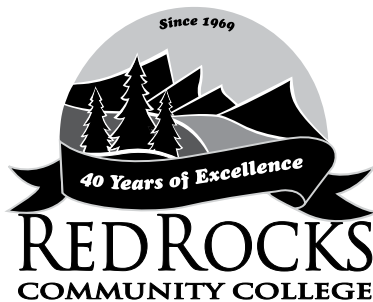


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WELCOME

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**This catalog applies to students beginning their RRCC studies from  
Fall Semester 2009 through Summer Semester 2010.**

The catalog contains  
comprehensive information about  
Red Rocks Community College,  
the degrees and certificates it offers,  
and the requirements a student must satisfy  
before receiving a degree or certificate.

This publication describes admissions and registration procedures,  
information on tuition and fees, financial aid, and services offered by the college.

*Information in this catalog is subject to change.  
For general College information, go to RRCC's Web site at [www.rrcc.edu](http://www.rrcc.edu).*

*The programs, policies, statements, and procedures contained in this publication are subject to change or correction by the College without prior notice. Red Rocks Community College reserves the right to withdraw courses; revise the academic calendar; or change curriculum graduation procedures, requirements, and policies that apply to students at any time. Changes will become effective whenever the proper authorities so determine. This publication is not intended to be a contract between the student and Red Rocks Community College. However, students are bound by the policies, procedures, standards, and requirements stated herein, so long as they are in effect.*

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# FALL 2009 – SUMMER 2010 ACADEMIC CALENDAR

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## Fall 2009

August 24 – December 13

Fall Registration begins ..... Apr. 13  
15-week weekend classes begin ..... August 21  
15-week classes begin..... August 24  
*(other classes begin throughout the fall)*  
No classes after 5:00 p.m..... September 4  
No classes; Labor Day weekend ..... September 5, 6 & 7  
*(both campuses closed)*  
No classes; All-College Development Day ..... Oct. 20  
No classes; fall break..... November 25 – 29  
Thanksgiving Holiday..... November 26, 28 – 29  
*(both campuses closed)*  
Fall session ends..... Dec. 13

## Spring 2010

January 19 – May 11

Spring Registration begins..... Nov. 16  
No Classes; Martin Luther King Day..... Jan. 18  
15-week classes begin..... Jan. 19  
*(other classes begin throughout the spring)*  
15-week weekend classes begin ..... Jan. 22  
No classes; spring break..... Mar. 29-Apr. 4  
No classes; All-College Development Day ..... Apr. 20  
Spring session ends ..... May 11  
Graduation Ceremony ..... May 15

## Summer 2010

June 1 – August 2

Summer Registration begins..... Apr. 5  
Interim May Day Session begins ..... May 17  
*(one- or two-week sessions)*  
No classes after 5:00 p.m..... May 28  
No classes; Memorial Day Holiday ..... May 29, 30, 31  
*(both campuses closed)*  
Full term 8- and 9-week Sessions begin ..... Jun. 1  
*(both campuses)*  
No classes; Independence Day Holiday ..... Jul. 3, 4, 5  
*(both campuses closed)*  
8/9-week summer sessions end..... Aug. 2

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## TABLE OF CONTENTS

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<b>Academic Calendar .....</b>	<b>2</b>
<b>About RRCC/Guiding Principles .....</b>	<b>4</b>
<b>Welcome from President .....</b>	<b>5</b>
<b>Guide to Catalog Terms .....</b>	<b>6</b>
<b>Degrees .....</b>	<b>9</b>
<b>Certificates.....</b>	<b>20</b>
<b>Academic Information .....</b>	<b>23</b>
<b>Admissions and Advising .....</b>	<b>27</b>
<b>Financing your Education .....</b>	<b>32</b>
<b>Foundation .....</b>	<b>33</b>
<b>International Students.....</b>	<b>34</b>
<b>Scheduling Options.....</b>	<b>36</b>
<b>Student Services .....</b>	<b>38</b>
<b>Student Rights .....</b>	<b>42</b>
<b>Programs .....</b>	<b>45</b>
<b>Course Descriptions .....</b>	<b>131</b>
<b>Staff Directory .....</b>	<b>263</b>
<b>Index .....</b>	<b>275</b>

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## ABOUT RED ROCKS

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**Lakewood Campus**

RRCC is a community of 14,000 learners each year studying at campuses in Lakewood and Arvada – and around the world through online courses. We are one of 13 Colorado community colleges charged with preparing a state workforce for the emerging needs of employers. RRCC also offers an affordable start for students who plan to earn a four-year degree.



**Arvada Campus**

The Lakewood campus houses everything from state-of-the-art multimedia graphics computer labs to construction technology worksites, to traditional classrooms and labs, to health-careers practice areas.

The full range of services for students includes an assessment center, academic advising, tutoring, financial aid, a library, a project center, and a student employment center. A bookstore provides new and used text books, snacks, gifts, and school supplies. Students with disabilities can find support and services, including an Assistive Technology lab, at the Office of Special Services.

In addition to academic support, the campus offers extras including a cafeteria and coffee shop, recreational facilities and a fitness center. The Children's Center offers full-day care for children from 18 months to kindergarten entry.

The Arvada campus offers innovative scheduling options in a helpful and friendly atmosphere. Students can apply for admission, meet with an advisor, receive career counseling, register for classes, take college placement assessment exams, and receive financial aid information, all in one convenient location.

The LARC (Learning and Resource Center) is the centerpiece of the campus which houses the computer commons, assessment, online writing support and library services, tutorial services, free GED pre-testing, career resources, and study areas with wireless Internet access. The Arvada Campus is home to the Process Technology program and the Medical Imaging program which includes X-ray technology and ultrasound.

Courses offered range from accounting to speech, including guaranteed transfer general education courses and basic skills courses in English and mathematics.

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## RRCC GUIDING PRINCIPLES

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### **Vision:**

To be the college of first choice.

### **Mission:**

To create a passion for learning through our dedication to students, our commitment to excellence, and our own love of learning.

### **Values:**

These are the principles that define our values and guide us in our actions and decisions:

- Innovation
- Teamwork
- Diversity
- Communication
- Integrity

### **RRCC is:**

- A committed business partner responding to industry and community needs through innovative solutions.
- A coalition builder initiating opportunities for creative problem-solving through teamwork.
- A proponent for diversity providing an environment that respects differences among us.
- A believer in communication fostering a culture that promotes an open exchange of ideas.
- A model of integrity supporting our mission with thoughtful and judicious decision-making.

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## WELCOME FROM THE PRESIDENT

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Dr. Michele Haney, RRCC President, has been with Colorado community colleges since 1992. She served as vice president of instruction and student services at Front Range Community College (FRCC) from 1992 to 1995, as vice president of the Westminster campus of FRCC from 1995 to 2000, and as chief executive officer of the Boulder County campus of FRCC from 2000 to 2003.

In August of 2003, she accepted the presidency of Morgan Community College, with the state's largest service area of 11,500 square miles. During Dr. Haney's time at Morgan, the college ranked number one in retention and graduation rates within the community college system.

### **Join us as we celebrate 40 years of excellence!**

#### **The year 1969 was eventful.**

Here are just a few milestones...

- Neil Armstrong became the first human to set foot on the moon
- WOODSTOCK entertained more than 400,000 avid music fans
- The Boeing 747 jumbo jet made its debut
- The first automatic teller machine (ATM) was installed
- Gasoline was just \$0.35 cents per gallon!

... And Red Rocks Community College was established!

As RRCC turns 40, we look back on some history of our own. Originally established in 1969 as the Community College of Denver's West campus, RRCC has grown from a satellite building with few hundred students, to a 140-acre site where 14,000 students attend each year. Our dozens of career fields served the business needs of the time, but we now offer over 300 programs in areas from Animation to Welding!

Some exciting things have happened since I joined RRCC in January of 2008: Our Energy Technology program is rapidly expanding, providing training for 'green' careers in solar and natural resources jobs in water quality management; RRCC was the recipient of a 2008 Governor's Excellence in Renewable Energy Award; and RRCC has teamed up with Suncor Energy to provide training for high-demand careers in Process Technology.

Although degrees, job titles, and workforce needs have changed over the past 40 years, the focus of Red Rocks Community College has remained the same—to provide students with high-quality, affordable, accessible education. RRCC's programs prepare students for rewarding careers in an environment that is supportive and inspiring.

Welcome to our community. Whether you've chosen RRCC to start your career, move up in your field, or to seek a new opportunity, you will find success here.

Dr. Michele Haney  
President, Red Rocks Community College

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# GUIDE TO CATALOG TERMS

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## **Admission:**

People ages 17 and above who want to attend RRCC can apply for entry to the college. The Office of Admissions is directly across from the main entrance of the Lakewood Campus.

## **Advisors:**

RRCC's academic (also referred to as general) advisors help new and continuing students at all stages of their college careers, particularly those seeking certificates, degrees, and/or eventual transfers to four-year colleges or universities. Advising is located next to the Admissions Office on the Lakewood Campus.

Faculty advisors also are available to assist students. Many times academic advisors will refer students to faculty advisors for specific information concerning courses and programs. If you are pursuing a certificate or associate of applied science degree, consulting a program area faculty advisor is helpful.

## **Assessment:**

In a community college setting, your reading, writing, and mathematics skills are assessed so that you can begin your college career with the best chance of succeeding. RRCC administers the Accuplacer test: it is NOT an entrance exam but it does give students, advisors, and teachers the information needed to determine which classes students are ready to take.

Once you are enrolled in classes, your teachers will assess your progress regularly using a variety of methods. Yes, exams are one way, but other methods include writing essays, reports, and research papers; giving oral reports; completing exercises and homework assignments; and participating in classroom discussions. It is important that YOU assess your own progress so that you can ask questions and seek help when necessary.

## **Audit (AU):**

If you want to take a class without earning credit or receiving a final grade, you can choose to do so at the time you register for the class; you cannot change your mind after registering and declare that you want to earn credit and a grade for the class. Also note that you must

pay full tuition and fees, and you will not receive the COF stipend.

## **Catalog:**

The RRCC Catalog lists and describes essential information for all students, advisors, teachers, staff, and administrators. Use the catalog in conjunction with each semester's schedule of classes. The catalog is a vital resource that you need to read and review regularly. You will graduate under the requirements in effect for the semester that you first enrolled unless you have a one-year break in attendance. You also may choose to use the catalog in effect during the semester you graduate. For more information and/or clarification, meet with your advisor.

## **Certificates:**

In addition to two-year degrees, you can earn certificates in a variety of specialties. A certificate might require as few as five credits and in some cases can count toward a degree.

## **College-Level Examination Program® (CLEP):**

The College-Level Examination Program® or CLEP gives students the opportunity to demonstrate college-level achievement through taking exams that can lead to credit for designated undergraduate courses. Refer to [www.collegeboard.com/student/testing/clep/about.html](http://www.collegeboard.com/student/testing/clep/about.html) for complete information and meet with an academic advisor.

## **College Opportunity Fund (COF):**

The state of Colorado will pay a portion of the tuition for Colorado residents attending RRCC or any state-supported or participating private college or university, provided they have enrolled in the COF program. Enroll online by going to [www.rccc.edu](http://www.rccc.edu) and clicking on the link to COF.

