal ethical viewpoint through study of such problems as war and violence, right to dissent, abortion, capital punishment, treatment of minorities, famine relief, genetic engineering, and the environmental crisis. Survey of major ethical philosophers such as Plato, Aristotle, Locke, Kant, Spinoza, Thoreau, Jefferson, Nietzsche, Mill, and Fletcher, with emphasis on application of their concepts to current issues.

**ANTH 230 Myth, Magic and Religion (3)**

Comparative studies of myth, magic and religion from the Upper Paleolithic through the earliest civilizations using anthropological, archaeological and psychological sources.

**ENGL 335 Bible as Literature (3)**

Study of the Old Testament as a literary masterpiece.

**SOCS 210 Religion in the American Experience (3)**

An interdisciplinary course emphasizing the role of religion and religious movements in the historical development of American civilization and culture.

**SOC 310 Sociology of Religion (3)**

A study of the social and cultural manifestations of religion. Attention is given to the insights of sociologists, recent studies, and contemporary social movements. Prerequisites: SOC 260 or permission of instructor.

**Suggested Allied Courses**

English 131, 132 (World Literature); English 134, 135 (Mythology); English 145 (Oriental Literature); English 330 (Women in World Thought and Literature); English 340, 341 (Classical Literature in Translation); History 105, 106 (Eastern Civilizations); Anthropology 232 (Primitive Science and Religion)

**Physical Education and Recreation**

(School of Social and Behavioral Sciences)

**Physical Education Activity Courses**

(1 ea.)

PER 101 Beginning Swimming	PER 123 Racquetball
PER 102 Intermediate Swimming	PER 125 Handball
PER 103 Diving	PER 127 Physical Conditioning
PER 104 Water Polo	PER 129 Weight Training
PER 108 Canoeing	PER 130 Fitness and Figure Control
PER 110 Sailing	PER 133 Skiing
PER 112 Backpacking	PER 135 Cross-Country Skiing
PER 113 Beginning Bowling	PER 137 Horseback Riding
PER 114 Intermediate Bowling	PER 139 Roller Skating
PER 115 Beginning Golf	PER 141 Bicycling
PER 116 Intermediate Golf	PER 143 Orienteering
PER 117 Badminton	PER 145 Wrestling
PER 119 Archery	PER 147 Track and Field
PER 121 Beginning Tennis	PER 149 Gymnastics
PER 122 Intermediate Tennis	

PER 152 Softball	PER 176 Beginning Ballet
PER 154 Beginning Baseball	PER 177 Intermediate Ballet
PER 155 Intermediate Baseball	PER 180 Beginning Modern Dance
PER 156 Soccer	PER 181 Intermediate Modern Dance
PER 158 Speedball	PER 184 Modern Jazz Dance
PER 160 Field Hockey	PER 186 Tap Dance
PER 162 Volleyball	PER 190 Varsity Football
PER 164 Beginning Basketball	PER 191 Varsity Basketball
PER 165 Intermediate Basketball	PER 192 Varsity Baseball
PER 166 Flag Football	PER 193 Varsity Wrestling
PER 168 Beginning Hatha Yoga	PER 194 Varsity Tennis
PER 169 Intermediate Hatha Yoga	PER 195 Varsity Volleyball
PER 172 Square Dance	PER 196 Varsity Softball
PER 173 Folk Dance	PER 197 Varsity Track and Field
PER 174 Social Dance	

Physical Education courses numbered above 199 do *not* count as activity courses.

**PER 200 Introduction to Physical Education (2)**

Orientation to the breadth, scope and nature of the professional program in physical education. Required of all Physical Education Majors.

**PER 210 Introduction to Recreation and Leisure Services (3)**

Orientation to park and recreation service. Scope of service, history, and professional development as it relates to public semi-public, private agency, military, and therapeutic recreation services. Required of all Recreation majors.

**PER 220 Methods of Dance (2)**

**PER 221 Methods of Gymnastics, Stunts and Tumbling (2)**

**PER 222 Methods of Basketball (1)**

**PER 223 Methods of Volleyball (1)**

**PER 224 Methods of Golf (1)**

**PER 225 Methods of Tennis (1)**

**PER 226 Methods of Badminton (1)**

**PER 227 Methods of Track and Field (1)**

**PER 228 Methods of Soccer (1)**

**PER 229 Methods of Archery (1)**

A series of courses designed to acquaint students with the skills, the instructional procedures, techniques and progressions of selected sports normally taught in the public schools and in recreational facilities. Prerequisite: PER 200 and intermediate level competency in the sport.

**PER 230 Beginning Improvisation and Composition in Dance (3)**

Theory and practice in basic principles of dance composition.

**PER 231 Creative Play Activities in Movement (3)**

Designed for students who will be working with students. Emphasis is placed on creative movement exploration through the Laban series of body, effort, space and relationship.

**PER 233 Repertory Dance (1)**

Student participates directly in the production of a dance choreographed by faculty or guest artist.

**PER 234 Care and Prevention of Athletic Injuries (2)**

A course designed to acquaint the student with the procedures and techniques involved in preventing and treating common injuries associated with competitive athletics. Prerequisites: PER 200.

**PER 240 Sports Officiating—Football (1)**

**PER 241 Sports Officiating—Basketball (1)**

**PER 242 Sports Officiating—Volleyball (1)**

**PER 243 Sports Officiating—Wrestling (1)**

**PER 244 Sports Officiating—Gymnastics (1)**

**PER 245 Sports Officiating—Baseball and Softball (1)**

**PER 246 Sports Officiating—Track and Field Events (1)**

A series of courses designed to acquaint students with the rules and procedures of officiating selected competitive sports. Prerequisite: PER 200.

- PER 250 Advanced Lifesaving** (3)  
American Red Cross course, leading to ARC advanced lifesaving certification to qualified students.
- PER 251 Water Safety Instructors Course** (3)  
American Red Cross course, leading to ARC WSI certification to qualified students. Prerequisite: ARC advanced life saving certificate.
- PER 260 Personal and Community Health** (2)  
Discussion and evaluation of personal and community health problems. Emphasis on development of proper health attitudes and practices.
- PER 261 Kinesiology** (3)  
A course designed to develop understanding of the mechanics of sport-related human movement through a study of selected physical, anatomical and physiological factors affecting human performance. Prerequisites: BIOL 141, 141L, PER 200.
- PER 265 First Aid** (2)  
American Red Cross course, ARC standard and advanced certification to qualified students.
- PER 270 Recreation and Special Populations** (3)  
The study of recreation as a resource and tool for recreational personnel working with specific populations. The special populations discussed are: the mentally retarded, youth and adult offenders, mentally ill, alcoholics and drug addicts, the physically disabled, visually impaired, the economically deprived, racial minorities and the aged. Prerequisite: PER 210.
- PER 276, 277 Theory and Practice in Ballet** (1, 1)  
Intermediate to advanced work in theory and practice of Ballet for Dance Emphasis students. Prerequisites: PER 176, 177 or THEA 121, 122.
- PER 280, 281 Theory and Practice of Modern Dance** (1, 1)  
Intermediate to advanced work in theory and practice of Modern Dance for Dance Emphasis students. Prerequisites: PER 180, 181 or THEA 123, 124.
- PER 295 Physical Education and Recreation Assistantship** (1)  
A course involving students as assistants to teachers of physical education activities or to public recreation practitioners in the recreation setting.
- PER 296 Independent Study in Dance Composition** (2)  
Prerequisite: PER 230 or THEA 222.
- PER 301 Tests and Measurements in Physical Education** (2)  
A study of modern testing and evaluation programs applied to physical education including biological, neuromuscular, personal, social and interpretive development. Prerequisite: PER 200.
- PER 307 Philosophy and Psychology of Coaching** (2)  
A course dealing with the fundamental philosophic and psychological principles related to coaching competitive athletic teams. Prerequisite: PER 200.
- PER 310 Sports Theory—Football** (2)
- PER 311 Sports Theory—Basketball** (2)
- PER 312 Sports Theory—Wrestling** (2)
- PER 313 Sports Theory—Baseball and Softball** (2)
- PER 314 Sports Theory—Track and Field Events** (2)  
A series of courses designed to acquaint students with fundamental principles, techniques, movements, strategies, patterns and ethics of selected competitive athletics. Prerequisite: PER 200.
- PER 321 Repertory Dance** (1)  
Student participates directly in the production of a dance choreographed by faculty or guest artist.
- PER 324 Dance Production** (2)  
Analysis and practice in elements of publicity, lighting, costuming and makeup for dance. Emphasis is placed on the non-traditional forms of dance production.

- PER 326 Methods of Teaching Ballet and Modern Dance** (3)  
A course dealing with the theory and application of methods of teaching Ballet and Modern Dance. Prerequisites: PER 276 or 277 and PER 280 or 281.
- PER 380 Planning and Design of Park and Recreation Facilities** (3)  
A survey of park and recreation areas and facilities (indoor and outdoor) with emphasis on planning, design, park land acquisition and development programs. Prerequisite: PER 210.
- PER 382 Camp Counseling** (3)  
Techniques of camp and outdoor recreation programming as it relates to public, resident and day camps. Counseling techniques of administration, program, and design constitute the course emphasis. Field trip required. Prerequisite: PER 210.
- PER 384 Leisure in Contemporary Society** (3)  
A course involving interpretation of recreation as a basic part of the living process, the importance of recreation in individual communities and the nation and the growing importance of leisure time problems. Prerequisite: PER 210.
- PER 390 Introduction to Therapeutic Recreation** (3)  
A presentation of therapeutic recreation in the United States today. The course considers such topics as: therapeutic recreation services, rationale for therapeutic recreation, recreation and mental illness, recreation for the mentally retarded, the physically disabled and the aging, programs for socially deviant or dependent youth, community services for the disabled, and evaluation and research in therapeutic recreation. Prerequisites: PER 210, PER 270.
- PER 396 Independent Study in Dance Composition** (1)  
Prerequisite: PER 296.
- PER 403 Physiology of Exercise** (2)  
A course dealing with the effects of various types of exercise upon human body structure and function. Prerequisite: PER 261.
- PER 407 Organization and Administration of Physical Education and Intramurals** (2)  
A course designed to acquaint students with organizational structures and administrative techniques in physical education, athletic and intramural sports programs. Prerequisite: PER 200.
- PER 410 Recreation and Mental Retardation** (3)  
An introductory course designed to provide an understanding of recreation's specific facility in meeting needs of the mentally retarded. Course content; basic physical and motor fitness, perceptual motor development, movement experience, psychological and social behavior, and lab experience. Prerequisites: PER 210, PER 270, PER 290.
- PER 420 Therapeutic Recreation Service** (3)  
An introduction to technical and theoretical information required to administer and program recreation therapy services in both the institutional and the community setting. Prerequisite: PER 210.
- PER 421 Repertory Dance** (1)  
Direct student participation in the production of a dance choreographed by faculty or guest artist.
- PER 450 Recreation for the Aged** (3)  
A course which will prepare the student in therapeutic recreation to work with the aged through knowledge of philosophy of recreation in gerontology, group leadership, developing the volunteer program, day centers and clubs, institutions, special programming and special events. Prerequisites: PER 210, PER 270, PER 390.
- PER 470 Management and Operation of Golf Facilities** (2)  
Fundamentals of operative golf facilities with special emphasis on turf maintenance, concession facilities, equipment purchasing, sample bids and lease proposals, legal liabilities, programming of lessons and tournaments, course design, pro-shop operation and driving range operation. Prerequisite: PER 210.