## **Corequisite:**

A corequisite is a course that is required with another course. For example, a student enrolled in REE 201 (Real Estate Brokers I) must also be enrolled in REE 202 (Real Estate Brokers II). In this particular case, both classes must be taken together; they meet at the same time with

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# GUIDE TO CATALOG TERMS

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the same instructor. (If a co-requisite is required, you will see an explanatory note in the current semester's schedule and oftentimes in the "Course Descriptions" section of the catalog.) Meet with an academic or faculty advisor before enrolling in classes to learn more about specific co-requisites.

## **Credit(s):**

A credit is a unit of study. The number of credits assigned to each course can be found in the "Course Descriptions" section of the catalog as well as in the listing of courses in the current semester's schedule. If you have questions concerning credits, the best source of information is an academic or a faculty advisor.

Note: Full-time students are those who take 12 or more credits in a semester; part-time students are those who take fewer than 12 credits in a semester.

## **Degrees:**

RRCC offers a variety of two-year associate degrees:

Associate of Arts

Associate of Science

Associate of General Studies – Specialist

Associate of General Studies – Generalist

Associate of Applied Science

Meet with a faculty or academic advisor to learn about the requirements for each degree.

## **Electives:**

Students choose an academic course from a list of options.

## **English as a Second Language (ESL):**

Students for whom English is their second language can find assistance in the ESL/Foreign Language Lab located on the Lakewood campus.

## **Financial Aid:**

Tuition assistance is available in four types: scholarships, grants, loans, and work-study agreements. To learn more about financial aid, visit [www.rrcc.edu/finaid](http://www.rrcc.edu/finaid), or stop by to meet with a financial aid representative.

## **General Education Courses:**

These are courses not directly related to a student's formal preparation for a career but that need to be part of every college student's body of knowledge in order for him or her to function as an educated adult. These courses are numbered 100 and above.

## **General Education Development (GED):**

If a student has not graduated from high school, passing the GED certifies that he or she has high school-level academic skills. RRCC offers a free practice test for the GED as well as a GED preparation course.

## **Grade Point Average (GPA):**

GPA refers to your average grade and is determined by dividing the grade points you have earned by the number of credits you have attempted.

## **Graduation:**

Meet with a faculty or an academic advisor BEFORE beginning any program of study; advisors know the requirements and can help you stay on the path to graduation. Upon successful completion of degree or certificate requirements, you can receive recognition for your efforts during annual commencement exercises.

## **Graduation Audit and Graduation Application:**

When you have successfully completed 42 credits, you are usually only 18 credits away from graduating with one of the associate degrees that RRCC offers. At this point it is important for you to initiate a graduation audit and to meet with your faculty advisor to find out what additional courses you need to take.

1. The graduation audit request form is available from the Admissions Office, or you can find it online at <https://adminps.rrcc.edu/auditrequests/form.htm>. At this point it is important for you to meet with a faculty or academic advisor so that he/she can assist you as you plan to complete the required courses for the degree you are seeking.
2. Near the beginning of the semester in which you want to graduate, submit a graduation application form by the date listed in the current semester's

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# GUIDE TO CATALOG TERMS

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schedule. The application form is available from the Admissions Office or online at [www.rrcc.edu/admis/gradap.html](http://www.rrcc.edu/admis/gradap.html). Meet with an academic or faculty advisor so that he/she can assist you with the graduation application process.

## **International Students:**

These are students from another country who are admitted to the U.S. on an F1 non-immigrant student visa.

## **Learning and Resources Center (LARC):**

The LARC is located next to RRCC's main entrance and includes the library and quiet study rooms upstairs and study and tutoring areas on the main floor. The LARC offers students free, walk-in tutoring in math, writing, reading, the sciences, accounting, Microsoft applications, and other subjects. Several computers also are available for you to use.

## **Office of Special Services (OSS):**

This office coordinates services for RRCC students with documented disabilities so that they have an equal opportunity to pursue their educational goals. Call 303.914.6733 or 303.914.6737 (TTY).

## **Open-Entry Community College:**

Anyone who can benefit from RRCC's instructional programs and courses, including high school graduates, non-graduates, and students 17 years or older who are currently enrolled in high school, are welcome to apply.

## **Phi Theta Kappa:**

RRCC sponsors a chapter of Phi Theta Kappa, the national student honors organization for two-year colleges.

## **Plagiarism:**

The word is taken from the Greek and means the kidnapping of other people's words and/or ideas, a serious academic offense listed in the RRCC Catalog as academic dishonesty: "Those committing academic dishonesty will be subject to disciplinary action, such as failing the assignment or course and/or expulsion from the course or college." Work closely with your instructors and tutors to avoid plagiarism.

## **Prerequisite:**

This is a course that is required before taking another course. For example, before you can enroll in ENG 122 (English Composition II), you must have taken ENG 121 and passed with an A, B or C. Prerequisites are listed within course descriptions of this catalog. Meet with an academic or faculty advisor before enrolling in classes to learn more about specific prerequisites.

## **State-Guaranteed General Education Courses:**

These are general education courses that the state of Colorado requires for students seeking associate of arts (AA) or associate of science (AS) degrees. A variety of courses are available in the areas of communication, mathematics, arts and humanities, social and behavioral sciences, and physical and life sciences. Meet with an academic or faculty advisor who can help you select the courses that fulfill the AA and AS degree requirements.

## **Tuition:**

The fee charged for instruction by a formal institution of learning is called tuition. Paying tuition and fees allows you the opportunity to earn grades in the classes you take.

Do not assume you have been dropped from a class if you miss tuition and fee payment deadlines or fail to attend a class. Once you have registered for a class, you are responsible for paying full tuition and fees unless YOU drop the class on or before the drop/refund date listed in the current semester's schedule. RRCC does not automatically drop students for non-payment or non-attendance.

## **XXX:**

A course numbered XXX means that the course is pending approval by the RRCC Curriculum Committee and CCCS.



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## DEGREES

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### **Associate of Arts Transfer**

The Associate of Arts degree (60 credits) is for the student who intends to transfer to a four-year college or university and wants an education with a liberal arts emphasis. This degree provides a basis of study in business, communications, foreign languages, the arts and humanities, and social and behavioral sciences. To earn the Associate of Arts degree, you must complete the state designated general education requirements for a total of 38-42 credits. Other requirements are found on the degree requirement checklists and individual catalog emphasis areas. Emphases are available in the following areas:

- Art
- Business
- Communication Disorders
- Communication Studies
- Criminal Justice
- Early Childhood Education
- Economics
- Elementary Education
- English and Literature
- Foreign Languages:
  - French
  - German
  - Spanish
- History
- Musical Theatre
- Philosophy
- Political Science
- Psychology
- Secondary Education
- Sociology
- Theatre Arts

### **Associate of Science Transfer**

The Associate of Science degree (60 credits) is for the student who intends to transfer to a four-year college or university and wants an education with a science-related emphasis. It provides a basis of study in computer science, engineering, nursing, mathematics, and the organic and physical sciences. To earn the Associate of Science degree, you must first complete the state designated general education requirements for a total of 38-42 credits. Emphases are available in the following areas:

- Biology
- Biotechnology
- Chemistry
- Computer Science
- Engineering
- Geology
- Mathematics
- Physics

### **Associate of General Studies - Specialist Articulated Transfer**

The Associate of General Studies-Specialist degree (60 to 68 credits) is for the student who wants to complete a pre-professional transfer degree in one of the fields specified below. Agreements exist between RRCC and certain four-year colleges for the following career areas:

- Criminal Justice
- Graphic Design/Print Production
- Motion Graphics and Animation
- Video Production
- Outdoor Recreation
- Outdoor Physical Education

### **Associate of General Studies - Generalist Career-Oriented**

The Associate of General Studies-Generalist degree (60 credits) is for the student who wants to complete a combination of college-level general education courses and a variety of vocational courses. Courses are considered for transfer on an individual basis by the receiving four-year college or university.

### **Associate of Applied Science Career-Oriented**

The Associate of Applied Science degree (60-75 credits) is for the student who is preparing for entry-level employment in a career-oriented program of study or upgrading in a specific occupation. This degree is not intended for transfer; however, courses are considered for transfer on an individual basis by the receiving four-year college or university.

# AA • ASSOCIATE OF ARTS DEGREE

## Degree Requirements

State-guaranteed general education courses (38-42 credits)

\*Fulfills core requirements for associate of arts but not associate of science degree.

### Communication: 3 courses (9 credits)

ENG 121	English Composition I - (3)
ENG 122	English Composition II - (3)
COM 115	Public Speaking
	or
COM 125	Interpersonal Communication - (3)

### Mathematics: 1 course (3-5 credits)

MAT 120	Mathematics for the Liberal Arts - (4)
MAT 121	College Algebra - (4)
MAT 122	College Trigonometry - (3)
MAT 123	Finite Math - (4)
MAT 125	Survey of Calculus - (4)
MAT 135	Introduction to Statistics - (3)
MAT 155/156	Integrated Math I/II - (3/3)
	(Both must be taken to satisfy math credit. Recommended for Teacher Education only.)
MAT 166	Pre-Calculus - (5)
MAT 201	Calculus I - (5)
MAT 202	Calculus II - (5)
MAT 204	Calculus III with Engineering Applications - (5)
MAT 261	Differential Equations with Engineering Applications - (4)

### Arts and Humanities: 3 courses (9 credits)

Select 3 courses, with no more than 2 courses from any 1 category.

#### • Arts and Expression

ART 110	Art Appreciation - (3)
ART 111	Art History Ancient to Medieval - (3)
ART 112	Art History Renaissance to Modern - (3)
ART 207	Art History - 1900 to Present - (3)
DAN 125	History of Dance I - (3)
MUS 120	Music Appreciation - (3)
MUS 121	Music History I - (3)
MUS 122	Music History II - (3)
MUS 123	Survey of World Music - (3)
THE 105	Theatre Appreciation - (3)
THE 211	Development of Theatre I - (3)
THE 212	Development of Theatre II - (3)

#### • Literature and Humanities

HUM 121	Humanities: Early Civilization - (3)
HUM 122	Humanities: Medieval to Modern - (3)
HUM 123	Humanities: The Modern World - (3)
LIT 115	Introduction to Literature - (3)
LIT 201	Masterpieces of Literature I - (3)
LIT 202	Masterpieces of Literature II - (3)
LIT 205	Ethnic Literature - (3)
LIT 211	Survey of American Literature I - (3)
LIT 212	Survey of American Literature II - (3)
LIT 221	British Literature I - (3)
LIT 222	British Literature II - (3)
LIT 225	Introduction to Shakespeare - (3)

#### • Ways of Thinking

PHI 111	Introduction to Philosophy - (3)
PHI 112	Ethics - (3)
PHI 113	Logic - (3)
PHI 114	Comparative Religion - (3)
PHI 214	Philosophy of Religion - (3)

#### • Foreign Languages

(Must be intermediate/200-level)

FL 211	Second Year Foreign Language - (3)
	FRE, GER, ITA, JPN, RUS, SPA
FL 212	Second Year Foreign Language - (3)
	FRE, GER, ITA, JPN, RUS, SPA

### Social and Behavioral Science: 3 courses (9 credits)

Select 3 courses, 1 of which must be history, with no more than 2 courses from any 1 category.

#### • History

HIS 101	History of Western Civilization I - (3)
HIS 102	History of Western Civilization II - (3)
HIS 111	World Civilization I - (3)
HIS 112	World Civilization II - (3)
HIS 201	U.S. History I - (3)
HIS 202	U.S. History II - (3)
HIS 247	Contemporary World History - (3)

#### • Economic & Political Systems

ECO 101	Economics of Social Issues - (3)
ECO 201	Macro Economics - (3)
ECO 202	Micro Economics - (3)
ECO 245	Environmental Economics - (3)
POS 105	Introduction to Political Science - (3)
POS 111	American Government - (3)
POS 205	International Relations - (3)
POS 225	Comparative Government - (3)

#### • Geography

GEO 105	World Regional Geography - (3)
GEO 106	Human Geography - (3)

#### • Human Behavior, Cultural & Social Frameworks

ANT 101	Cultural Anthropology - (3)
ANT 107	Introduction to Archaeology - (3)
ANT 111	Physical Anthropology - (3)
ANT 215	Indians of North America - (3)
JOU 105	Introduction to Mass Media - (3)
PSY 101	General Psychology I - (3)
PSY 102	General Psychology II - (3)
PSY 205	Psychology of Gender - (3)
PSY 217	Human Sexuality - (3)
PSY 226	Social Psychology - (3)
PSY 227	Psychology of Death and Dying - (3)
PSY 235	Human Growth & Development - (3)
PSY 238	Child Development - (3)
PSY 240	Health Psychology - (3)
PSY 249	Abnormal Psychology - (3)
SOC 101	Introduction to Sociology I - (3)
SOC 102	Introduction to Sociology II - (3)
SOC 205	Sociology of Family Dynamics - (3)
SOC 215	Contemporary Social Problems - (3)
SOC 216	Sociology of Gender - (3)
SOC 220	Sociology of Religion - (3)
SOC 231	Sociology of Deviant Behavior - (3)

### Physical and Life Sciences: 2 courses (8-10 credits)

Additional credits beyond 8 apply as electives toward AA degree.

AST 101	Astronomy I - (4)
AST 102	Astronomy II - (4)
BIO 105	Science of Biology - (4)
BIO 111	General College Biology I with Lab - (5)
BIO 112	General College Biology II with Lab - (5)
BIO 201	Anatomy & Physiology I - (4)
BIO 202	Anatomy & Physiology II - (4)
BIO 204	Micobiology - (4)
BIO 208	General College Microbiology - (5)
BIO 220	General Zoology - (5)
BIO 221	Botany: GT-SC1 - (5)
CHE 101	Introduction to Chemistry I - (5)
CHE 102	Introduction to Chemistry II: GT-SC1 - (5)
CHE 111	General College Chemistry I - (5)
CHE 112	General College Chemistry II - (5)
GEY 111	Physical Geology - (4)
GEY 121	Historical Geology - (4)
MET 150	General Meteorology - (4)
PHY 105	Conceptual Physics - (4)
PHY 111	Physics: Algebra-Based I with Lab - (5)
PHY 112	Physics: Algebra-Based II with Lab - (5)
PHY 211	Physics: Calculus-Based I with Lab - (5)
PHY 212	Physics: Calculus-Based II with Lab - (5)
SCI 155/156	Integrated Science I/II - (4/4) (Both must be taken to satisfy science credit. Recommended for Teacher Education only.)

### Approved electives (18-22 credits) \_\_\_\_ Total Credits (60 required) \_\_\_\_

Note: This guarantee excludes majors in education, business, and engineering which have special articulation agreements with public four-year colleges and universities. Your advisor can assist you in choosing specific courses toward your major and transferring college. Check with your advisor periodically as updates and changes can occur.

## AA • Additional catalog requirements

You will graduate under the catalog requirements listed for the semester that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer term) and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also may choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

### Approved elective credit courses for the Associate of Arts degree

These courses transfer to one or more of the public four-year colleges or universities in Colorado. All courses will count toward the AA degree. However, transferability depends on the four-year institution. Additional courses may be transferable to one or more of the public four-year colleges or universities in Colorado. For specific information, please consult an advisor in the Advising Center.

Accounting	ACC-121 and 122	Humanities	HUM-All courses
Anthropology	ANT-All courses	Journalism	JOU-105
Art	ART-All courses	Literature	LIT-All courses
Astronomy	AST-All courses	Management	MAN-226
Biology	BIO-All courses	Marketing	MAR-216
Business	BUS-115, 216, 217 and 226	Mathematics	MAT-All courses 120 and above
Chemistry	CHE-All courses	Meteorology	MET-150
Communication Disorders	CMD-160, 260, 265, 266, and, 267 (May not apply to some 4-year degree programs)	Music	MUS-All courses
Communication	COM-All courses	Philosophy	PHI-All courses
Computer Info. Systems	CIS-118, 240, 251, 268	Physical Education	PED-All courses
Computer Science	CSC-119, 160, 161, 165, 240, 261	Physical Ed. and Recreation	PER 128, 252, and 253 (Maximum 3 credits apply toward degree)
Criminal Justice	CRJ-All courses above 109 (May not apply to some 4-year degree programs)	Physics	PHY-All courses except 105
Dance	DAN-All courses (Some may transfer as physical education courses.)	Political Science	POS-All courses
Early Childhood Education	ECE-101, 205, 238, 241 and 260	Psychology	PSY-101, 102, 110, 205, 215, 217, 226 227, 235, 238, 240 and 249
Economics	ECO-All courses	Science	SCI-155, 156
Education	EDU-All courses above 200	Sociology	SOC-All courses
English	ENG-All courses above 122	Theatre	THE-All courses
Environmental Science	ENV-101		
Foreign Language	All courses except 101 and 102		
Geography	GEO-All courses		
Geology	GEY-All courses		
Health and Wellness	HWE-100		
History	HIS-All courses		

Many four-year college transfer guides are available via the CCE Web site at:  
<http://higher.ed.colorado.gov/Academics/Transfers/Guides/default.html>

### Other AA degree requirements

1. A minimum of 60 credits is required for the Associate of Arts degree.
2. You must complete 18-22 semester elective credits. These must be college-level transfer courses and may include no more than three credits in physical education (PED)—see approved electives above. Please meet with an advisor in your area of emphasis for specific course suggestions. Credits earned above the minimum to satisfy a requirement may be applied to a different area.
3. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate. The grade in all state general education transfer courses must be a C or better.
4. If you are planning to transfer to a four-year college or university, meet with an appropriate faculty advisor.
5. You must complete a minimum of 15 credits at RRCC.
6. You must file an application for graduation during the term in which you intend to graduate according to the deadline published in the class schedule for that semester. You must apply to graduate within one year of completing requirements.
7. No more than six credits of independent study course work may be applied toward an associate degree program.
8. There is no limit on special-topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, consult with your advisor regarding how these credits will apply toward a degree.
9. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
10. With the approval of a faculty advisor and an instructional vice president, up to three credits of internship may count toward a degree.

# AS • ASSOCIATE OF SCIENCE DEGREE

## Degree Requirements

\*State-guaranteed general education courses (38-42 credits)

### Communication: 3 courses - (9 credits)

ENG	121	English Composition I - (3)
ENG	122	English Composition II - (3)
COM	115	Public Speaking and either
		or
COM	125	Interpersonal Communication - (3)

### Mathematics: 1 course - (3-5 credits)

MAT	121	College Algebra - (4)
MAT	122	College Trigonometry - (3)
MAT	166	Pre-Calculus - (5)
MAT	201	Calculus I - (5)
MAT	202	Calculus II - (5)
MAT	204	Calculus III with Engineering Applications - (5)
MAT	261	Differential Equations with Engineering Applications - (4)

### Arts and Humanities: 3 courses - (9 credits)

Select 3 courses, with no more than 2 courses from any 1 category.

#### • Arts and Expression

ART	110	Art Appreciation - (3)
ART	111	Art History Ancient to Medieval - (3)
ART	112	Art History Renaissance to Modern - (3)
ART	207	Art History 1900 – Present - (3)
DAN	125	History of Dance I - (3)
MUS	120	Music Appreciation - (3)
MUS	121	Music History I - (3)
MUS	122	Music History II - (3)
MUS	123	Survey of World Music - (3)
THE	105	Theatre Appreciation - (3)
THE	211	Development of Theatre I - (3)
THE	212	Development of Theatre II - (3)

#### • Literature & Humanities

HUM	121	Humanities: Early Civilization - (3)
HUM	122	Humanities: Medieval to Modern - (3)
HUM	123	Humanities: The Modern World - (3)
LIT	115	Introduction to Literature - (3)
LIT	201	Masterpieces of Literature I - (3)
LIT	202	Masterpieces of Literature II - (3)
LIT	205	Ethnic Literature - (3)
LIT	211	Survey of American Literature I - (3)
LIT	212	Survey of American Literature II - (3)
LIT	221	British Literature I - (3)
LIT	222	British Literature II - (3)
LIT	225	Introduction to Shakespeare - (3)

#### • Ways of Thinking

PHI	111	Introduction to Philosophy - (3)
PHI	112	Ethics - (3)
PHI	113	Logic - (3)
PHI	114	Comparative Religions - (3)
PHI	214	Philosophy of Religion - (3)

#### • Foreign Languages

(Must be intermediate/200-level)		
FL	211	Second Year Foreign Language - (3)
		FRE, GER, ITA, JPN, RUS, SPA
FL	212	Second Year Foreign Language - (3)
		FRE, GER, ITA, JPN, RUS, SPA

### Social and Behavioral Science: 3 courses - (9 credits)

Select 3 courses, 1 of which must be history, with no more than 2 courses from any 1 category.

#### • History

HIS	101	History of Western Civilization I - (3)
HIS	102	History of Western Civilization II - (3)
HIS	111	World Civilization I - (3)
HIS	112	World Civilization II - (3)
HIS	201	U.S. History I - (3)
HIS	202	U.S. History II - (3)
HIS	247	Contemporary World History - (3)

#### • Economic & Political Systems

ECO	101	Economics of Social Issues - (3)
ECO	201	Macro Economics - (3)
ECO	202	Micro Economics - (3)
ECO	245	Environmental Economics - (3)
POS	105	Introduction to Political Science - (3)
POS	111	American Government - (3)
POS	205	International Relations - (3)
POS	225	Comparative Government - (3)

#### • Geography

GEO	105	World Regional Geography - (3)
GEO	106	Human Geography - (3)

#### • Human Behavior, Cultural & Social Frameworks

ANT	101	Cultural Anthropology - (3)
ANT	107	Introduction to Archaeology - (3)
ANT	111	Physical Anthropology - (3)
ANT	215	Indians of North America - (3)
JOU	105	Introduction to Mass Media - (3)
PSY	101	General Psychology I - (3)
PSY	102	General Psychology II - (3)
PSY	205	Psychology of Gender - (3)
PSY	217	Human Sexuality - (3)
PSY	226	Social Psychology - (3)
PSY	227	Psychology of Death and Dying - (3)
PSY	235	Human Growth & Development - (3)
PSY	238	Child Development - (3)
PSY	240	Health Psychology - (3)
PSY	249	Abnormal Psychology - (3)
SOC	101	Introduction to Sociology I - (3)
SOC	102	Introduction to Sociology II - (3)
SOC	205	Sociology of Family Dynamics - (3)
SOC	215	Contemporary Problems - (3)
SOC	216	Sociology of Gender - (3)
SOC	220	Sociology of Religion - (3)
SOC	231	Sociology of Deviant Behavior - (3)

### Physical and Life Sciences: 2 courses - (8-10 credits)

Additional credits beyond 8 apply as electives toward AA degree.