**PER 472 Recreation for the Physically Disabled (3)**

The study of recreation activity and its modification and adaptation for the physically disabled participant. Resources, programming, equipment, legislation, grants, and area and facility adaptation constitute the course emphasis. Prerequisites: PER 210, PER 270, PER 390.

**PER 480 Organization and Administration of Recreation and Leisure Services (3)**

A course in modern theory and methodology of the administrative process, including such topics as personnel management, revenue resources, budget and fiscal management, public relations, planning, evaluation and research, structure and organization, department manuals and staff guidelines. Prerequisite: PER 210.

**PER 482 Management and Operation of Aquatic Facilities (3)**

Procedures for effective management of swimming pools, wading pools, water front, ponds, lakes, and reservoirs for recreational use. The course concentrates on lifeguard and instructional staff duties, maintenance materials and operation, pool chemistry and winter sport use. Prerequisite: PER 210.

**PER 484 Programs in Recreation and Leisure Services (3)**

Methods of planning a balanced community recreation program. The primary emphases are on leisure counseling, survey and interest finding instruments, brochure construction, activity structures, advertising and program promotion. Prerequisite: PER 210.

**PER 486 Recreation and Leisure Service Leadership and Supervision (4)**

Theory and application of leadership techniques, management styles, motivation programs, and problem solving. Such topics as recruitment, assignment, evaluation, and in-service training programs are considered. The student is expected to complete an on the job leadership or supervision project. Prerequisite: PER 210.

**PER 495 Internship in Recreation and Leisure Services (12)**

Full time placement in a recreation and/or park agency. The course is designed to provide a smooth transition from the classroom to the work setting through first hand experience. The student is expected to complete a minimum of six hundred clock hours in one or two agencies (300 hours each). Application must be made during the first four weeks of the semester prior to the semester in which the internship is planned. Prerequisites: PER 210, PER 480, PER 482, PER 486.

**PER 496 Independent Study in Dance Composition (1)**

Prerequisite: PER 396.

**PER 498, 499 Independent Study in Recreation (1, 2)**

Prerequisites: Grade point average of 3.0, ten semester hours of courses in recreation and permission of instructor.

## **Physical Science**

(School of Natural Science and Mathematics)

**PSCI 101 Chemistry and Physics for Allied Health (2)**

Applications of selected principles of chemistry and physics toward understanding the materials involved in the dental science. Two lectures per week.

**PSCI 111 Survey of Physics (3)**

Lectures and demonstrations in the traditional fields of physics intended to show the student that he or she already knows much physics. Approaches non-mathematically with emphasis on the conceptual, qualitative aspects of physics. Intended for students with majors other than the sciences. Three lectures per week.



**PSCI 112 Survey of Chemistry (3)**

Lectures and demonstrations on the major principles of chemistry. Approached non-mathematically and with attention to chemical technology and its effect on society. Intended for students with majors other than the sciences. Three lectures per week.

**PSCI 113 Survey of Earth Science (3)**

Lectures on important topics in geology as well as the solar system, weather, and the oceans. Emphasis on understanding the physical makeup of the earth. Intended for students with majors other than the sciences. Three lectures per week.

**PSCI 114 Elementary Astronomy (3)**

An introduction to modern stellar and extra-galactic astronomy. Topics in planetary exploration, stellar evolution, and cosmology will be discussed. Evening observing will be scheduled when possible. Three lectures per week.

**PSCI 115 Weather and Climate (3)**

Lectures and demonstrations on the causes and effects of typical weather and climate phenomena of the world and particularly of the western United States. Included are such topics as earth's general air circulation, seasons, heating, cooling, air masses, and the formation and classification of clouds. Three lectures per week.

## Physics

### (School of Natural Sciences and Mathematics)

**PHYS 111 Introduction to Physics (3)**

A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, and optics. Intended for students of subjects other than the natural sciences. Three lectures per week.

**PHYS 111L Introduction to Physics Laboratory (1)**

Laboratory work emphasizing the principles and methods of physics. One three-hour session per week.

**PHYS 211, 212 General Physics (4, 4)**

A lecture course in mechanics, electricity, magnetism, thermodynamics, sound, optics, and modern physics. Problem solving is emphasized. Prerequisite: college trigonometry. Four lectures per week.

**PHY 211L, 212L General Physics Laboratory (1, 1)**

Laboratory work confirming general principles by observation and evaluation of quantitative data. Detailed laboratory reports are required. One three-hour session per week.

**PHY 221, 222 Engineering Physics (4, 4)**

A lecture course in classical physics. Particle mechanics is explored, emphasizing concepts of momentum, energy, and conservation laws. Special relativity is introduced. Rigid bodies, oscillations, and waves are analyzed, including applications to thermodynamics. The course concludes with a survey of electromagnetic theory. Calculus is used throughout. Corequisite: MATH 151. Four lectures per week.

**PHYS 221L, 222L Engineering Physics Laboratory (1, 1)**

Laboratory work in the classical branches of physics. Formal laboratory reports are required. One three-hour session per week.

**PHYS 224 Modern Physics (4)**

A lecture course introduces special relativity, quantum physics, nuclear physics, and solid state physics. Offered alternate years or upon sufficient demand. Prerequisite: PHYS 222. Four lectures per week.

**PHYS 248 Independent Study in Physics (1)**

A course in which a student with a previously developed interest in and knowledge of a specialized subject can continue his or her work. It is expected that most such work will be original. However, studies of a non-original nature but not in the established curriculum will also satisfy the requirements of this course. Prerequisite: consent of instructor. Work schedule by arrangement.

**PHYS 249 Independent Study in Physics (2)**

See Independent Study course description under PHYS 248.

## **Political Science**

### **(School of Social and Behavioral Sciences)**

**POLS 101, 102 American Government (3, 3)**

A study emphasizing the framework and functions of the national government with some attention to state and local governments.

**POLS 256 State and Local Government (3)**

A study of the development, organization and operation of state and local governments in the United States. Prerequisites: POLS 101, 102.

**POLS 261, 262 Comparative Governments (3, 3)**

An introduction to comparative politics emphasizing the political systems of Great Britain, France, Germany, the Soviet Union, the Chinese People's Republic, and the developing nations. Prerequisites: POLS 101, 102 or permission of the instructor.

**POLS 300 The Washington Seminar (12)**

Seminar-internship conducted in Washington, D.C., in cooperation with the Washington Center for Learning Alternatives. Students do formal academic study in conjunction with intern assignments with congressional offices, executive agencies and the Justice Department. Prerequisites: 6 hours of political science and consent of the program coordinator.

**POLS 310 Constitutional Interpretations (3)**

A study of selected decisions of the Supreme Court of the United States, emphasizing recent cases involving freedom of religion and speech, equal protection of the laws, and criminal procedure. Prerequisite: 6 hours of political science.

**POLS 312 Public Administration (3)**

An introduction to public administration with emphasis on historical development, organizational structure and theory, management, personnel administration, fiscal administration and administrative responsibility. Prerequisites: POLS 101, 102.

**POLS 313 American Political Parties and Pressure Groups (3)**

A course tracing the development of political parties and pressure groups in the United States and their contemporary impact. Prerequisites: POLS 101, 102 or permission of the instructor.

**POLS 350 American Political Thought (3)**

A study of the political ideas, theories and concepts that have shaped American political institutions. Prerequisites: POLS 101, 102 or equivalents or permission of the instructor.

**POLS 351 Independent Study in Political Science (1)****POLS 352 Independent Study in Political Science (2)**

Prerequisites: six hours of political science, a grade point average of 2.75 or higher, and permission of the instructor.

## Psychology

### (School of Social and Behavioral Sciences)

**PSY 121, 122 General Psychology (3, 3)**  
A survey of the fundamental principles of psychology.

**PSY 200 Psychology of Human Adjustment (3)**  
A study of the problems of mental health and of the strategies useful in the pursuit of effective living in today's society. An introduction to abnormal psychology emphasizing prevention of serious problems through understanding change and growth in the modern world.

**PSY 210 Environmental Psychology (3)**  
An application of the principles and findings of general psychology to the challenge of mankind's living in the environment. Prerequisites: PSY 121, 122 or permission of instructor.

**PSY 220 Psychology of Women (3)**  
Historical and theoretical considerations toward the understanding of women's psychology in areas of physiology, love, work, friendship, marriage and psychological relationships. Prerequisites: PSY 121, 122.

**PSY 233 Human Growth and Development (3)**  
An introductory study of developmental principles, ages and stages of the life span and adjustment techniques. Not intended for social science majors. Credit for this course will not be granted if PSY 310, PSY 330 and/or PSY 350 are taken.

**PSY 254 Educational Psychology (3)**  
The psychological principles underlying the social, emotional, and intellectual development of the child as these relate to educational theory and practice. Prerequisites: PSY 121, 122.

**PSY 310 Child Psychology (3)**  
Principles of human development and psychology from conception to puberty. Prerequisites: PSY 121, 122.

**PSY 314 Psychology of Learning (3)**  
Classic and modern psychological explanations of the phenomenon of learning at both the human and lower animal levels. Prerequisites: PSY 121, 122; STAT 200.

**PSY 320 Social Psychology (3)**  
A study of social influences upon behavior. Consideration is given to topics such as: social perception, attitude formation and change, communication and leadership. Prerequisites: PSY 121, 122 or permission of the instructor; STAT 200.

**PSY 322 Motivation (3)**  
An examination of classical and contemporary psychological explanations of the forces that originate, direct, and sustain behavior. Prerequisites: PSY 121, 122; STAT 200.

**PSY 330 Adolescent Psychology (3)**  
Principles of human physiological and psychological development from puberty through young adulthood. Prerequisites: PSY 121, 122.

**PSY 332 Individual and Group Differences (3)**  
A study of some measurable similarities and differences in intelligence, aptitude, achievement and personality such as those between the sexes and among racial groups. Implications of measured differences for societal decisions regarding education and employment are examined. Prerequisites: PSY 121, 122; STAT 200.

**PSY 340 Abnormal Psychology (3)**  
A systematic presentation of the concepts related to psychopathology and personality disorders including functional causation, general psychological theory, and behavior deviation patterns. Prerequisites: PSY 121, 122; STAT 200.

**PSY 350 Psychology of Aging (3)**

A survey of the problems of aging in physiological, social and psychological perspectives with attention to such problems as health, housing, interpersonal relationships, finances, mobility, retirement and death. Prerequisites: PSY 121, 122.