AST	101	Astronomy I - (4)
AST	102	Astronomy II - (4)
BIO	111	General College Biology I - (5)
BIO	112	General College Biology II - (5)
BIO	201	Anatomy & Physiology I - (4)
BIO	202	Anatomy & Physiology II - (4)
BIO	204	Micobiology - (4)
BIO	208	General College Microbiology - (5)
BIO	220	General Zoology - (5)
BIO	221	Botany: GT-SC1 - (5)
CHE	111	General College Chemistry I - (5)
CHE	112	General College Chemistry II - (5)
GEY	111	Physical Geology - (4)
GEY	121	Historical Geology - (4)
MET	150	General Meteorology - (4)
PHY	111	Physics: Algebra Based I - (5)
PHY	112	Physics: Algebra Based II - (5)
PHY	211	Physics: Calculus Based I - (5)
PHY	212	Physics: Calculus Based II - (5)

**Approved Electives (18-22 credits) \_\_\_\_ 18 Credits must be in approved math or science \_\_\_\_**  
**Total Credits (60 required) \_\_\_\_**

\* Note: This guarantee excludes majors in education, business, and engineering which have special articulation agreements with public four-year colleges and universities. Your advisor can assist you in choosing specific courses toward your major and transferring college. Check with your advisor periodically as updates and changes can occur.

## AS • Additional catalog requirements

You will graduate under the catalog requirements listed for the semester that you first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer term) and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also may choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

### Approved electives for the Associate of Science degree\*

These courses transfer to one or more of the public four-year colleges or universities in Colorado. All courses will count toward the AS degree. However, transferability depends on the four-year institution. For specific information, please consult an advisor in the Advising Center.

NOTE: To get the most from your elective choices, examine your program of study in the RRCC Catalog or speak with an academic advisor.

Anthropology	ANT-All courses	Mathematics	MAT-All course above 121
Astronomy	AST-All courses		Except 123, 125, 135, 155, and 156
Biology	BIO-All courses except 105	Meteorology	MET-150
Chemistry	CHE-All courses	Physics	PHY-All courses except 105
Computer Info. Systems	CIS-118, 240, 251, 268	Psychology	PSY-235
Communication	COM-All courses		
Computer Science	CSC-119, 160, 161, 165, 240, 261	* Please meet with an advisor for details.	
Economics	ECO-All courses		
English	ENG-All courses above ENG 122	Many four-year college transfer guides are available via the CCHE	
Environmental Science	ENV-101	Web site at:	
Foreign Language*	All courses except 101 and 102	<a href="http://highered.colorado.gov/Academics/Transfers/Guides/default.html">http://highered.colorado.gov/Academics/Transfers/Guides/default.html</a>	
Geography	GEO-All courses		
Geology	GEY-All courses		
Health and Wellness	HWE-100		

### Other AS degree requirements

1. A minimum of 60 credits is required for the Associate of Science degree.
2. You must complete an additional 18 credits in any of the science or math disciplines listed above. Please meet with an advisor in your program of study for specific course suggestions. Credits earned above the minimum to satisfy a requirement may be applied to a different area.
3. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate. The grade in all state general education transfer courses must be a C or better.
4. If you are planning to transfer to a four-year college or university, meet with an appropriate faculty advisor.
5. You must complete a minimum of 15 credits at RRCC.
6. You must file an application for graduation during the term in which you intend to graduate, according to the deadline published in the class schedule for that semester. You must apply to graduate within one year of completing requirements.
7. No more than six credits of independent study course work may be applied toward an associate degree program.
8. There is no limit on special-topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program of study. If you are taking special-topics courses, consult with your advisor regarding how these credits will apply toward a degree.
9. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
10. With the approval of a faculty advisor and an instructional vice president, up to three credits of internship may count toward a degree.

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# AGS • ASSOCIATE OF GENERAL STUDIES SPECIALIST DEGREE

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This degree is a pre-professional degree intended to transfer to specific four-year colleges or universities in Colorado with whom RRCC has signed an articulation agreement. Some courses may be considered for transfer to other colleges and universities on an individual basis.

1. A minimum of 60 credits is required for the AGS – Specialist Degree.
2. General education requirements depend upon the transfer agreement in place of the specific degree.
3. Program specific requirements depend upon the transfer agreement in place of the specific degree.
4. You must complete a minimum of 15 credits in your program of study at RRCC.
5. You must complete the degree requirements as listed for the specific AGS you are earning. Consult a faculty advisor for course information.

## **AGS – Specialist Programs**

The following programs have a transfer agreement with Metropolitan State College of Denver:

Criminal Justice  
Graphic Design/Print Production  
Motion Graphics and Animation  
Video Production  
Outdoor Recreation  
Outdoor Physical Education

## **Degree Requirements**

Meet with a faculty advisor from your area of study to review a degree worksheet.

## **AGS • Additional Catalog Requirements – Specialist Degree**

You will graduate under the catalog requirements listed for the semester that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer term) and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also may choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

## **Other AGS – Specialist degree requirements**

1. A minimum of 60 credits is required for the Associate of General Studies degree. Meet with a faculty advisor.
2. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate. The grade in all transfer courses must be a C or better.
3. You must complete a minimum of 15 credits in your program area at RRCC.
4. You must file an application for graduation during the term in which you intend to graduate according to the deadline published in the class schedule for that semester. You must apply to graduate within one year of completing requirements.
5. No more than six credits of independent study course work may be applied toward an associate degree program.
6. There is no limit on special-topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, consult with your advisor regarding how these credits will apply toward a degree.
7. The college reserves the right to substitute or delete courses.
8. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
9. With the approval of a faculty advisor, up to three credits of internship may count toward a degree.

# AGS • ASSOCIATE OF GENERAL STUDIES GENERALIST DEGREE

## Degree Requirements

The AGS generalist degree is available if you would like to complete a broad program of both college transfer and/or career courses without the constraints of specialization. The AGS general education course requirements transfer to all public baccalaureate colleges and universities in Colorado. Career courses within this degree may be accepted in a four-year baccalaureate program; however, each course will be considered on an individual basis.

## General Education Requirements (16 credits)

### Communication - (3 credits)

ENG 121	English Composition I - (3)
ENG 122	English Composition II - (3)
COM 115	Public Speaking - (3)
COM 125	Interpersonal Communications - (3)

### Mathematics - (3 credits minimum)

Select one course from the following list.

MAT 120	Mathematics for the Liberal Arts - (4)
MAT 121	College Algebra - (4)
MAT 122	College Trigonometry - (3)
MAT 123	Finite Math - (4)
MAT 125	Survey of Calculus - (4)
MAT 135	Introduction to Statistics - (3)
MAT 155	Integrated Math I and
MAT 156	Integrated Math II - (6)
MAT 166	Pre-Calculus - (5)
MAT 201	Calculus I - (5)
MAT 202	Calculus II - (5)
MAT 204	Calculus III with Engineering Applications - (5)
MAT 261	Differential Equations with Engineering Applications - (4)

### Arts and Humanities - (3 credits)

Select one course from the following list.

ART 110	Art Appreciation - (3)
ART 111	Art History Ancient to Medieval - (3)
ART 112	Art History Renaissance to Modern - (3)
ART 207	Art History 1900 – Present - (3)
FL 211	Second Year Foreign Language - (3)
FL 212	FRE, GER, ITA, JPN, RUS, SPA Second Year Foreign Language - (3)
HUM 121	Humanities: Early Civilization - (3)
HUM 122	Humanities: Medieval to Modern - (3)
HUM 123	Humanities: The Modern World - (3)
LIT 115	Introduction to Literature - (3)
LIT 201	Masterpieces of Literature I - (3)
LIT 202	Masterpieces of Literature II - (3)
LIT 205	Ethnic Literature - (3)
LIT 211	Survey of American Literature I - (3)
LIT 212	Survey of American Literature II - (3)
LIT 221	British Literature I - (3)
LIT 222	British Literature II - (3)
LIT 225	Introduction to Shakespeare - (3)
MUS 120	Music Appreciation - (3)
MUS 121	Music History I - (3)
MUS 122	Music History II - (3)
MUS 123	Survey of World Music - (3)
PHI 111	Introduction to Philosophy - (3)
PHI 112	Ethics - (3)
PHI 113	Logic - (3)
PHI 114	Comparative Religions - (3)
PHI 214	Philosophy of Religion - (3)

THE 105	Theatre Appreciation - (3)
THE 211	Development of Theatre I - (3)
THE 212	Development of Theatre II - (3)

### Social and Behavioral Science - (3 credits)

Select one course from the following list.

ANT 101	Cultural Anthropology - (3)
ANT 107	Introduction to Archaeology - (3)
ANT 111	Physical Anthropology - (3)
ANT 215	Indians of North America - (3)
ECO 101	Economics of Social Issues – (3)
ECO 201	Macro Economics - (3)
ECO 202	Micro Economics - (3)
ECO 245	Environmental Economics - (3)
GEO 105	World Regional Geography - (3)
GEO 106	Human Geography - (3)
HIS 101	History of Western Civilization I - (3)
HIS 102	History of Western Civilization II - (3)
HIS 111	World Civilization I - (3)
HIS 112	World Civilization II - (3)
HIS 201	U.S. History I - (3)
HIS 202	U.S. History II - (3)
HIS 247	Contemporary World History - (3)
JOU 105	Introduction to Mass Media - (3)
POS 105	Introduction to Political Science - (3)
POS 111	American Government - (3)
POS 205	International Relations - (3)
POS 225	Comparative Government - (3)
PSY 101	General Psychology I - (3)
PSY 102	General Psychology II - (3)
PSY 205	Psychology of Gender - (3)
PSY 217	Human Sexuality - (3)
PSY 226	Social Psychology - (3)
PSY 227	Psychology of Death and Dying - (3)
PSY 235	Human Growth & Development - (3)
PSY 238	Child Development - (3)
PSY 249	Abnormal Psychology - (3)
SOC 101	Introduction to Sociology I - (3)
SOC 102	Introduction to Sociology II - (3)
SOC 205	Sociology of Family Dynamics - (3)
SOC 215	Contemporary Problems - (3)
SOC 216	Sociology of Gender - (3)
SOC 220	Sociology of Religion - (3)
SOC 231	Sociology of Deviant Behavior - (3)

### Physical and Life Sciences - (4 credits minimum)

Select one course from the following list.

AST 101	Astronomy I - (4)
AST 102	Astronomy II - (4)
BIO 105	Science of Biology - (4)
BIO 111	General College Biology I - (5)
BIO 112	General College Biology II - (5)
BIO 201	Anatomy & Physiology I - (4)
BIO 202	Anatomy & Physiology II - (4)
BIO 204	Micobiology - (4)
BIO 208	General College Microbiology - (5)
BIO 220	General Zoology with Lab - (5)
CHE 101	Introduction to Chemistry I - (5)
CHE 102	Introduction to Chemistry II: GT-SC1 - (5)
CHE 111	General College Chemistry I - (5)
CHE 112	General College Chemistry II - (5)
GEY 111	Physical Geology - (4)
GEY 121	Historical Geology - (4)
MET 150	General Meteorology - (4)
PHY 105	Conceptual Physics - (4)
PHY 111	Physics: Algebra Based I - (5)
PHY 112	Physics: Algebra Based II - (5)
PHY 211	Physics: Calculus Based I - (5)
PHY 212	Physics: Calculus Based II - (5)
SCI 155	Integrated Science I - (4)
SCI 156	Integrated Science II - (4)

**College level electives (16 credits)** \_\_\_ Select any generally transferable academic courses from the list on the next page.