**PSY 351 Independent Study in Psychology (1)****PSY 352 Independent Study in Psychology (2)**

Prerequisites: nine hours of psychology, a cumulative grade point average of at least 2.75 and permission of the instructor.

**PSY 400 Tests and Measurements (3)**

An introduction to the theory, problems, methods and content of psychological measurement, including such topics as: concepts of the purpose of testing, test administration and scoring, standardization, reliability, validity, and test evaluation, and a survey of the major tests used in educational and psychological testing. Prerequisites: PSY 121, 122; STAT 200.

**PSY 412 Industrial and Organizational Psychology (3)**

The application of psychological principles to formal, productive organizations such as businesses, governments and schools. Personnel selection, placement, training and evaluation, motivation to work, job satisfaction and morale are examined. Prerequisites: PSY 121, 122; STAT 200. Counts as a management course for BBA candidates.

**PSY 414 Systems and Theories of Psychology (3)**

Systems and theories of modern psychology; the development of scientific psychology since 1879. Prerequisites: PSY 121, 122 and 12 or more hours of upper division psychology course work or permission of the instructor.

**PSY 420 Personality (3)**

Personality theories from the time of Freud through the present, with emphasis on the development and functioning of the normal personality. Prerequisites: PSY 121, 122; STAT 200.

**PSY 422 Experimental Approaches to Sensation and Perception (3)**

An introduction to the visual and auditory information processing systems. Frequent classroom demonstrations and occasional opportunities for student experimentation. Prerequisites: PSY 121, 122; STAT 200.

## **Radiologic Technology**

(School of Nursing and Allied Health)

**RADT 111 Radiologic Orientation (1)****RADT 111L Radiologic Orientation Lab (1)**

Complete overview of radiologic technology with emphasis on guidelines of the program, history, the medical team, health-care delivery, medical ethics, professional conduct, and professional organizations and developments. Supervised experience in the clinical laboratory which enables student to become familiar with hospital and departmental policies, standard radiographic projections, nursing procedures, office procedures, basic radiation protection and development of film.

**RADT 112 Radiologic Physics (2)**

A study of basic atomic theory. In-depth study of X-ray production and artificial radioactivity, interaction of radiation with matter, basic radiation projection, and preventive maintenance of X-ray equipment.

**RADT 121 Radiologic Technology I (2)****RADT 121L Radiologic Technology I Lab (1)**

Radiography of appendicular skeletal system, abdomen and thoracic viscera. Student is instructed in every phase of radiologic technology in an integrated coverage of each of the above areas.

**RADT 122 Radiologic Principles I (2)**

**RADT 122L Radiologic Principles I Lab (1)**

A theoretical and practical approach to the fundamentals of radiography. Topics include: production of X-rays, equipment, accessory devices, production of radiographs, exposure mathematics and radiation hazards and protection. Technical and prime exposure factors are discussed and applied in the energized lab. Students make actual radiation exposures on a phantom patient in order to observe and learn the effect of various factor changes (Ma, time, kVp, distance, filtration, collimation, grid screens, X-ray film).

**RADT 123 Clinical Experience I (4)**

Emphasis on areas covered in RADT 121. Includes one hour of film critique provided by clinical instructor.

**RADT 131 Radiologic Technology II (2)**

**RADT 131L Radiologic Technology II Lab (1)**

Continuation of RADT 121. Students are instructed in every phase of radiography of the axial skeleton, digestive system, urinary system, and dental radiography.

**RADT 132 Radiologic Principles II (2)**

Continuation of RADT 122. Subjects include: X-ray film processing chemistry, manual and automatic processing, sensitometry, film artifacts and their causes. Students are instructed in processor maintenance and develop an awareness for quality assurance in radiology.

**RADT 133 Clinical Experience II (4)**

Continuation of RADT 123 in all phases of radiology, especially the areas covered in RADT 122. Includes one hour a week of film critique provided by the clinical instructor or radiologist.

**RADT 241 Radiologic Research (1)**

Students are required to prepare and present a formal scientific paper relative to Radiologic Technology, to include carrying out the appropriate research and data collection. Students present an oral report on their selected research topic.

**RADT 242 Radiologic Pathology (1)**

Designed to acquaint the student with certain changes which occur in disease and injury and their application to radiologic technology.

**RADT 243 Clinical Experience III (10)**

Continuation of RADT 133 in all phases of radiology, especially the areas covered in RADT 121 and 131. Includes one hour per week of film critique provided by the clinical instructor or radiologist.

**RADT 251 Radiologic Technology III (3)**

Study of specialized and highly technical procedures carried out in the department of radiology. Included is a study of the special equipment, opaque media, and radiographic anatomy involved in the procedures.

**RADT 252 Radiation Biology (2)**

The student will develop an understanding of the effects of ionizing radiation in biologic systems. The student will be aware of the public right to minimal radiation exposure. A discussion of the medical application of radiation in nuclear medicine and radiation therapy.

**RADT 253 Clinical Experience IV (10)**

Continuation of RADT 243 in all phases of radiology. Includes one hour per week of film critique provided by the clinical instructor or radiologist.

**RADT 261 Radiologic Technology IV (3)**

A study of pediatric radiography, departmental administration, and radiologic records. The last few weeks of this course are devoted to a review and preparation for the national registry examination.

**RADT 263 Clinical Experience V (10)**

Continuation of RADT 253 in all phases of radiology, with special emphasis on radiation therapy and nuclear medicine. Includes one hour per week of film critique provided by the clinical instructor or radiologist.

## Reading

### (School of Humanities and Fine Arts)

**READ 110 College Study Skills and Reading (3)**

Includes practice in taking notes and preparing for tests in other courses; also extensive drills to help improve memory, comprehension, and speed, which should be of benefit to the student in all areas of college study.

**READ 113 Reading Improvement (3)**

Designed for students who have average or better reading skills and wish to improve. Includes exercises in reading flexibility, comprehension, speed, and oral interpretation.

## Social Science

### (School of Social and Behavioral Sciences)

**SOCS 147 Exploratory Studies in the Social Sciences (1)**

**SOCS 148 Exploratory Studies in the Social Sciences (2)**

A course designed to allow social science students to explore areas of interest through work experience in schools, public offices, human services agencies, etc.

**SOCS 210 Religion in the American Experience (3)**

An interdisciplinary course emphasizing the role of religion and religious movements in the historical development of American civilization and culture.

**SOCS 310 Methods of Social Research (3)**

An introductory course in research methods and their application to the social sciences. Prerequisites: PSY 121, 122 or SOC 260.

**SOCS 351 History of Ideas in the Social Sciences:  
Ancient and Medieval Periods (3)**

A study of the major ideas of man and society in ancient Greece and Rome with attention to social conditions influencing their development and transmission into the social thought of Medieval Europe.

**SOCS 352 History of Ideas in the Social Sciences: Modern Period (3)**

A study of the emergence of the Idea of Progress, a set of ideas which underlie the social sciences, including history writing. Critique of the effectiveness of these ideas for a social science capable of meeting the problems of modern society. Prerequisite: SOCS 351.

## Sociology

### (School of Social and Behavioral Sciences)

**SOC 144 Marriage and the Family (3)**

The development of marriage and the family in various selected cultures; an examination of the important aspects of courtship and marriage; contemporary marital and domestic problems; changing family functions; efforts at stabilization and the problem of adjustment to a changing society.

**SOC 260 General Sociology (3)**

A survey of sociological concepts designed to acquaint students with the terminology, basic principles and important theories. Not open to freshmen.

**SOC 264 Social Problems (3)**

A discussion of some of the major contemporary social problems. Possible topics include: crime, race relations, war, the educational systems, unequal distribution of wealth and political apathy. Prerequisite: SOC 260, or permission of instructor.

- SOC 300 Political Sociology** (3)  
An interdisciplinary study of the interactions and interrelationships between social and political forces. Prerequisite: SOC 260 or POLS 101, 102, or permission of instructor.
- SOC 310 Sociology of Religion** (3)  
A study of the social and cultural manifestations of religion. Attention is given to the insights of sociologists, recent studies, and contemporary social movements. Prerequisite: SOC 260 or permission of instructor.
- SOC 312 Collective Behavior and Popular Culture** (3)  
An inquiry into the dynamics of forming new social structures with emphasis on contrasting popular cultures and their structures with collective behavior models of the study area. Prerequisite: SOC 260, or permission of instructor.
- SOC 314 Population Impact Problems and Urbanization** (3)  
A survey of population problems and theories of population growth, industrialization and urbanization. Prerequisite: SOC 260, or permission of instructor.
- SOC 316 Social Stratification** (3)  
An examination of the major theories regarding the causes and effects of the differential distribution of desirables by race, social class, and other variables. Prerequisites: SOC 260 or permission of instructor.
- SOC 330 Crime and Delinquency** (3)  
A study of crime, delinquency, and deviance, including the social and psychological factors of such behavior, trends in theory, correctional procedures, control, prevention, and laws. Prerequisite: SOC 260, or permission of instructor.
- SOC 350 Thanatology** (3)  
A critical review of concepts and findings of social scientists and a semi-scientific review of literature dealing with death. Prerequisite: SOC 260, or permission of instructor.
- SOC 351, 352 Independent Study in Sociology** (1, 2)  
Prerequisites: 6 hours of sociology, a cumulative grade point average of not under 2.75, and permission of instructor.
- SOC 360 Social Influences of Small Groups** (3)  
An inquiry into small-group processes in schools, peer groups, industry and other selected institutions; small groups as related to the larger social system; group structure and communications, the dynamics of social interaction. Prerequisite: SOC 260 or permission of instructor.
- SOC 400 History of Sociology** (3)  
A study of the development of sociology as a discipline from early times to the present. Prerequisite: SOC 260 or permission of instructor.
- SOC 410 Contemporary Social Theory** (3)  
A survey of sociological theories with an emphasis on 20th century contributions and the relationships of sociology to allied fields such as anthropology, psychology, economics and political science. Prerequisite: SOC 260, or permission of instructor.

## **Spanish**

### **(School of Humanities and Fine Arts)**

- SPAN 111, 112 First-Year Spanish** (3, 3)  
A beginning program designed to develop basic competency in understanding, speaking, reading and writing for the student who simply wants to travel as well as for the student who wants to fulfill a college foreign language requirement.

**SPAN 114, 115 Conversational Spanish**

(3, 3)

A beginning level class for evening adult students who wish to develop a basic vocabulary for speaking and understanding Spanish socially, on the job, or south of the border.

**SPAN 117, 118 Career Spanish**

(3, 3)

For students with or without prior knowledge of Spanish who wish to develop a speaking and understanding knowledge of the vocabulary and phrases most frequently encountered in the fields of air transportation; agriculture; automotive services; business; child care; education; engineering; geology; hotel, motel, restaurant and resort management; law enforcement; pre-dentistry; nursing; pre-medicine; ranching; retail sales; social work; and travel; recreation and hospitality management.

**SPAN 251, 252 Second-Year Spanish**

(3, 3)

A comprehensive intermediate-level transfer-type program which provides reinforcement and expansion of the four basic language skills developed in the first-year course as well as exposure to a wider variety of cultural materials and situations. Prerequisite: Two years of high school Spanish; SPAN 111, 112; or permission of the instructor.

## Speech

**(School of Humanities and Fine Arts)****SPCH 101 Interpersonal Communications**

(3)

Concerned with language, listening, response, defense of statement and/or non-verbal communication between two or more people.

**SPCH 102 Speechmaking**

(3)

Designed to help the student in the preparation, organization, and delivery of a speech.

**SPCH 111 Introduction to Speech Pathology**

(3)

An introductory course for students interested in exploring the field of speech pathology and audiology. Recommended for elementary education and early childhood education majors.

**SPCH 112 Voice and Diction**

(3)

The use of the speaking voice with emphasis on voice placement, speech sounds and the phonetic alphabet. Recommended for theater majors.

**SPCH 121 Introduction to Broadcasting**

(3)

An introductory course concerned with the broadcasting media of radio and TV. Basic techniques, history, and impact on society are covered.

**SPCH 122 Radio and TV Production**

(3)

A practical course in radio and television production. Prerequisite: SPCH 121 or consent of instructor.

**SPCH 202 Business and Professional Speaking**

(3)

Designed for the business or professional person who will be expected to speak in public as either a member or guest of an organization.

**SPCH 231, 232 Debate I**

(3, 3)

Research and development of the various types of debate formats using national and international topics of current interest. The student may enter into competition.

**SPCH 235 Discussion**

(3)

The class is concerned with the language of group interaction, with emphasis on types of groups, purposes, group structure, task orientation, group climate and group consensus. Assignments are based on topics of current interest.



- SPCH 241 Oral Interpretation** (3)  
Emphasis is placed on the reading aloud of prose, poetry, and essays with the intention of conveying the author's ideas to a listening audience.
- SPCH 242 Readers' Theatre** (3)  
The staging of a long work or several shorter works by the use of oral interpretation and a minimum of properties. Prerequisite: SPCH 241 or permission of the instructor.
- SPCH 302 Semantics** (3)
- SPCH 331, 332 Debate II** (3, 3)

## Statistics

### (School of Natural Sciences and Mathematics)

- STAT 200 Introduction to Probability and Statistics** (3)  
An introductory course in statistics and statistical methods. Included are: analysis of data, elementary probability, binomial distribution, random sampling, normal distribution, Student's t-distribution, regression and correlation, chi-square distribution, F-distribution, and nonparametric methods. Prerequisite: MATH 110 or two years of high school algebra. Three lectures per week.
- STAT 214 Statistical Applications in Business** (3)  
An introduction to the methods used in business for the collection and analysis of numeric data for decision-making purposes. The course covers probability and decision theory; classical distribution; statistical inference; methods of estimation and prediction as they apply to business situations. Prerequisite: MATH 113 or two years of high school algebra. Three lectures per week.
- STAT 311 Statistical Methods** (3)  
Simple and multiple analysis of covariance, introduction to non-parametric statistical techniques, design of experiments. Prerequisite: STAT 200 or STAT 214, or consent of instructor. Three lectures per week.
- STAT 312 Correlation and Regression** (3)  
Graphical and numerical analysis for simple and multiple correlation and regression problems, both linear and curvilinear. Time series and multivariate analysis, least squares. Prerequisites: STAT 200 or STAT 214, or consent of instructor. Three lectures per week.
- STAT 313 Sampling Techniques** (2)  
Survey designs, simple random, stratified and systematic samples; systems of sampling; methods of estimation; costs. Prerequisite: STAT 200 or STAT 214, or consent of instructor. Two lectures per week.
- STAT 325 Statistical Application in Social Studies and Psychology** (2)  
Applied problems in social science; linear models; design of experiments; sampling. For natural or social science students. Prerequisite: STAT 200. Two lectures per week.
- STAT 495, 496 Seminar** (1, 1)  
Seminars conducted by faculty, students and visiting professors. A total of fifteen hours needed for one seminar credit. One lecture per week.

## **Theatre and Dance**

(School of Humanities and Fine Arts)

- THEA 114 Summer Theatre** (3)  
introduces the student to a professional summer theatre experience. The student is expected to participate in all phases of the theatre operation including acting, technical work, directing, box office management, etc. It is advisable for a student enrolled in summer theatre not to enroll in any other class. Four plays are presented in a six-week period.
- THEA 115 Problems in Modern Theatre** (2)  
A cultural enrichment course which involves a tour to a theatrical center such as New York, London, and other cities for the observance of professional productions of dramas, musicals, dance concerts, operas, or other forms of stage entertainment. Papers and discussions are used for evaluation.
- THEA 117, 118 Play Production** (1, 1)  
A practical course in stagecraft concerned with the production of plays. The student works in all phases of production. Hours are arranged for the laboratory sessions.
- THEA 121, 122 Beginning Ballet** (1, 1)  
Basic elements of ballet concerned with body control and technique.
- THEA 123, 124 Modern Dance** (1, 1)  
Practical experience with movement technique in modern dance. Problem solving in shape, force, space, time and relationship.
- THEA 125 Beginning Tap Dance** (1)  
Basic course in a popular rhythmic American dance form that combines movement and sound.
- THEA 127 Beginning Modern Jazz** (1)  
The concept of jazz as a dance form.
- THEA 141 Introduction to Theatre** (3)  
This course introduces the student to the theatre and the business of play production and audience responsibility. Types of plays, styles of production, and audience critique are all considered. Required of all drama majors.
- THEA 142 Make-Up and Costuming** (3)  
All types of make-up for the stage are studied in this class. Students do straight and character make-up and learn the use of crepe hair, prosthesis, and other materials. The course includes basic outline of costume design, construction and history of costumes.
- THEA 147, 148 Drama Performance** (1, 1)  
To receive credit for this course a student must appear in a major production on the campus. The grade will be dependent upon the preparatory work on the play's character and upon the final performance.
- THEA 211 Creative Play Activities—Dance** (3)  
A course in movement designed for students who will be working with children. Emphasis is placed on creative movement exploration through the Laban theories of body, effort, space, and relationship.
- THEA 213 Creative Play Activities—Drama** (3)  
The use of creative dramatics in a learning situation. Includes subject matter of interest to anyone in early childhood education, general education, social work, religious education and/or recreation.
- THEA 214 Summer Theatre** (3)  
See THEA 114.
- THEA 217, 218 Play Production** (1, 1)  
See THEA 117, 118.

- THEA 221 Repertory Dance** (1)  
Provides opportunity for student to participate in dance productions.
- THEA 222 Improvisation and Composition Dance** (1)  
Theory and practice in the basic principles of dance composition.
- THEA 235 Development of World Cinema** (2)  
Through the study of various foreign films, the student is exposed to the development of the cinema as an art, propaganda, and educational medium. (Offered alternate years.)
- THEA 236 Development of American Cinema** (2)  
Through the study of various American films, the student is exposed to the development of American cinema as an art, educational, and propaganda medium. (Offered alternate years.)
- THEA 243 Theatre Practice: Scene Construction, Painting, and Design** (3)  
Techniques of construction and painting of scenery and properties for the theatre and basic principles of scene design.
- THEA 244 Theatre Practice: Light and Sound** (3)  
A basic course in the use of light and sound in various stage productions, including plays, dance concerts, and music programs.
- THEA 247, 248 Drama Performance** (1, 1)  
See THEA 147, 148.
- THEA 251 Stage Movement** (3)  
Basic techniques of gesture, mime and pantomime. Emphasis is placed upon developing an awareness of the use of the body as a means of expression.
- THEA 252 Beginning Acting** (3)  
Improvisation and various acting techniques are used in this study of the fundamentals of acting. Students perform solo, duo, and group scenes. Laboratory work includes participation in student directed plays. Prerequisite: SPCH 112 or permission of the instructor.
- THEA 314 Summer Theatre** (3)  
See THEA 114.
- THEA 315 Problems in Modern Theatre** (2)  
See THEA 115.
- THEA 317, 318 Play Production** (1, 1)  
See THEA 117, 118.
- THEA 321 Repertory Dance** (1)  
SEE THEA 221.
- THEA 324 Dance Productions** (1)  
Analysis and practice in the elements of publicity, lighting, costuming, and make-up for dance. Emphasis is placed on the non-traditional forms in dance production.
- THEA 331 History of Theatre** (3)  
A historical study of the theatre as an institution and its relationship to the other arts and to the social and economic environment. (Offered alternate years.)
- THEA 343 Scene Design** (3)  
Gives the student experience in designing scenery for various types of productions.
- THEA 344 Stage Lighting** (3)  
Advanced training in the design and execution of lighting for the stage.
- THEA 347, 348 Drama Performance** (1, 1)  
See THEA 147, 148.
- THEA 351 Dialects in Acting** (3)  
An introduction to the use of dialects in performance. Prerequisite: SPCH 112 or permission of instructor. (Offered alternate years.)

- THEA 352 Styles in Acting** (3)  
Introduces the student to the various styles of acting used for the Classical, Elizabethan, Romantic, melodrama and realistic periods. (Offered alternate years.)
- THEA 414 Summer Theatre** (3)  
See THEA 114.
- THEA 417, 418 Play Production** (1, 1)  
See THEA 117, 118.
- THEA 445, 446 Senior Projects in Technical Theatre** (3, 3)  
Work experience in various aspects of theatre such as scene design and construction, lighting design, sound and/or costume design.
- THEA 447, 448 Drama Performance** (1, 1)  
See THEA 147, 148.
- THEA 451 Beginning Directing** (3)  
As an introduction to the fundamentals of play production, the student directs scenes for projects. To receive credit for this course, the student must also complete THEA 452. (Offered alternate years.)
- THEA 452 Advanced Directing** (3)  
The student directs and produces a one-act play for public viewing. Prerequisite: THEA 451 or permission of instructor. (Offered alternate years.)
- THEA 453, 454 Independent Study** (3, 3)  
An in-depth study of some phase of theatre chosen by student under the guidance of a staff member of the Theatre Department.
- THEA 457 Advanced Acting** (3)  
A course for the serious acting student. The student presents a recital or program upon completion of the course. Prerequisite: THEA 351, 352 or permission of instructor.
- THEA 461 Experimental Directing** (3)  
The student produces and directs a play using experimental methods of staging. Prerequisite: THEA 451, 452 or permission of instructor.

## ***Travel, Recreation, and Hospitality Management***

(School of Business)

- BUTR 101 Travel Industry I** (3)  
An introductory course in tourism and its relationship to the business world. Provides an overview of all sectors of business and the components of the travel, tourism, and hospitality industry. Travel methods, destination resorts, and other businesses which serve the traveler are evaluated. A requirement for all Travel, Recreation, and Hospitality Management majors. (Fall.)
- BUTR 102 Travel Industry II** (3)  
A continuation of BUTR 101. Includes evaluation of job opportunities in the travel, recreation, and hospitality fields. Travel trends, feasibility studies, and marketing techniques are analyzed. Students are provided an opportunity to make preparations and acquire skill instructions for work in the student's career objective. Field trips and visiting lecturers are included in the course. Prerequisite: BUTR 101. (Spring.)
- BUTR 103 Travel and Tourism Marketing Techniques** (3)  
An interpretation of the marketing problems, strategies and techniques of industries engaged in serving the traveler. Evaluates methods of identifying the potential markets; the preferences and likely responses to promotional programs of both private and governmental travel entities. Required of all Travel, Recreation and Hospitality Management Majors. Prerequisite: BUTR 101. (Spring.)