**General electives (30 credits)** \_\_\_ Select any courses numbered 100 or above.

**Total Credits (60 required)** \_\_\_\_\_

## AGS • Additional Catalog Requirements – Generalist Degree

You will graduate under the catalog requirements listed for the semester that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer semester) or more and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also may choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

Courses numbered below 100 will not apply to any degree.

### Approved college-level elective credit courses for the Associate of General Studies – Generalist degree

These courses transfer to one or more of the public four-year colleges or universities in Colorado. All courses will count toward the AGS – Generalist degree. However, transferability depends on the four-year institution. Additional courses may be transferable to one or more of the public four-year colleges or universities in Colorado. For specific information, please consult an advisor in the Advising Center.

Accounting	ACC-121 and 122	Journalism	JOU-105
Anthropology	ANT-All courses	Literature	LIT-All courses
Art	ART-All courses	Management	MAN-226
Astronomy	AST-All courses	Marketing	MAR-216
Biology	BIO-All courses	Mathematics	MAT-All courses 120 and above
Business	BUS-115, 216, 217, and 226	Meteorology	MET-150
Chemistry	CHE-All courses	Music	MUS-All courses
Communication Disorders	CMD-160, 260, 265, 266, and, 267 <i>(May not apply to some 4-year degree programs)</i>	Philosophy	PHI-All courses
Communication	COM-All courses	Physical Education	PED-All courses
Computer Info. Systems	CIS-118, 240, 251, 268	<i>(Maximum 3 credits apply toward degree)</i>	
Computer Science	CSC-119, 160, 161, 165, 240, 261	Physical Ed. and Recreation	PER-128, 252, and 253 <i>(May not apply to some 4-year degree programs)</i>
Criminal Justice	CRJ-All courses above 109	Physics	PHY-All courses
Dance	DAN-All courses	Political Science	POS-All courses
<i>(Some may transfer as Physical Education courses)</i>		Psychology	PSY-101, 102, 110, 205, 215, 217, 226, 227, 235, 238, and 249
Early Childhood Education	ECE-101, 205, 238 and 241	Science	SCI-155, 156
Economics	ECO-All courses	Sociology	SOC-All courses
Education	EDU-All courses above 200	Theatre	THE-All courses
English	ENG-All courses above 122		
Environmental Science	ENV-101		
Foreign Language	All courses except 101, 102		
Geography	GEO-All courses		
Geology	GEY-All courses		
Health and Wellness	HWE-100		
History	HIS-All courses		
Humanities	HUM-All courses		

Many four-year college transfer guides are available via the CCHE Web site at:

<http://higher.ed.colorado.gov/Academics/Transfers/Guides/default.html>

### Other AGS – Generalist degree requirements

1. A minimum of 60 credits is required for the Associate of General Studies degree.
2. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate.
3. If you are planning to transfer to a four-year college or university, meet with an appropriate faculty advisor and consult the Transfer Guide.
4. You must complete a minimum of 15 credits at RRCC.
5. You must file an application for graduation during the term in which you intend to graduate according to the deadline published in the class schedule for that semester. You must apply to graduate within one year of completing requirements
6. No more than 6 credits of independent study course work may be applied toward an associate degree program.
7. There is no limit on special-topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, consult with your advisor regarding how these credits will apply toward a degree.
8. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
9. With the approval of a faculty advisor and an instructional vice president, up to three credits of internship may count toward a degree.



The Associate of Applied Science degree is for the student who is preparing for entry-level employment in a career-oriented program of study or who is upgrading skills in a specific occupation.

This degree is not intended for transfer; however, courses are considered for transfer on an individual basis by the receiving college or university.

1. A minimum of 60 credits is required for the Associate of Applied Science degree. Some degrees require more than 60 credits. These must include 45 credits in specific program courses and 15 credits in general education courses.
2. If you are planning to transfer to a four-year college or university, meet with an appropriate faculty advisor and consult the Transfer Guide.
3. You must complete a minimum of 15 credits in your program area at RRCC.
4. No more than six credits of independent study course work may be applied toward an associate degree program.
5. There is no limit on special-topics courses that count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, consult with a faculty advisor regarding how these credits will apply toward a degree.
6. The college reserves the right to substitute or delete courses in a degree or certificate program.
7. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
8. With the approval of a faculty advisor, an internship may count toward a degree. Some AAS degrees will require internship credits.

## AAS Degree Requirements

(Meet with a faculty advisor for a degree worksheet.)

### Specific program requirements (45-60 credits)

### General education requirements (15 credits)

#### Communication - (3 Credits)

(ENG or COM or THE 118)

#### Mathematics - (3 credits)

(MAT 107 and above)

#### Credit from any two of the following three areas (6 credits):

##### Arts and Humanities - (3 credits)

(ART, FRE, GER, HUM, ITA, JPN, LIT, MUS, PHI, SPA, THE)

##### Physical and Life Sciences - (3 credits)

(AST, BIO, CHE, ENV, GEY, PHY, SCI)

##### Social and Behavioral Science - (3 credits)

(ANT, ECO, GEO, GIS, HIS, POS, PSY, SOC)

#### Electives from any of the above subjects or CIS 118 (3 credits)

Note: Individual departments may specify particular courses for general education.

## **AAS • Additional Catalog Requirements**

You will graduate under the catalog requirements listed for the semester that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer semester) or more and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also may choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

**Courses numbered below 100 will not apply to any degree.**

### **Other AAS Degree Requirements**

1. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate.
2. If you are planning to transfer to a four-year college or university, meet with an appropriate faculty advisor and consult the Transfer Guide.
3. You must complete a minimum of 15 credits in your program area at RRCC.
4. You must file an application for graduation during the term in which you intend to graduate according to the deadline published in the class schedule for that semester. You must apply to graduate within one year of completing requirements.
5. No more than six credits of independent study course work may be applied toward an associate degree program.
6. There is no limit on special-topics courses allowed to count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, consult with your advisor regarding how these credits will apply toward a degree.
7. The college reserves the right to substitute or delete courses in a degree or certificate program.
8. If you are applying for an additional degree at RRCC, you must complete an additional 15 credits at RRCC and the requirements for the degree.
9. With the approval of a faculty advisor, no more than five credits of internship may count toward a degree.  
(Some AAS degrees will require internship credits.)

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# ASSOCIATE OF APPLIED SCIENCE PROGRAMS

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## Emphases are available in the following career areas:

### Accounting

Accounting Paraprofessional  
Accounting Technician

### Air Conditioning, Heating and Refrigeration

Air Conditioning, Heating and Refrigeration  
Air Conditioning  
Refrigeration  
Heating  
Hydronic Heating  
Building Automation

### Applied Technology

### Auto Collision Technology

*(In cooperation with and taught at Warren Tech)*

### Automotive Service Technology

*(In cooperation with and taught at Warren Tech)*

### Business

Interdisciplinary  
Management and Supervision  
Real Estate

### Business Technology

Administrative Professional

### Carpentry

### Computer Information Systems\* with emphases in:

Cisco Network Associate\*  
Computer Support Technician\*  
Game Arts and Development\*  
Microsoft Application Developer MCAD\*  
Microsoft Database Administrator MCDBA\*  
Microsoft Network System Administrator MCSA\*  
Microsoft Network System Engineer MCSE  
PC Application Specialist\*  
Programming Specialist\*  
Web Design\*  
Web Development\*

### Construction Technology

Construction Management  
Construction Technology Technician  
Building Maintenance Technician  
Trades Degree  
Building Code Enforcement

### Criminal Justice\*

Law Enforcement

### Culinary Arts

*(In cooperation with the Rocky Mountain Chefs of Colorado and taught at Warren Tech)*

### Early Childhood Education

### Electricity Commercial/Industrial/Residential

Construction Electrician  
Maintenance Electrician  
Fire Protection Technology  
Construction Electrician/IBEW/NECA  
Power Technology

### Emergency Management and Planning\*

*(CCCOonline)*

### Emergency Medical Services

Paramedicine

### Engineering Graphics Technology with emphases in:

Architectural  
Mechanical  
Civil  
Interior Design

### Environmental Technology

### Fine Woodworking

### Fire Science Technology

Fire Science Technology  
Fire Service Management

### Industrial Maintenance Technology

Industrial Maintenance Technology - Mechanical  
Industrial Maintenance Technology - Electrical  
Electro-Mechanical Industrial Maintenance

### Medical Office Technology

Medical Assisting\*  
Medical Office\*

### Multimedia Graphic Design

Graphic Design & Print Production  
Video Production  
Motion Graphics Animation  
Game Arts & Development  
Web Design & Development  
Professional Photography: Traditional Film  
Professional Photography: Digital Photography  
Professional Photography: Traditional Film and Digital Photography

### Plumbing

Plumbing  
Plumber/Pipe fitter

### Power Plant Technology

### Precision Machining

*(In cooperation with and taught at Warren Tech)*

### Process Technology

### Radiologic Technology

### Renewable Energy Technology

### Sonography

### Teacher Education

Paraeducator

### Theatre Technology

### Vascular Technology

*(See Medical Imaging)*

### Water Quality Management

### Welding

*(In cooperation with and taught at Warren Tech)*

### Wind Technology

\* Pending approval

# CERTIFICATES

In addition to two-year degrees, RRCC students can earn certificates in a variety of specialties. A certificate can require as few as five credits and also may count toward a two- or four-year degree.

1. You must earn a cumulative grade point average of 2.0. Some programs may require at least a C in specified courses.
2. You must complete at least 50 percent of your coursework at RRCC to receive a certificate.
3. The college reserves the right to substitute or delete courses in a degree or certificate program.