**BUTR 201 Management in the Travel Industry I** (3)  
Provides an opportunity for the student to explore operating techniques and problems of the major industries involved in tourism, travel, and hospitality through the eyes of the operating manager. Specific skills used within the various industries are developed. Prerequisite: BUTR 102. (Fall.)

**BUTR 202 Management in the Travel Industry II** (3)  
Continuation of BUTR 201, which is a prerequisite: (Spring.)

**BUTR 251 Work Experience** (15)  
Combines classroom studies with salaried work in an experience which relates to the student's career goal. Normally offered in summer only. For Travel, Recreation, and Hospitality majors only. Credit not available through competency or challenge. Prerequisite: BUTR 202. (Arr.)

**BUTR 261, 262 Independent Study in Travel, Recreation, and Hospitality Management** (1, 2)  
Students must apply for this course through their adviser at least three weeks prior to the end of the semester preceding the semester in which they wish to take Independent Study. Only students who have completed nine credit hours of work in the field chosen for Independent Study and who have a cumulative grade-point average of 2.5 or higher will be allowed to enroll for credit in this course. Consent of instructor required. (Fall, Spring.)

**BUTR 264, 265 Related Work Experience** (1, 2)  
See BUAC 264, 265 course description.

## **Welding**

### **(School of Industry and Technology)**

**WELD 110 Welding Laboratory I** (7)  
Shop practice in safe use of equipment. Oxyacetylene welding for approximately six weeks on mild steel in all positions and beginning through intermediate arc welding for the remainder of the semester.

**WELD 112 Oxyacetylene and Arc Theory** (3)  
Instruction in the care and use of welding equipment, selection of the proper rods and processes and safety as it applies to welding and welding equipment. (Classroom.)

**WELD 115 Applied Mathematics** (2)  
Basic mathematics, fractions, decimals, percentages and basic algebra, all as applied in industry. Prerequisite: MATH 015 or equivalency.

**WELD 120 Welding Laboratory II** (7)  
A continuation of WELD 110 in refining the welding of mild steel in all positions. Prerequisite: WELD 110 or consent of instructor.

- WELD 121 Blueprint Reading** (2)  
Basic principles of blueprint interpretation and visualization of objects as applied to industry. Also the use and interpretation of welding symbols.
- WELD 122 Advanced Blueprint Reading** (2)  
A continuation of blueprint reading with emphasis on working with shop drawings. Prerequisites: WELD 121 and 131, ENGR 105, or consent of instructor.
- WELD 131 Fabrication Layout** (2)  
Basic layout techniques used from shop drawings to fabrication of sheet metal, plate, structural shapes and pipe.
- WELD 132 Advanced Fabrication Layout** (2)  
A continuation of fabrication layout, WELD 131. Prerequisite: WELD 121 and 131, ENGR 105 or consent of instructor.
- WELD 141 Shop Management and Structural Theory** (3)  
A study of shop operations, expenditures, floor-plan design and equipment of the modern-day shop and various welding codes as applied to industry.
- WELD 145 Metallurgy** (2)  
A general study of smelting, refining, and alloying. Discussion of heat-treating methods and the effects of welding on metals.
- WELD 230 Welding Laboratory III** (7)  
A continuation of WELD 120 with emphasis on low-hydrogen electrode welding techniques. Prerequisite: WELD 120 or consent of instructor.
- WELD 240 Welding Laboratory IV** (7)  
A continuation of WELD 230 with emphasis on Mig, Tig, and pipe welding. Prerequisite: WELD 230 or consent of instructor.
- WELD 251, 252 Work Experience** (7, 14)  
On-the-job training by local companies in fabrication, construction or maintenance welding. The student is responsible for securing the position and arranging work hours. Written papers are required as part of the course work. Minimum of 300 clock hours required for 7 credit hours or 600 clock hours for 14 credit hours. Work experience is scheduled each semester and may be taken as an elective after completion of the second semester of welding lab. Prerequisites: WELD 110, 112, 115, 120, 121, 131, 141, 145, 230, or consent of instructor. Four hours per day for 15 weeks will equate to seven semester hours credit. Eight hours per day for 15 weeks will equate to 14 semester hours credit.
- WELD 295, 296 Special Studies in Welding** (1, 2)  
Specialized studies related to student's field of training beyond the scope of the required curriculum. Students must enter into an agreement for specialized training prior to registration. Prerequisite: Sophomore standing or equivalent.

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*Mesa College reserves the right to withdraw from its offerings any course which the enrollment does not justify giving during any particular semester. Other courses may be added any semester if there is sufficient demand. In some programs, certain courses may be offered on an alternate-year basis or as determined by demand.*

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# GOVERNING BOARD AND ADMINISTRATION

## TRUSTEES OF THE CONSORTIUM OF STATE COLLEGES

JOHN D. EDDY ..... Grand Junction  
 GLADYS FOSTER ..... Englewood  
 BERTRAM MORRIS ..... Boulder  
 IRENE SWEETKIND, Chairman of the Board ..... Gunnison  
 JOHN H. VIGIL ..... Arvada  
 PHILIP A. WINSLOW ..... Colorado Springs  
 GEORGE W. WOODARD ..... Alamosa  
 LAURIE LUCERO, Student Member ..... Metropolitan State College  
 JOHN A. MARVEL, President of the Consortium of State Colleges  
 in Colorado ..... Denver

## CONSORTIUM OF STATE COLLEGES IN COLORADO

Adams State College ..... Alamosa  
 Mesa College ..... Grand Junction  
 Metropolitan State College ..... Denver  
 Western State College ..... Gunnison

## MESA COLLEGE STAFF OFFICIALS (1980-81)

### General Services

JOHN U. TOMLINSON (1975), President; B.A., M.S., Fort Hays Kansas State University; Ph.D., University of Kansas.  
 CARL R. WAHLBERG, JR. (1972), Vice-President for External Affairs; B.A., M.A., Ed.D., University of Denver.  
 R. PAUL MAFFEY (1980), Director of Publicity and Publications; B.A., Colorado State University.  
 DALE E. JARRELL (1978), Director of Data Processing; B.S., Colorado State University.

### Business Services

JOHN A. RICCILO, C.P.A. (1978), Vice-President for Administrative Affairs; B.S., Fordham University.  
 CHARLES E. GREEN (1980), Director of Budgeting and College Services; M.A., University of Northern Colorado.  
 WILLIAM C. CONKLIN (1972), Director of Physical Plant.  
 JOHN C. (JACK) KESTER (1966), Director of Purchasing; A.S., Mesa College.  
 CONNIE E. SAUER, C.P.A. (1977), Controller; B.A., Western State College.  
 DOUGLAS G. TUCKER (1975), Director of Personnel and Payroll; B.A., Western State College.

### Instructional Officers

H. HERBERT WELDON (1946), Professor of Mathematics, Vice President for Academic Affairs; B.A., M.A., Western State College.  
 ARLYNN D. ANDERSON (1979), Professor of Applied Technology; Dean, School of Industry and Technology; B.S., M.E., Colorado State University, Ed.S., Michigan State University.  
 CHARLES R. HENDRICKSON (1967), Director of Learning Resource Center; B.A., M.A., University of Northern Colorado.  
 KEITH W. MILLER (1965), Director of Continuing Education; B.A., M.A., University of Northern Colorado.  
 BETSY A. SNEED (1968), Registrar; B.S., East Texas State University; M.A., Adams State College.

**Student Services**

- JO F. DORRIS (1977), Vice President for Student Affairs; B.A., Oklahoma College for Women; M.S., Oklahoma State University; Ed.D., Arizona State University.
- RAY L. BIGGS (1976), Director of Housing; B.S., Montana State University; M.Ed., Colorado State University.
- TILMAN M. BISHOP (1962), Director of Student Services; B.A., M.A., University of Northern Colorado.
- LOUISE E. HAIMOWITZ (1979), Counselor; B.A., M.S.W., University of Denver.
- JOHN W. (JAY) JEFFERSON (1967), Director of College Center; B.A., M.A., Adams State College.
- FRANK KELLER (1973), Assistant Director of College Center and Coordinator of Student Activities; B.A., Adams State College.
- RICHARD N. McNEIL (1977), Intramural Director; Director of Adult Physical Education Activities; B.S., M.A., Michigan State University.
- C. A. (JACK) SCOTT (1963), Director of Admissions; B.A., University of Northern Colorado; M.A., University of Denver.
- LEONE F. SEEBO (1973), Residence Life Coordinator; B.A., Averett College; M.S., Radford College.
- MARION E. SHAW (1970), Counselor for Job Development and Placement; B.S., M.Ed., Colorado State University.
- LIONEL W. (BUD) SMOCK (1967), Director of Financial Aids and Student Employment; B.A., M.A., Western State College.
- HELEN M. SPEHAR, R.N. (1974), Director of Student Health Center; B.S., University of Colorado.
- ROBERT P. STOKES (1970), Counselor for Career Development; B.A., Western State College; M.A., Colorado State University.
- ANN M. VANDERTOOL (\*1966; 1969), Bookstore Manager.

**Library Staff**

- M. ELIZABETH (BETTY) GOFF (1965), Assistant Professor of Library Science, Reference Librarian; B.A., University of Colorado; M.A., University of Denver.
- KATHLEEN R. TOWER (1972), Assistant Professor of Library Science, Catalog Librarian; B.M.E., M.A., University of Denver.
- MARTIN A. WENGER (1968), Circulation Librarian; B.A., University of Utah; M.L.S., University of Oklahoma.