## **Accounting**

Bookkeeping Clerk  
Accounting Clerk

## **Air Conditioning, Heating and Refrigeration**

Air Conditioning  
Level I Refrigeration  
Level II Refrigeration  
Refrigeration  
HVAC Fundamentals  
HVAC Controls Technician  
Forced-Air Heating  
Hydronic Heating  
Building Automation  
Air Conditioning, Heating/Refrigeration  
Apprenticeship program

## **Auto Collision Technology**

(In cooperation with and taught at Warren Tech)  
Non-Structural Analysis and Damage Repair  
Painting and Refinishing  
Structural Analysis and Damage Repair  
Mechanical and Electrical Components  
Management

## **Automotive Service Technology**

(In cooperation with and taught at Warren Tech)  
Lubrication and tire service  
Manual drive train  
Brake specialist  
Automatic transmission  
Suspension and Steering  
Engine performance  
Heating and air conditioning  
Electrical/electronics  
Engine repair  
Auto parts specialist

## **Basic Law Enforcement Training Academy**

(See *Criminal Justice*)

## **Business**

Management and Supervision  
Real Estate  
Registered Appraiser  
Small Business Start Up

## **Business Technology**

Clerical Assistant  
Office Professional

## **Carpentry**

## **Computer Information Systems**

Cisco Network Associate  
Computer Support Technician  
Game Development  
Microsoft Application Developer (MCAD)  
Microsoft Database Administrator (MCDBA)  
Microsoft Network System Administrator (MCSA)  
Microsoft Network System Engineer (MCSE)  
Oracle Database Administrator  
PC Applications Specialist  
Programming Specialist  
Web Design  
Web Development

## **Construction Technology**

Construction Management 1  
Construction Management 2  
Construction Management 3  
Construction Technology Fundamentals  
Construction Technology Technician  
Building Maintenance Technician  
Building Codes  
International Residential Code  
International Plumbing and Mechanical Codes  
Building Code Enforcement (*online only*)

## **Cosmetology** (*In cooperation with and taught at Warren Tech*)

Cosmetologist  
Hairstylist  
Manicurist  
Esthetician (skin)

## **Criminal Justice**

Basic Law Enforcement Training Academy

## **Culinary Arts** (*In cooperation with the Rocky Mountain*

*Chefs of Colorado and taught at Warren Tech*)

## **Diagnostic Cardiac Sonography**

## **Diagnostic Medical Sonography**

## **Early Childhood Education**

Preschool Group Leader  
Infant/Toddler Group Leader  
Director Early Childhood Education

## **Electricity Commercial/Industrial/Residential**

Electrical Installation  
National Electrical Code  
Residential Construction Electrician  
Construction Electrician  
Advanced Construction Electrician  
Post-Degree Specialization for Advanced Construction  
Electrician  
Maintenance Electrician  
Advanced Maintenance Electrician  
Post-Degree Specialization for Advanced Maintenance  
Electrician  
Control Systems Technician  
Fire Code  
Fire Alarm and Detection Technician

## **Emergency Management and Planning**

## **Emergency Medical Services**

Emergency Medical Technician - Basic

## **Engineering Graphics Technology**

Engineering Graphics Architectural  
Engineering Graphics Mechanical  
Engineering Graphics Civil  
Engineering Graphics Interior Design  
Furniture Design \*  
SolidWorks

## **Environmental Technology**

Introduction to Air Compliance  
Introduction to Soil Compliance  
Introduction to Water Compliance  
Environmental Pre Engineering  
Environmental Safety Systems

\* Pending approval

### **Fine Woodworking**

General Fine Woodworking  
Woodworking Fundamentals  
Wood Turners  
Luthier Fundamental  
Cabinetmaker  
Craftsman  
Joiner  
Artisan  
Post-Degree Master Craftsman

### **Fire Science**

Fire Fighter I  
Fire Instructor  
Fire Officer I  
Fire Officer II  
Fire Officer III  
Driver Operator  
Technical Heavy Rescue  
Wildland Management  
Fire Inspector  
Fire Investigator

### **Health Professions**

Plebotomy  
R.N. Refresher Program  
Nurse Aid  
Holistic Health Professional

### **Industrial Maintenance Technology**

Industrial Maintenance Technology  
Industrial Electrical Technician  
Codes and Standards  
Commercial and Industrial Heating and Cooling  
Low Voltage Technician  
Electro-Mechanical Technician  
Introduction to Predictive Maintenance Technology\*  
Introduction to Industrial Control Systems\*  
Introduction to Industrial Electrical Maintenance\*  
Introduction to Industrial Instrumentation and Controls\*  
Introduction to Industrial Maintenance Team Leadership\*

### **Medical Imaging**

Diagnostic Medical Sonography\*  
Vascular Technology\*  
Diagnostic Cardiac Sonography\*

### **Medical Office Technology**

Medical Assisting  
Medical Office

### **Multimedia Graphics Design**

Graphic Design & Print Production  
Video Production  
Motion Graphics and Animation  
Game Arts  
Web Design  
Advanced Web Design  
Professional Photography: Traditional Film  
Professional Photography: Digital Photography  
Professional Photography: Traditional Film and Digital Photography

### **Outdoor Recreation**

Outdoor Recreation Leadership\*  
Winter Skills Specialist  
Water-based Skills Specialist  
Mountaineering Skills Specialist  
Outdoor Recreation Generalist

### **Park Ranger Technology**

Law Enforcement  
Public Safety  
Outdoor Recreation  
Resource Interpretation

### **Physician Assistant**

Physician Assistant  
Master's Degree Option

### **Plumbing**

Basic Plumbing Skills  
Colorado Plumbing Code Test Preparation  
Residential Plumbing  
Residential Plumbing and Heating  
Journey-Level Plumbing  
International Plumbing and Mechanical Codes

### **Precision Machining Technology**

Lathe Operator  
Mill Operator  
CNC Lathe Operator  
CNC Mill Operator

### **Process Technology**

Introduction to Process Equipment  
Introduction to Process Plant Instrumentation  
Introduction to Process Plant Safety  
Introduction to Process Plant Operations  
Introduction to Process Plant Quality Management

### **Renewable Energy Technology\***

Post HVA Degree Solar Thermal Specialty  
Post EIC Degree Solar Photovoltaic Specialty

### **Teacher Education**

Paraeducator  
Adult Education and Family Literacy

### **Theatre Arts**

Costume Basics  
Costume and Fashion  
Stagehand Basics  
Stagecraft

### **Vascular Technology (See Medical Imaging)**

### **Water Quality Management**

Water Treatment  
Wastewater Treatment  
Laboratory Analysis  
Mathematics in Water Quality Education and Experience  
Distribution and Collection Systems

Water Treatment Certification

Wastewater Treatment Certification

### **Welding (In cooperation with and taught at Warren Tech)**

OFW and OFC Certificate  
SMAW Certificate  
GMAW Certificate  
FCAW Certificate  
GTAW Certificate

### **Wind Technology**

Wind Technician I  
Wind Technician II

\* Pending approval

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## NONCREDIT

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The RMEC provides workforce development in areas from health and safety to software applications and management strategies.

### **Rocky Mountain Education Center (RMEC) Continuing Education/Workforce Development**

The Rocky Mountain Education Center (RMEC) located at the Lakewood campus is the continuing education department of the community college. Our mission has expanded over the years from environmental, safety and health training to include all professional workforce development training. In 1992, the Department of Labor/OSHA selected RRCC as one of four training centers in the U.S. to offer OSHA training. We are one of two Department of Labor's authorized OSHA Training Institutes in Region VIII which consists of CO, WY, MT, SD, ND, and UT.

The RMEC specializes in customizing all facets of health, safety management, and supervisory training programs. From computer training to mortgage loan certification, we are a one-stop training organization dedicated to providing high quality, effective, and affordable training for our customers. As with all our programs, we can customize each course to fit your organization's needs and bring that course to your company.

**Information: 303.914.6420 [www.rrcc.edu/rmec](http://www.rrcc.edu/rmec)**

# ACADEMIC INFORMATION

Like you, RRCC takes your education seriously. It's our great pleasure to recognize the successes of RRCC students.

## Academic Integrity

Everyone associated with the college's academic community has a responsibility for establishing, maintaining, and fostering understanding and respect for academic integrity. The following principles are associated with academic integrity:

- Cite (give credit for) words and/or ideas in an academic exercise that are not expressly your own.
- Use information, computer programs, another person's work, study aids and/or other materials only when allowed by the instructor.
- Remove materials from the library, labs, and other college facilities only when an official representative of the college grants permission.
- Use copyrighted materials only with permission.
- Refuse to help another commit an act of academic dishonesty.
- Use only the resources specifically allowed when completing a test or other assignment.

Academic dishonesty is the intentional act of fraud when an individual claims credit for the work of another, uses unauthorized materials, or fabricates information in any scholarly exercise. Academic dishonesty also includes, but is not limited to:

- forging educational documents
- damaging or destroying the

works of another; or

- assisting others in acts of academic deception.

If you are aware of an incident of academic dishonesty, please report the occurrence to a faculty member, department chair, or administrator. Those committing academic dishonesty will be subject to disciplinary action, such as failing the assignment or course and/or expulsion from the course or college.

## Attendance

To benefit most from your instruction, attend each class, come to class prepared, arrive on time, hand in assignments when due, and take exams when scheduled. In addition, comply with attendance policies set by individual instructors.

## Course Load

For most students, a typical academic course requires two to three hours of outside preparation for each hour spent in class. For example, a 15-credit load represents a commitment of 45-60 hours per week, consisting of 15 hours in class and 30-45 hours of outside preparation.

The average full-time course load is 15 credits for each fall and spring semester. During the summer semester, the average full-time course load is 12 credits. If you register for fewer than 12 credits,

you are classified as part time. You need written permission from your advisor or the registrar to enroll for more than 18 credits during any semester.

## Grades

Final course grades are assigned at the end of each semester for classes taken during that semester. If you need an earlier grade report, contact the instructor.

## Grading Symbols

**A** Distinguished achievement for superior work

**B** Better than acceptable achievement

**C** Acceptable achievement for advancement in the same or related studies

**D** Less than acceptable achievement for advancement in the same or related studies (credit may not transfer or count toward some degrees or certificates)

**F** Failure to achieve or master the learning objectives of the course. A grade of F does not apply toward certificates or degrees.

**AU** Audit. If you want to take a course without earning credit, you can register to audit that course. You must pay full tuition and fees, and you will not receive the COF stipend for the course. You must declare your intention to audit no later than the course's tuition refund date. Once you have registered to audit a course, you cannot change your

Details of the Student Code of Conduct are found in the most current edition of the RRCC Student Handbook.

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## ACADEMIC INFORMATION

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registration from auditing to earning credit for the course. The college will not award credit for any audited course.

**AW** Administrative Withdrawal. The grade of **AW** may be given at the discretion of the individual faculty member.

**W** Withdrawal. Through Admissions, you have officially withdrawn from the course or the college by the approved date and time listed in the current semester's schedule.

**I** Incomplete. If you are not able to complete the learning objectives before the end of a course because of verifiable extenuating circumstances, the instructor may assign a grade of incomplete at his or her discretion. Before you are eligible to receive an **I**, you must have completed a minimum of 75% of the course work with a grade of **C** (or better). Before the end of the course, you are responsible for making arrangements with the instructor to sign an Incomplete Grade Contract. If you do not complete the course work by the agreed-upon deadline, the instructor will change the **I** to the letter grade stipulated in the contract.

**S** Satisfactory. Equivalent to a grade of **C** or higher and is available only for certain predesignated courses.

**U** Unsatisfactory. Equivalent to a grade of **D** or **F** and is available only for certain predesignated courses.

**S/A, S/B, S/C** These are satisfactory grades awarded only for developmental courses. The **A**, **B**, and **C** indicate the level of satisfactory performance. These grades are not included in the GPA calculation. The course will count for attempted and earned credits.

**U/D, U/F** These are unsatisfactory

grades awarded only for developmental courses. The **D** and **F** indicate the level of unsatisfactory performance. These grades are not included in the GPA calculation. The course will count in attempted credits but will not carry earned credits.

**SP** Satisfactory Progress. Under the college's continuous enrollment policy, certain courses have been designated open-entry. You are eligible to receive an **SP** only if you are enrolled in an open-entry course. By the end of the semester, you must have completed course work (prorated by your registration date) with a grade of **C** (or better) before you can be eligible for an **SP**. Also, you can request an **SP** based on verifiable extenuating circumstances. Before the end of the semester, you are responsible for making arrangements with the instructor to sign an **SP** Grade Contract. If you do not complete the course work by the agreed-upon deadline, the instructor will change the **SP** to the letter grade stipulated in the contract.

**Z** Grade not yet reported.

### Academic Probation

If you have completed 13 or more credits with a cumulative GPA of less than 2.0, you will be placed on academic probation. Meet with an advisor at this point. Continued GPA of less than 2.0 after being placed on probation may lead to suspension from enrollment at Red Rocks Community College. You have the right to appeal. For detailed information, see the current edition of the Student Handbook.

### Academic Renewal

All course work taken at RRCC is reflected on your permanent transcript; however, you can petition to remove up to 30 credit hours of substandard grades earned from your cumulative grade point average (GPA). Before submitting the required written request, you must have been out of school for two years after the substandard course work was completed. Also, you must have completed a minimum of six credit hours of new course work at RRCC with a cumulative GPA of 2.0 or higher. You may petition only once to remove grades and credits from your cumulative GPA. Once Student Records has removed these grades and credits from your cumulative GPA, they cannot be reinstated or used for any degree or certificate. The grades and credits will still appear on your permanent academic transcript.

**Information: 303.914.6352**

### Grade Point Average (GPA) Calculation

When computing your cumulative grade point average (GPA), various numerical values are assigned and used. Those that appear on your transcript are:

#### (AHRs) Attempted Credit Hours

Once you register for a course, you are attempting the credit hours assigned to that course. Attempted hours are not used to calculate your GPA.

#### (EHRs) Earned Credit Hours

If you earn a final course grade of **A**, **B**, **C**, **D**, or **S**, you will receive earned



# ACADEMIC INFORMATION

credit hours for that course. Earned hours are not used to calculate your GPA.

## (QHRS) Quality Credit Hours

If you earn a final course grade of A, B, C, D, or E, you will receive quality credit hours for that course. Quality hours are used to calculate your GPA.

## (QPTS) Quality Points

The main grading symbols are given points: A=4, B=3, C=2, D=1, and F=0. The points assigned to the letter grade multiplied by the quality credit hours received for the course give a numerical value called quality points. These points are used to compute your cumulative GPA.

## (GPA) Grade Point Average

Your grade point average is the numerical value found by dividing the total number of quality points (QPTS) by the total number of quality credit hours (QHRS). The GPA's highest possible numerical value is 4.0.

## Petitioning for Waivers/Program Substitutions

If you wish to petition for a waiver and/or substitution of program requirements, you must complete a Waiver/Program Substitution Request form. The form is available in the Student Records office or from a faculty advisor. Complete the request, have it approved by your faculty advisor and the appropriate instructional dean, and submit it to Student Records where it will be kept on file.

Information: 303.914.6353

## Repeating Courses

You may retake any course taken at RRCC. After completing the course at RRCC, **you must fill out a "Petition for Repeated Course" form to have only the highest grade used in calculating your GPA.** The previous course credits and grades will still appear on your transcript, but they will not be used to calculate either your GPA or total credit hours toward a degree or certificate. Credit hours earned for repeated courses will be deducted from your remaining COF stipend eligible hours. You can obtain the form in Student Records. Information: 303.914.6352

## Recognition of Achievement

### Honors List

The Honors List recognizes those who have achieved an outstanding level of academic success at RRCC. The Honors List designation is recorded on your official academic transcript, and you receive recognition during the college's annual graduation ceremony. To receive this academic honor, you must be graduating and have:

- Earned, for all credits, a cumulative GPA of 3.85 (or higher) in your graduating term;
- Taken at least 15 credits of course work through RRCC; and
- Completed the requirements for an associate of arts, associate of science, associate of general studies, or associate of applied science degree; or have completed a certificate program containing at least 30 hours.

Information: 303.914.6353

## Honors Program

Students and faculty participate in a community of learners that nurture their intellectual and personal growth. The program strives to develop leadership skills, to recognize excellence, and to challenge participants in the honors program through experiential learning, interdisciplinary course work, scholarly research, and educational partnerships.

Information: 303.914.6123

### Calculating your GPA

Prefix	Grade	AHRS	EHRS	QHRS	QPTS
ART 131	<u>B</u>	3	3	3	3X3 = 9
BIO 227	<u>W</u>	3	0	0	0X0 = 0
MAT 201	<u>A</u>	5	5	5	4X5 = 20
PHI 111	<u>C</u>	3	3	3	2X3 = 6
PSY 116	<u>F</u>	1	0	1	0X1 = 0
Totals		15	11	12	35
GPA =		$\frac{\text{Total QPTS} = 35}{\text{Total QHRS} = 12} = 2.917$			

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## ACADEMIC INFORMATION

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### Phi Theta Kappa

RRCC sponsors a chapter of Phi Theta Kappa, the national student honors organization for two-year colleges. Members plan programs and events which encourage scholarship, service, and leadership. To be eligible for membership, you must have completed at least 12 credits of study at RRCC, have a minimum GPA of 3.5, and obtain a faculty letter of recommendation. Membership opportunities occur twice a year, once in the fall and once in the spring semesters.

**Information: 303.914.6372**

### Veterans Progress

Veterans are certified only for courses that apply to their degree programs. If you are eligible to receive VA benefits, you are required to maintain a cumulative 2.0 grade point average (GPA) for all course work attempted. If your cumulative GPA is below 2.0, you will be placed on academic probation for the following term. If your GPA is not increased to 2.0 during the probationary term, certification to the Veterans Administration will be suspended for one academic term. You may be reinstated after you have received approved counseling.

Because credit is not given for audited courses, they are not eligible for certification. If you stop attending but do not officially drop or withdraw from the course, you are considered non-attending. You may be dropped administratively and your benefit certification adjusted accordingly. These actions can result in you owing the federal government money. Copies of the veteran regulations are available for review in the Veteran Services office on campus.

**Information: 303.914.6353**

### Graduation Catalog Graduation Requirements

You will graduate under the catalog requirements in effect for the semester that you were first enrolled. If you interrupt attendance for two consecutive semesters (excluding summer term) or more and then return, you must meet the requirements of the catalog in effect at the time you re-enroll. You also can choose to use the catalog that is in effect the semester you graduate. Be sure to keep a copy of your catalog.

You will not receive a diploma until you have met all financial obligations to the college, including payment of tuition, fees, police tickets, and library fines.

### Graduation Requirements

1. You must earn a cumulative grade point average of 2.0 (C average). Some programs will require at least a B or C in specific courses.
2. The college reserves the right to substitute or delete courses in degree or certificate programs.
3. Not all programs or courses are available each semester.
4. Courses numbered below 100 will not count toward any degree or certificate.
5. **You must submit an Application for Graduation during the term in which you intend to graduate according to the deadline published in the class schedule for that semester.**

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## Affiliations

### Accredited by:

The Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools  
30 North LaSalle St., Suite 2400, Chicago, IL 60602-2504. Information: 1.800.621.7440

### Programs approved by:

State Board for Community Colleges and Occupational Education and Colorado Community College System  
9101 E. Lowry Blvd., Denver, CO 80230-6011. Information: 303.620.4000

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# ADMISSIONS

Red Rocks welcomes everyone who can benefit from our instructional programs and courses, including high school graduates, non-graduates, and students 17 years and older who are currently enrolled in high school.

The Director of Enrollment Services reviews any questions regarding admission. Any admission based on false statements or documents may be reversed, and credits for classes completed under these circumstances

may be revoked. The college may review the enrollment of a student who does not appear to be profiting from instruction or who poses a hazard to herself, himself, or others.

Admission does not ensure acceptance into a particular course or program. Some programs have limited space and special admissions procedures; applicants for these programs must contact the appropriate department.

Five steps and you're in:

1. Apply for admission. 2. Apply for COF. 3. Meet assessment requirements. 4. Meet with an advisor. 5. Register for classes.

## Admission Procedures

In order to enroll, follow these steps:

### 1. Apply for admission.

Submit an application for admission online at: [www.rrcc.edu](http://www.rrcc.edu) or stop by the Admissions Office.  
**Information: 303.914.6348 or [www.rrcc.edu/admis](http://www.rrcc.edu/admis)**

### 2. Apply for the College Opportunity Fund (COF).

Colorado residents should complete the application. The State of Colorado provides funding for students to attend college through COF. This is the state paid portion of your tuition which is a benefit of being a Colorado resident. If you do not apply for COF funding, you are responsible for both the student share and the state share of all tuition and fees.

**For more information and to apply, click the COF link on the RRCC home page: [www.rrcc.edu](http://www.rrcc.edu)**

### 3. Meet one of the following assessment requirements.

- ACT scores (Reading 17, Sentence Skills 18, Math 19)
- SAT Scores (Verbal 430, Math 460)
- Successful completion of college-level math and English courses
- Take the Accuplacer computer placement test at RRCC.  
**Information: 303.914.6720 or [www.rrcc.edu/assessment](http://www.rrcc.edu/assessment)**

**4. Meet with an academic advisor** who can help you select courses, identify course prerequisites, obtain program information, evaluate assessment results, assist with transfer planning to a four-year college or university, and prepare you for graduation. They can check your progress in AA, AS, and AGS degree plans and develop a course schedule that fits your needs and academic goals. A team of academic advisors is available year-round on a walk-in basis. An

important step toward succeeding at RRCC is meeting regularly with an academic advisor.

**Information: 303.914.6255 or [www.rrcc.edu/advising](http://www.rrcc.edu/advising)**

### 5. Register for classes

online or in person at the Lakewood or Arvada campus.

To register online, go to [www.rrcc.edu](http://www.rrcc.edu) and click on "Register for Classes."

**Information: 303.914.6348 or [www.rrcc.edu/onlineenroll](http://www.rrcc.edu/onlineenroll)**

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# ADMISSIONS/ADVISING

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## International Students

International students must contact the English Language/Intercultural Services Office to begin their application process. See page 34 for more information.

**Information: 303.914.6416 or [www.rrcc.edu/international](http://www.rrcc.edu/international)**

## Former Students

If you are returning to RRCC after an absence of more than one year, you must re-apply for admission. If you have earned credit at another college and plan to use that credit to fulfill requirements for an RRCC degree or certificate, submit an official transcript to the Student Records Office prior to the semester in which you plan to graduate.

**Information: 303.914.6355**

## High School Students

RRCC welcomes high school students who are at least 17 years old and can benefit from our instructional programs. To enroll, follow these simple steps:

1. With approval from your high school counselor, you may take courses at RRCC for dual credit (high school and college credit). Ask your counselor about Post-Secondary Enrollment Options (PSEO), Warren Tech, and other concurrent enrollment options.
2. Complete paperwork available at your high school counseling office.
  - Complete an RRCC Community College Application for Admission.
  - Complete a Statewide Agreement form for high school concurrent enrollment.

- Additional forms may be required for the specific program you enter at RRCC. Consult with your high school counselor.

3. Complete the Accuplacer assessment at RRCC or submit qualifying ACT/SAT scores to the Assessment Center. The Accuplacer measures your readiness for college-level coursework. It is not a test of whether you can attend RRCC but is a tool to help advisors place you in appropriate college courses. Call **303.914.6720** or visit **[www.rrcc.edu/assessment](http://www.rrcc.edu/assessment)** for more information regarding where and when to take the Accuplacer assessment.

4. Call the High School Relations Office at 303.914.6350 or visit [www.rrcc.edu/hs/](http://www.rrcc.edu/hs/) to schedule an appointment for academic advising and registration.

## Assessment

The state of Colorado requires incoming students to complete the Accuplacer, an assessment test of basic skills, to guide your choice of courses. You must complete the assessment or present exemption documents before you register for classes. The Accuplacer assesses your proficiency in English, reading, and mathematics and is taken on a computer in the Testing Center. Plan on 90 minutes for the test.