**+ Deans of Academic Schools**

- School of Business, James C. Carstens (1962)
- School of Humanities and Fine Arts, R. Bruce Crowell (1979)
- School of Industry and Technology, Arlynn D. Anderson (1979)
- School of Natural Sciences and Mathematics, William E. Putnam (1961)
- School of Nursing and Allied Health, Jane Vanderkolk (Acting) (1973)
- School of Social and Behavioral Sciences, Donald A. MacKendrick (1956)

**+ Department Heads**

- Art, Donald E. Meyers (1962)
- Agriculture, Maylon D. Peters (1977)
- Biological Sciences, Edward C. Hurlbut (1976)
- Computer Science, Mathematics, and Engineering, James C. Davis (1957)
- Geology, Jack E. Roadifer (1966)
- Human Services, Harry A. Tiemann (1962)
- Languages and Literature, Robert L. Johnson (1962)
- Music, Darrell C. Blackburn (1957)
- Physical Education and Recreation, Wayne W. Nelson (1955)
- Speech and Theatre, William S. Robinson (1960)
- Social Science, I. J. Nicholson (1960)

*(Figures in parentheses indicate year of regular appointment to Mesa College professional staff for half time service or more. Prior temporary or part-time service is not indicated.)*

*+ See individual listings under Instructional Personnel*

*\*Date of first employment in another classification.*



## **INSTRUCTIONAL PERSONNEL (1980-81 FACULTY)**

- HERMAN C. ALLMARAS (1963), Associate Professor of Physics; B.S., University of Wisconsin; M.S., New Mexico Highlands University.
- ARLYNN D. ANDERSON (1979), Professor of Applied Technology; Dean, School of Industry and Technology; B.S., M.Ed., Colorado State University; Ed.S., Michigan State University.
- NICHOLAS J. ANDERSON (1976), Assistant Professor of Business Management; B.B.A., Eastern New Mexico University; M.B.A., University of Denver.
- DANIEL J. AROSTEGUY (1976), Associate Professor of Economics; Director of Selected Studies; B.S., M.S., University of Nevada, Reno; Ph.D., Colorado State University.
- CHARLES W. BAILEY (1985), Associate Professor of Mathematics; B.A., M.A., University of Northern Colorado.
- BRUCE A. BAUERLE (1972), Associate Professor of Biology; B.A., University of Kansas; M.S., University of Missouri—Kansas City; D.A., University of Northern Colorado.
- HAROLD D. BECK, JR., (1980) Assistant Professor of Marketing/Management, M.B.A., Business and Ind. Rel., Harvard Business School.
- VIRGINIA L. BEEMER (1968), Instructor of Education; Director of Early Childhood Education Program; B.S., Northern Arizona University.
- RICHARD L. BERKEY (1967), Associate Professor of English; B.A., Fort Lewis College; M.A., Eastern New Mexico University.
- DARRELL C. BLACKBURN (1957), Professor of Music; Head, Department of Music; B.Mus.Ed., M.Mus.Ed., University of Colorado.
- ORVILLE L. BOGE (1956), Professor of Chemistry; B.A., M.A., University of Northern Colorado.
- HAROLD R. BOLLAN (1970), Associate Professor of Applied Technology (Auto Body and Fender); B.S., Southern Utah State College; M.A., Brigham Young University.
- LORRAINE N. BOSCHI (1961-63, 1970), Associate Professor of English; B.A., Ohio State University; M.A., Ohio University.
- WILLIAM T. BRANTON (1970), Assistant Professor of Applied Technology (Welding); Certified Instructor, State Board for Community Colleges and Occupational Education.
- CLIFFORD C. BRITTON (1964), Associate Professor of Mathematics; B.A., Adams State College; M.A., San Diego State College.
- C. JAMES BUCKLEY, C.P.A., (1972), Professor of Accounting; B.A., Western State College; M.S., Colorado State University.
- TENNIE ANN CAPPS (1964), Associate Professor of Office Administration; B.S., M.Bus.Ed., University of Oklahoma.
- PERRY H. CARMICHAEL (1969), Associate Professor of Speech; B.A., M.A., Western State College.
- JAMES C. CARSTENS (1962), Professor of Business Administration; Dean, School of Business; B.A., M.A., Western State College; Ph.D., Colorado State University.
- MARY CHAPMAN, (1980), Adjunct Assistant Professor Psychology, Ph.D., Psychology, University of Southern California.
- JOHN D. CHARLESWORTH (1970), Assistant Professor of Applied Technology (Auto Mechanics); B.Ed., M.Ed., Colorado State University.
- LEWIS M. CHERE, (1980), Assistant Professor of History, Ph.D., History, Washington State University.
- PHYLLIS L. CHOWDRY (1976), Assistant Professor of Biology; B.S., University of Denver; M.N.S., Arizona State University.
- ROBERT M. CORTESE (1980), Instructor of Physical Education/Head Football Coach, M.A., University of Northern Colorado.

- R. BRUCE CROWELL (1979), Professor of English; Dean, School of Humanities and Fine Arts; B.A., College of William and Mary; M.A., University of Arizona; B.D., San Francisco Theological Seminary; Ph.D., University of Arizona.
- JAMES C. DAVIS (1957), Professor of Mathematics; Head, Department of Computer Science, Mathematics, and Engineering; B.A., M.A., University of Northern Colorado.
- DIANE DEA, R.N. (1977), Assistant Professor of Nursing; B.S.N., University of Maryland; M.S.N., University of Colorado.
- DALE L. DICKSON (1969), Associate Professor of Business Management; B.S.B.A., University of Denver; M.Ed., Colorado State University.
- RICHARD A. DIMPFEL (1977), Assistant Professor of Business Management; B.A., Swarthmore College; M.B.A., University of Chicago; J.D., University of Maryland.
- MATTS G. DJOS (1976), Assistant Professor of English; B.A., University of Washington; M.A., University of Idaho; Ph.D., Texas A&M University.
- DAVID R. DUFF (1973), Assistant Professor of Applied Technology (Graphic Communications); B.A., Colorado State University.
- MARIE JOYCE EICHER, R.N. (1973), Professor of Nursing; B.S., Union College; M.S., University of Colorado.
- CHARLES R. FETTERS (1976), Assistant Professor of Applied Technology (Electronics); B.S., New Mexico State University.
- PATRICIA A. FINK (1966), Associate Professor of Psychology; B.A., M.A., University of Northern Colorado.
- MARCIA FORREST (1980), Assistant Professor of Nursing, M.S.N., University of Miami Nursing.
- DELL R. FOUTZ (1972), Associate Professor of Geology; B.S., M.S., Brigham Young University; Ph.D., Washington State University.
- JOSE ELI FRESQUEZ (1971), Assistant Professor of Applied Technology (Auto Mechanics); B.A., M.Ed., Colorado State University.
- RICHARD R. FROHOCK (1963), Associate Professor of English; B.A., William Jewell College; M.A., University of Oregon.
- HELEN GABRIEL (1977), Assistant Professor of Applied Technology (Dental Assisting); Director of Dental Assisting and Expanded Functions Program; B.V.E., California State University, Sacramento.
- JOSE L. GALLEGOS (1976), Associate Professor of English; B.A., Western State College; M.A., Ph.D., University of Colorado.
- LINDA KAY GEISLER (1979), Adjunct Instructor of Radiologic Technology; Certificate, Allen Memorial Hospital School of Radiological Technology.
- H. HUGH GIBSON, C.F.A. (1979), Assistant Professor of Accounting; B.S.B.A., M.B.A., University of Denver.
- GORDON GILBERT (1980), Associate Professor of Physics, Ph.D., Physics, MIT, Mass.
- JUDY GOODHART, R.N. (1976), Adjunct Assistant Professor of Nursing; B.S.N., Loretto Heights College; M.S.N., University of Colorado.
- THOMAS D. GRAVES (1966), Professor of Education; Director of Occupational Guidance Specialist Program; B.A., M.A., Adams State College; Ed.D., University of Northern Colorado.
- MAEBETH GUYTON (1971), Assistant Professor of Music; B.F.A., University of New Mexico.
- DONNA K. HAFNER (1967), Assistant Professor of Mathematics; B.A., University of Northern Colorado; M.A.T., Colorado State University.
- SEYMOUR HANAN (1980), Assistant Professor of Engineering, M.S.C.E., University of Southern California.
- CHARLES HARDY (1979), Instructor of Art; B.A., Colorado State University; M.F.A., University of Arizona.
- JAMES T. HARPER (1962), Professor of Economics; B.A., Central Methodist College; M.A., J.D., University of Colorado.
- ANDREA C. HARVEY, R.T. (1978), Director/Instructor, Radiologic Technology Program; B.A., St. Joseph's College, North Windham, Maine.
- EDWIN C. HAWKINS (1963), Associate Professor of Mathematics; B.A., M.A., University of Northern Colorado.
- JOHN G. HENSON (1963), Associate Professor of Mathematics; B.S., Texas Tech University; M.A.T., Colorado State University.
- FORREST S. HOLGATE (1979), Instructor of Applied Technology (Electric Lineman); B.A., Texas Tech University.
- CHRISTOPHER M. HOLLOWAY (1968), Associate Professor of History; B.A., California State University, Los Angeles; M.A., University of Colorado.
- CHEO HUMPHRIES (1962), Assistant Professor of Physical Education; B.S., Indiana University.
- EDWARD C. HURLBUT (1976), Assistant Professor of Biology; Head, Department of Biological Sciences; B.A., Western State College; M.S., Purdue University; Ph.D., University of Missouri—Columbia.
- E. BRUCE ISAACSON (1975), Assistant Professor of Business; Certified Instructor, State Board of Community Colleges and Occupational Education.
- RICHARD L. JACOBY (1977), Instructor/Coordinator of Diesel Program; Certified Instructor, State Board for Community Colleges and Occupational Education.

- ELDON C. JOHNSON (1976), Associate Professor of Office Administration; B.A., M.A., University of Northern Colorado; Ed.D., New Mexico State University.
- JAMES B. JOHNSON (1967), Associate Professor of Geology; B.A., University of Colorado; M.S., University of Utah; Ph.D., University of Colorado.
- ROBERT L. JOHNSON (1962), Professor of English; Head, Department of Languages and Literature; B.A., M.A., Western State College; Ph.D., University of Northern Colorado.
- STEVEN H. KAUTZSCH (1980), Instructor of Agriculture, M.S., Oklahoma State University.
- WALTER A. KELLEY (1977), Assistant Professor of Biology; B.A., M.S., California State University, Northridge; Ph.D., Colorado State University.
- CARL M. KERNS (1969), Professor of Mathematics; B.A., Western State College; M.S., University of Oregon; Ed.D., University of Northern Colorado.
- DEAN A. KERSHAW, CAPT. (1979), Assistant Professor of Military Science; B.S., Virginia Military Institute.
- JAMES L. KRAMER, P.E. (1976), Assistant Professor of Engineering; B.S. (Arch. E.), University of Colorado.
- PAUL LACHANCE (1978), Instructor/Director of Law Enforcement Program; B.A.A., M.P.A., Florida Atlantic University.
- DORIS R. LAY (1965), Associate Professor of English; B.A., M.A., Western State College.
- MILTON F. LENC (1960), Professor of Chemistry; B.A., Ohio Wesleyan University; M.S., Clarkson College of Technology; Ed.D., University of Northern Colorado.
- JERRY LIVINGSTON (1980), Instructor of Welding, A.A., Miami Dade Junior College.
- CALVIN J. LUKE (1966), Associate Professor of Mathematics; B.S., Brigham Young University; M.A.T., Colorado State University.
- DANIEL MACKENDRICK (1964), Professor of English; B.A., M.A., Western State College.
- DONALD MACKENDRICK (1956), Professor of History; Dean, School of Social and Behavioral Sciences; B.S., Colorado State University; M.A., University of Colorado.
- BARBARA WOLFE MAGENHEIM (1980), Assistant Professor of Nursing, M.S., Nursing, University of Colorado.
- CAPT. DAVID MAXWELL (1980), Assistant Professor of Military Science, B.S. in Business Administration, Citadel Military College, South Carolina.
- JESS R. MARTINEAU (1978), Assistant Professor of Agriculture; B.S., Brigham Young University; M.S., Utah State University; Ph.D., University of Nebraska, Lincoln.
- GARY L. MCCALLISTER (1973), Assistant Professor of Biology; B.S., M.S., Brigham Young University.
- WAYNE MEEKER (1966), Professor of Sociology; B.A., M.A., Western State College; Ph.D., University of Colorado.
- DONALD E. MEYERS (1962), Associate Professor of Art; Head, Department of Art; B.F.A., University of Denver; M.A., University of Northern Colorado.
- LOUIS G. MORTON (1966), Associate Professor of Political Science; B.S., University of Missouri—Columbia; M.A., Ed.S., Western State College.
- THOMAS L. MOUREY (1974), Instructor of Data Processing; B.A., Western State College.
- ELIZABETH MUSTEE, R.N. (1975), Associate Professor of Nursing; B.S., St. Mary's College; M.S., Boston University.
- MURIEL L. MYERS (1970), Assistant Professor of Office Administration; B.A., Western State College; M.Ed., Colorado State University; Ph.D., University of Colorado.
- WAYNE W. NELSON (1955), Professor of Physical Education; Head, Department of Physical Education and Recreation; B.S., M.S., Utah State University.
- I. J. NICHOLSON (1960), Professor of Sociology; Head, Department of Social Science; B.A., University of Colorado; M.A., Western State College.
- JACK M. PERRIN (1966), Assistant Professor of Physical Education; B.A., M.A., Northeast Missouri State University.
- MORTON PERRY (1961), Associate Professor of Political Science; B.S., Rutgers University; M.A., University of Wyoming; M.Phil., Syracuse University.
- MAYLON D. PETERS (1977), Assistant Professor of Agriculture; Head, Department of Agriculture; B.S., University of Nebraska; M.S., Iowa State University.
- W. DAVID PILKENTON (1963), Associate Professor of Foreign Languages; B.A., Marshall University; M.A., University of Michigan.
- WILLIAM E. PUTNAM (1961), Professor of Chemistry; Dean, School of Natural Sciences and Mathematics; B.S., Birmingham Southern College; M.S., Emory University; Ph.D., Rice University.
- CHARLOTTE A. REICKS (1976), Assistant Professor of Office Administration; B.A., Nebraska State College; M.A., Michigan State University.
- JOE D. REPLOCLE (1971), Instructor of Applied Technology (Diesel Mechanics); B.S., University of Southern Colorado.
- ROBERT R. RICE (1966), Professor of Agriculture and Biology; B.S., Colorado State University; M.S., University of Illinois; Ph.D., Colorado State University.
- JACK E. ROADIFER (1966), Professor of Geology; Head, Department of Geology; B.S., M.S., South Dakota School of Mines and Technology; Ph.D., University of Arizona.
- MAI N. ROBINSON (1961), Assistant Professor of English; B.S., Minot State College.

- WILLIAM S. ROBINSON (1960), Professor of Drama; Head, Department of Speech and Theatre; B.A., Morris Harvey College; M.A., New York University.
- DAVID E. ROGERS, C.P.A. (1975), Associate Professor of Accounting; B.A., University of New Mexico; M.B.A., Golden Gate University.
- LARRY D. RUNNER (1974), Assistant Professor of Art; B.A., Colorado State College; M.A., University of Northern Colorado; M.F.A., Utah State University.
- JAMES P. RYBAK, P.E. (1972), Associate Professor of Engineering; B.S.E.E., Case Western Reserve University; M.S., University of New Mexico; Ph.D., Colorado State University.
- P. DOUGLAS SCHAKEL (1978), Instructor of Physical Education; Director of Athletics; B.A., Central College; M.A., Adams State College.
- PAUL G. SCHNEIDER (1969), Associate Professor of Music; B.A., M.A., University of Northern Colorado.
- WILMA E. SCHUMANN, R.N. (1958), Assistant Professor of Nursing; Director, Practical Nursing; B.Ed., Colorado State University.
- CONNER W. SHEPHERD (1978), Assistant Professor of Recreation; B.A., Eastern Washington State University; M.A., Washington State University.
- ANN J. SANDERS SHOPBELL (1971), Assistant Professor of Physical Education; B.A., Eastern Washington State College; M.A., University of Colorado.
- ROBERT P. SOWADA (1966), Assistant Professor of Foreign Languages; B.A., M.A., University of Wyoming.
- MARLYN K. SPELMAN (1976), Associate Professor of English; B.A., Ph.D., University of Colorado.
- GENE H. STARBUCK (1974), Assistant Professor of Sociology; B.A., M.A., University of Colorado.
- ANN L. STEWART (1979), Instructor of Dental Assisting and Expanded Functions; C.D.A. Certificate, Indiana Purdue University, Indianapolis.
- MARCELLA M. SULLIVAN (1966), Associate Professor of Home Economics; B.S., M.Ed., Colorado State University.
- MARGARET S. SULLIVAN (1976), Instructor of Speech and Drama; B.A., M.A., University of Michigan.
- THEODORE E. SWANSON (1974), Assistant Professor of Recreation; B.S., M.A., University of Northern Colorado.
- CLARICE S. TAYLOR (1977), Assistant Professor of Home Economics; B.S., Iowa State University; M.S., Colorado State University.
- BARRY C. THARAUD (1976), Associate Professor of English; B.A., M.A., Ph.D., University of California, Santa Barbara.
- KENT THOMPSON (1980), Assistant Professor of Psychology, Ed.D., Psychology-Counseling, University of Northern Colorado.
- HARRY A. TIEMANN, JR. (1962), Professor of Psychology; Head, Department of Human Services; B.A., M.A., University of Colorado; Ph.D., Colorado State University.
- CARROLL C. TIMPTE (1967), Instructor in Applied Technology (Electronics); A.S., Wentworth Military Academy; Certified Instructor, State Board for Community Colleges and Occupational Education.
- JANE VANDERKOLK, R.N. (1973), Acting Dean, School of Nursing and Allied Health, B.S.N., M.P.H., University of Michigan.
- KAREN E. WALLACE (1977), Instructor of Physical Education; Coordinator, Women's Athletics; B.S., Eastern New Mexico University; M.S., Kansas State University.
- PAUL G. WELLS (1978), Assistant Professor of Applied Technology (Auto Body and Fender); B.A., University of Redlands.
- JERRY D. WETHINGTON (1979), Assistant Professor of Computer Science; B.S., University of New Mexico; M.S., Stanford University.
- KENNETH L. WHITE (1967), Assistant Professor of Chemistry; B.A., M.A., Western State College.
- BYRON E. WIEHE (1974), Assistant Professor of Physical Education; B.A., M.A., Adams State College.
- CLIFTON M. WIGNALL (1976), Associate Professor of Anthropology; B.A., M.A., University of California, Berkeley; Diploma in Anthropology, Oxford University, England; Ph.D., Albert Schweitzer College, Switzerland.
- EILEEN M. WILLIAMS, R.N. (1968), Professor of Nursing; B.S., University of Denver; M.S., University of Colorado.
- DENNIS L. WOODRICH (1980), Assistant Professor of Music, M.A. Music, University of California, San Diego.
- KERRY L. YOUNGBLOOD (1978), Instructor of Applied Technology (Welding); B.S., Oklahoma State University.
- ROBERT D. YOUNGQUIST (1966), Assistant Professor of Business Management; B.S.B.A., University of Denver; M.Ed., Colorado State University.
- JOHN S. ZEIGEL (1975), Professor of English; B.A., Pomona College; M.A., Ph.D., Claremont Graduate School.

**APPLIED MUSIC TEACHERS**

MARY LEAH CHAVIES, Piano, String, Bass  
 DON CRAIG, Piano, Organ, Guitar  
 ETHELYN CROSS, Piano  
 ALLEN DALEY, Guitar  
 JO ANN HALL, Piano  
 KERRY HENSON, Percussion  
 MARGARET HUTTON, Piano, Organ  
 CAROL NILES, Voice

ALLEN PORTER, Flute  
 CARLTON SCHUSTER, Piano  
 WALTER SMITH, Piano  
 ALFRED URBACH, Cello  
 GEORGIA WATKINS, Flute  
 MELBA WILKINSON, Violin  
 EMMY LOU WEBER, Harp  
 DONNA WILLIAMS, Piano

**EMERITI**

1955

Mattie F. Dorsey, B.A., M.A., Ph.D., Registrar

1960

Mary Rait, B.A., M.A., Vice-President

1963

Laura Smith, B.A., M.A., Foreign Language

1968

Mary M. Coleman, B.S., M.P.S., Mathematics

1970

William A. Medesy, B.S., M.F., M.A., Ed.D., President

1971

Virginia Fulghum, B.A., M.A., English

1972

W. Lowell Heiny, B.A., M.A., Ed.D., Vice President

Kenneth E. LeMoine, B.A., M.Ed., Dean of Special Services

Melvin A. McNew, B.A., M.A., Chairman, Division of Physical Sciences

Louise G. Mcser (R.N.), B.A., M.N., Chairman, Division of Health Programs

1973

Maxine Gabelman, B.A., M.A., English

Eugene L. Hansen, B.A., M.A., Director of College Center

Ethel Mae Moore, B.A., M.A., Head, Department of English

George Murray, B.S., M.A., Mathematics, Engineering

Aivie Redden, B.S., M.F.A., Chairman, Division of Fine Arts

1974

Theodore E. Aibers, B.A., M.A., Ed.D., President

J. Leon Dailey, B.A., M.A., Social Science

Pearl M. (Bee) Randolph (R.N.), Director of Student Health Services

Elaine E. Ripley, B.A., M.A., Biology

Bertha L. Shaw, B.A., M.A., Reading

1975

Roberta R. Peck, B.A., M.A., English

Edward O. Strnad, B.A., Purchasing Officer

1976

Helen M. Hanson, B.A., M.A., Professor of Office Administration

1977

Maurine M. Leighton, S.S., M.H.E., Professor of Home Economics

Jay W. Tolman, B.S., M.S., Professor of Geology, Vice President for Student Affairs

1978

Carl R. Cook, Director of Data Processing Services

Donald H. Yonker, B.S., M.A., D.D.S., Professor of Biology

Joan W. Young, B.A., M.A., Associate Professor of Biology

1979

Alfred J. Goffredi, B.A., M.A., Professor of Business; Dean, School of Industry and Technology

Madge E. Huffer, B.A., M.A., Associate Professor of Speech

Lloyd B. Jones, B.A., M.A., Professor of Psychology

Pauline O. Messenger, B.A., M.S., Professor of Library Science; Reference Librarian

Dan M. Showalter, B.A., M.A., Professor of English; Dean, School of Humanities and Fine Arts

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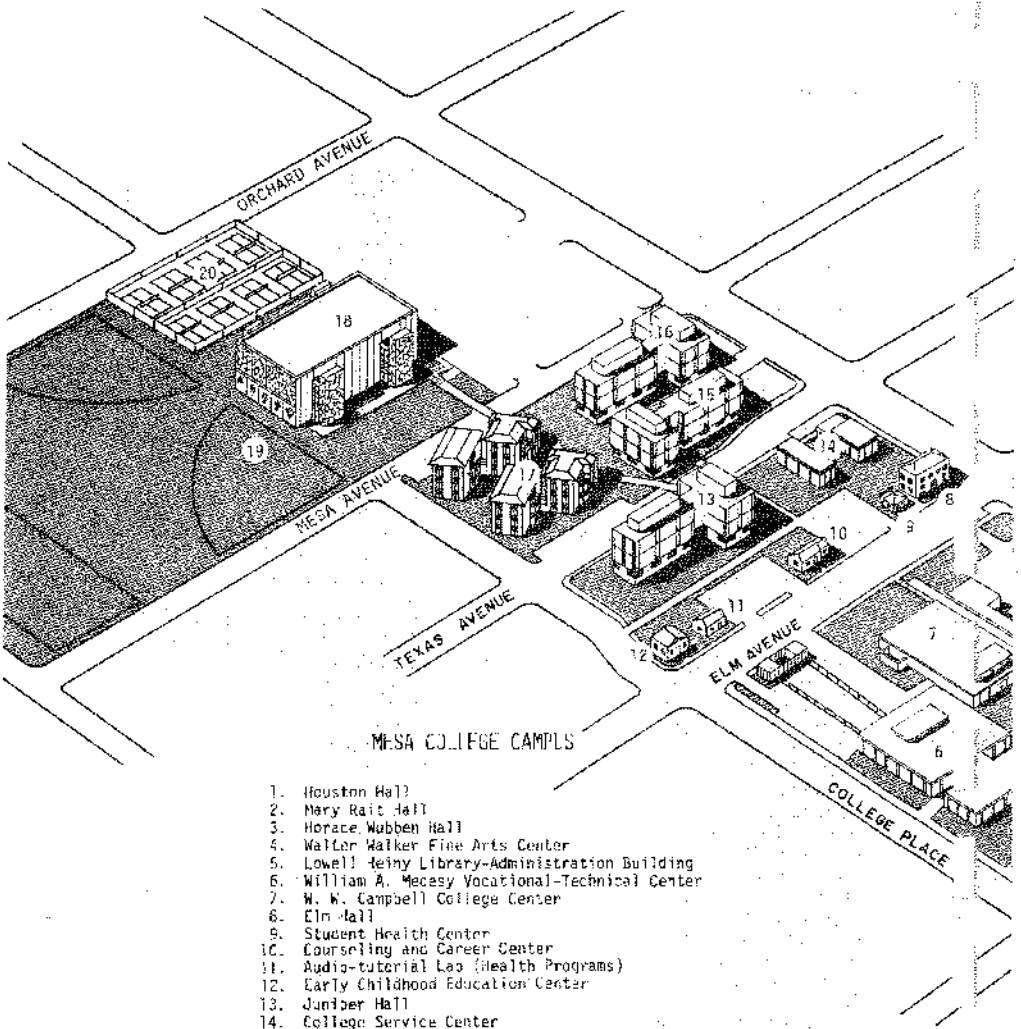
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*Mesa College reserves the right to withdraw from its offerings any program or course which the enrollment does not justify giving during any particular semester. Other courses may be added any semester if there is sufficient demand. In some programs, certain courses may be offered on an alternate year basis or as determined by demand.*

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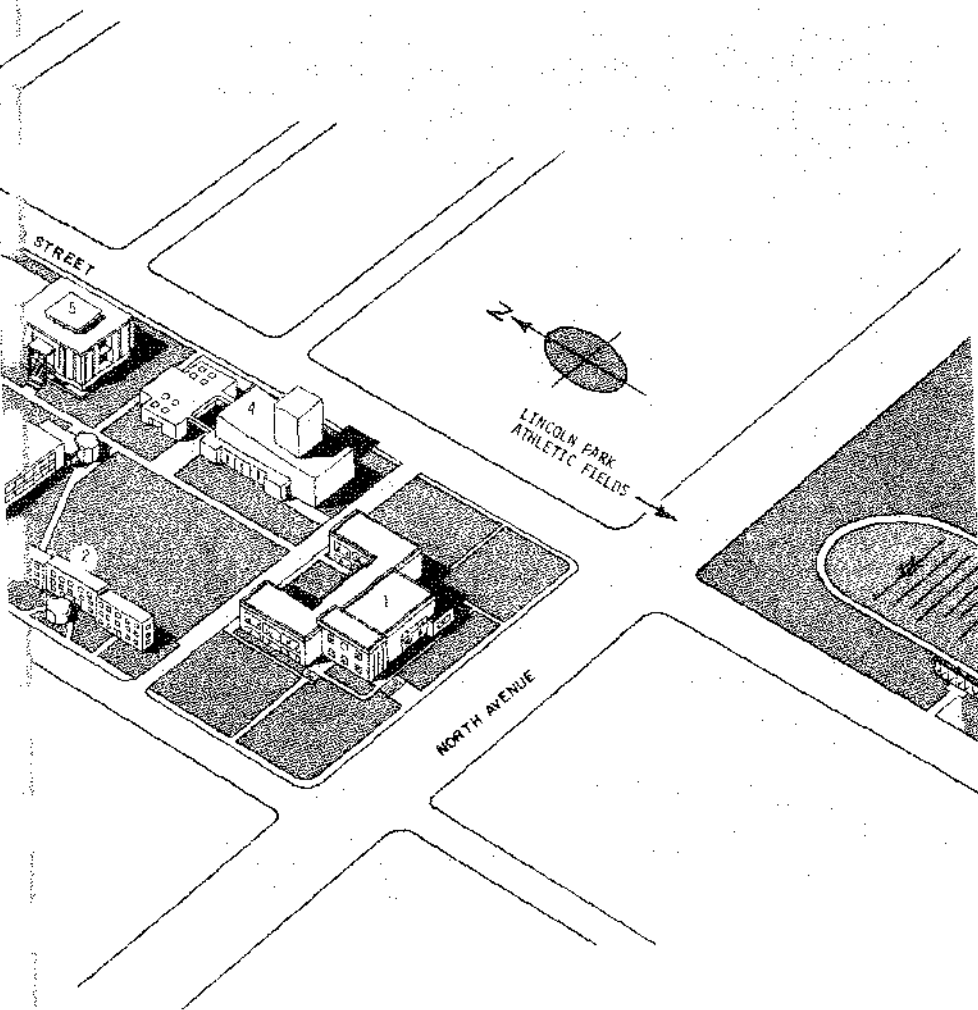
MESA COLLEGE CAMPLS

1. Houston Hall
2. Mary Rait Hall
3. Horace Wubben Hall
4. Walter Walker Fine Arts Center
5. Lowell Reiny Library-Administration Building
6. William A. Mecasy Vocational-Technical Center
7. W. W. Campbell College Center
8. Elm Hall
9. Student Health Center
10. Counseling and Career Center
11. Audio-tutorial Lab (Health Programs)
12. Early Childhood Education Center
13. Juniper Hall
14. College Service Center
15. Aspen Hall
16. Pinon Hall
17. Walnut Ridge Apartments
18. Roe F. Saunders Physical Education Center
19. Athletic Practice Fields
20. Tennis Courts



# Mesa college

GRAND JUNCTION, COLORADO 81502



# How to Apply for Admission

## Students Attending College for the First Time

1. Secure an Application for Admission form from your high school principal or from the Admissions Office at Mesa College.
2. Complete the Application for Admission and have your high school office send a copy of your high school transcript to the Admissions Office at Mesa College. Applications may be filed at any time after the close of the first semester of the senior year in high school and must be in the Mesa College Admissions Office by August 1 for Fall Semester and at least two weeks in advance of registration for Spring Semester. (The College reserves the right to deny admission to any student who has not completed the application process by these dates.)
3. Upon receipt of your application and the \$10 application fee the College will inform you of your admission status. (Admission status will be tentative until the record of the final semester of the senior year has been received.)
4. A.C.T. scores must be in the Admissions and Records Office before final acceptance is granted. See your high school counselor for test dates.
5. Students who must live away from home must make arrangements for and secure approval of their housing through the office of the Director of Housing.
6. Prior to registration each applicant will receive additional information and preliminary registration instructions and materials.

## Transfer Students

1. File with the Admissions Office at Mesa College:
  - a. The Standard Application for Admission form. (A \$10 application fee must accompany the admission application.)
  - b. An official transcript of all credits earned from each college or university previously attended. Failure to list all institutions previously attended may result in loss of credit and/or dismissal.
  - c. An official report of A.C.T. scores. (Transfer students who have fewer than 60 transferable semester credits and who have not taken these tests previously must make arrangements with the Admissions Office to take them prior to registration.)
  - d. An official transcript from the high school attended.

Mailing address:  
MESA COLLEGE  
P.O. Box 2647  
Grand Junction, CO 81502

## REGISTRATION AND ADMISSION TESTS

The college admission tests of the American College Testing (A.C.T.) Program are required, prior to registration, of all new students who plan to work toward a degree at Mesa College. It is recommended that prospective students take these tests during their senior year in high school. The tests are available at designated centers throughout the state and region on five different dates.

A \$7.50 fee must be submitted with registration form to the Registration Department, American College Testing Program, P.O. Box 414, Iowa City, Iowa 52240, four weeks prior to the test date on which the student elects to take the test. A special residual test administration date will be arranged as a part of each semester's registration period for those who, for good reason, have not been able to take the test during one of the regularly scheduled national test dates. (A \$12.50 test fee is charged on the residual testing date.) Detailed information regarding testing centers, dates, and registration supplies will be available through high school principals and counselors or from the Director of Admissions at Mesa College. College Board Scholastics Aptitude Test Scores (S.A.T.) are not required by Mesa College and will not excuse the student from the A.C.T. requirement.

S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S		
<b>JAN</b>						<b>APR</b>						<b>JULY</b>						<b>OCT</b>											
				1	2	3					1	2	3	4					1	2	3	4					1	2	3
4	5	6	7	8	9	10	5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10		
11	12	13	14	15	16	17	12	13	14	15	16	17	18	12	13	14	15	16	17	18	11	12	13	14	15	16	17		
18	19	20	21	22	23	24	19	20	21	22	23	24	25	19	20	21	22	23	24	25	18	19	20	21	22	23	24		
25	26	27	28	29	30	31	26	27	28	29	30	26	27	28	29	30	31	25	26	27	28	29	30	31					
<b>FEB</b>						<b>MAY</b>						<b>AUG</b>						<b>NOV</b>											
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S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
<b>JAN</b>						<b>APR</b>						<b>JULY</b>						<b>OCT</b>									
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P.O. Box 2647  
Grand Junction, Colo. 81502

TO:

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