There is no cost the first time you take the test; you may retest any or all of the sections for \$5 per test. No appointment is required to take the Accuplacer, but you must show a valid state or federal issued picture ID. You will receive your scores as soon as you complete the test which will help you make course selections when you meet with an academic advisor.

You cannot “fail” the Accuplacer; your score is an indication of the level of coursework you are ready to take. We strongly recommend that you review the online study guides available prior to taking the Accuplacer. The study guides can be found on our Web site at **[www.rrcc.edu/assessment](http://www.rrcc.edu/assessment)**

If your assessment scores are below college level, you are responsible for enrolling in basic skills courses during your first 30 credit hours of attendance.

Students enrolling in Fire Science or Emergency Services coursework must consult the Emergency Services Department for their assessment requirements.

You may take the Accuplacer at either the Lakewood or Arvada campus. Please refer to the Assessment Center Web site for additional information about the Accuplacer and testing hours at both campuses.

## Exemptions to the Assessment Requirement

Students who have graduated from a Colorado public and private high school (or its equivalent) during the previous academic year or students who will be working toward a degree within the Colorado Community College System must be assessed for reading, writing, and mathematics ability. Students who meet one of the following requirements do not have to take the Accuplacer.

- If you have earned an associate of arts, associate of science, or higher degree from an accredited college or university, you must submit your transcript(s) to RRCC to receive the exemption.
- If you have completed college-level English composition or college algebra with a grade of C or better, or you have qualifying AP/IB test scores, you can submit your transcript(s) and/or score report to RRCC to be exempt from taking the corresponding section(s) of the Accuplacer. Qualifying scores are listed on the RRCC Web site:  
[www.rrcc.edu/assessment](http://www.rrcc.edu/assessment)
- If you have qualifying ACT scores (English, 18 or higher; reading, 17 or higher; mathematics, 19 or higher) or SAT scores (verbal, 440 or above; math, 460 or above) and submit the scores to the RRCC Admissions Office, you do not have to take the Accuplacer.

## Credit for Prior Learning (CPL)

You may receive academic credit for education earned through earlier schooling, work, experiential learning, or other non-traditional means. It must be comparable to courses offered at RRCC and related to your current program. Methods available for CPL are the following:

- College Level Examination Program (CLEP)
- Portfolio (documentation of past learning)
- Institutional Challenge Examination (CPL) The handbook and forms are available online.

**Information: 303.914.6720 or [www.rrcc.edu/assessment](http://www.rrcc.edu/assessment)**

## Career Resources Career Assessments

Red Rocks offers individual appointments for the Myers-Briggs and Strong Interest Inventory career assessments at the Arvada Campus. Assessments are \$20 each for students and alumni or \$30 each for community members.

**Call to make an appointment: 303.914.6016**

## Career Development Course

PSY 110, Career Development, is offered each spring and fall semester in the classroom and online during the summer. PSY 110 covers all areas of the career development process, including formal and informal assessments (personality, interests, skills, values, and beliefs); personal career exploration; occupational, labor, and job market resources; the changing workplace; goal-setting; decision-making; networking; informational interviewing; résumé writing; and interviewing skills. Upon completion, students will have created their own career development plans.

**Information: 303.914.6016 or [dan.macy@rrcc.edu](mailto:dan.macy@rrcc.edu)**

## Choices Explorer and Planner

These two free career resources are available to all students and include basic career interests, values, skills career assessments, and a résumé builder. Links to occupational information and videos, along with college educational program databases and other career and educational resources, make Choices Explorer and Planner a user-friendly tool. To access, visit [www.collegeincolorado.org](http://www.collegeincolorado.org), create an account, log in to Choices Explorer and Planner, and then create your portfolio to be able to access all resources.

## Military Science (U.S. Army ROTC)

The Military Science Program at RRCC is offered in conjunction with the University of Colorado at Boulder (CU-Boulder). The Department of Military Science offers programs leading to an officer's commission in the active Army, Army Reserve, or National Guard in conjunction with an undergraduate or graduate degree. Military science courses supplement a regular degree program by offering practical leadership and management experience. Students attend classes at either University of Colorado at Boulder, Colorado School of Mines in Golden, or Metro State College of Denver.

Register for Army ROTC classes (ARM prefix) either online or through the RRCC Student Records office, Room 1200. For more information about the AROTC program, contact the AROTC Enrollment/Scholarship officer at 303.492.3459, or 303.492.6495, or see [www.colorado.edu/arotc](http://www.colorado.edu/arotc).

**Information: 303.914.6353**

## Transcripts

There are several ways to order a transcript. If you took classes before summer 1996, contact the Student Records Office. You may also print a transcript request form found on the Red Rocks Web site under "Student Records." You can mail or fax this form to Student Records.

If you took classes during or after summer 1996, you may order your

transcript by going to [www.rrcc.edu](http://www.rrcc.edu) and clicking on "My Community Education." Enter your user ID and six-digit PIN. Your user ID starts with the letter R or S. Your PIN is your birth date (mmddyy). You may also print the form from the Web site and mail or fax it to Student Records.

**Student Records Fax: 303.989.6919**

There is no charge to order a transcript. Phone requests are accepted only for transcripts sent to other colleges. Transcripts will not be released for students who have failed to fulfill their financial obligations to the college.

**Information: 303.914.6352**

## Transfer of Credits

The Colorado Community College System (CCCS) uses a common course numbering system to simplify transfer to other state colleges and universities and to ensure curriculum quality across the system.

Information is posted at [www.cccs.edu](http://www.cccs.edu). Once you are on the site, select 'Common Course Number System'.

1. Initial transcript evaluation is completed in Student Records. (Transcripts must be sent from a previous college to RRCC and become the property of RRCC.)
2. Grade point average (GPA) from transfer institutions is not calculated into your RRCC GPA.
3. The college reserves the right to validate and examine all courses to determine if they are obsolete. If a course is obsolete, you may be required to take a similar course at RRCC.

4. The college will accept transfer credit only from post-secondary institutions accredited by one of the six regional accrediting associations. Credits earned in a Colorado community college that are applicable to a specific AAS degree or certificate will be accepted in an equivalent program.

5. All received and/or evaluated transcripts become the property of RRCC. Only grades of C or better will be accepted for transfer. If you are pursuing a degree or certificate and wish previous college credits to be considered for transfer, submit official transcripts either sent from a previous institution or hand-carried in a sealed envelope to Student Records as soon as possible after registering for classes. Transcripts will not be evaluated until you are registered.

**Information: 303.914.6355**

## Transferring from RRCC to Four-Year Colleges and Universities

RRCC has established transfer agreements with the following institutions:

Adams State College  
Colorado Christian University  
Colorado College  
Colorado School of Mines  
Colorado State University:  
• Fort Collins  
• Pueblo  
Colorado Technical University  
DeVry University  
Fort Hays State University  
Fort Lewis College  
Franklin University  
Governors State University  
Jones International University  
Metropolitan State College of Denver  
Mesa State College  
Naropa University  
Northwest Missouri State University  
Regis University  
St. Francis University  
United States Air Force Academy  
University of Colorado:  
• Boulder  
• Colorado Springs  
• Denver  
• Denver Health Sciences  
University of Denver  
• Daniels College of Business  
University of Northern Colorado  
University of Phoenix  
Western State College

These agreements specify how Red Rocks courses transfer and identify their equivalents at these institutions. They are written guarantees of transferability when a prescribed curriculum is satisfactorily completed.

**Information: 303.914.6255 or [www.rrcc.edu/transfer](http://www.rrcc.edu/transfer)**

## WarrenTech

WarrenTech is the career and technical high school for Jefferson County Public Schools. Classes follow the WarrenTech/Jeffco Public Schools calendar. Deadlines and class start and end dates differ from those of RRCC. Anyone who has graduated from high school, received a GED, or is age 21 or older may attend WarrenTech by enrolling through RRCC. Adults attend WarrenTech on a space-available basis. WarrenTech classes are conducted on a block schedule, usually for 15 hours per week. The morning classes run from 7:30-10:30 M - F and the afternoon classes run from 12:00 - 3:45 M - Th.

Adult students pay tuition to RRCC but attend programs on the WarrenTech campus. Students are also required to pay program fees at WarrenTech. Typically, WarrenTech programs are the equivalent of 14 college credit hours per semester.

### WarrenTech Admission Steps:

1. Apply for admission at RRCC.
2. Apply for admission at WarrenTech and take the Accuplacer at RRCC. Attach the results to the WarrenTech application.
3. Wait to be notified of acceptance to WarrenTech.
4. When accepted to WarrenTech, register with Janis Eagan in the RRCC Admissions Office and pay tuition/fees at both RRCC and WarrenTech.

WarrenTech Information Guides are available at WarrenTech or RRCC. For more information, contact the RRCC-WT Liaison at **303.982.5232** or the RRCC Admissions Office at **303.914.6543**. Admissions and registration requirements can be obtained from either office. All students who apply to a WarrenTech program are required to either provide a college transcript or take the Accuplacer test at RRCC.

**The following WarrenTech programs are available to RRCC students on a space available basis:**

Auto Collision Repair  
Auto Customization  
Automotive Technology  
Cosmetology: Esthetics  
Cosmetology: Hairstyling  
Cosmetology: Nail Technology  
Dental Assisting  
Hotel and Travel  
Power Equipment and Motorcycle Technology  
Precision Machining Technology  
Welding

## College Opportunity Fund (COF)



The College Opportunity Fund (COF) is a state-funded program that provides a per-credit subsidy for Colorado residents attending state-supported and participating private colleges and universities.

This money, referred to as the COF stipend, is applied to an in-state student's tuition. You have to apply for the COF stipend only once, but you must authorize its use. The college you are attending will receive the money, and it will appear as a tuition credit on your bill. The COF stipend is set by the state legislature. See the class schedule for the current stipend amount. **Failure to apply for COF could result in your tuition being changed to non-resident.** You must enroll online; the link to the COF enrollment site is available on the RRCC home page: [www.rrcc.edu](http://www.rrcc.edu).

If tuition is a problem, RRCC has many scholarships and other financial aid options that can help you.

### Financial Aid

Approximately one-third of our students receive some type of financial aid each year. Four types are available:

- Scholarships are generally based on academic performance, accomplishments, and need.
- Grants are federal and state programs based on need.
- Loans must be repaid, unlike scholarships and grants.
- Work-study agreements allow you to work for the college while you are enrolled.

**The Financial Aid Office can provide details for the following:**

- Local and regional scholarships
- Federal Pell Grants, Federal Academic Competitiveness Grants, Colorado Student Grants, Colorado Leveraging Educational Assistance Partnership Grants, Federal Supplemental Educational Opportunity Grants, Federal Direct Stafford Student Loans, and Federal Direct Parent Loans (P.L.U.S.)
- Federal and Colorado Work-Study Program

Once you have applied for financial aid, it can take eight to ten weeks to process your request. Although the application for financial aid can be submitted throughout the year, priority dates have been established to assure the availability of funding. Financial aid applications must be complete and correct by priority date (see below). For complete financial aid information, see the Financial Aid Handbook.

**Information: 303.914.6256 or [www.rrcc.edu/finaid](http://www.rrcc.edu/finaid)**

### Priority Dates to Receive Financial Aid

Fall: Previous April  
Spring: Previous September  
Summer: Previous February

### Financial Obligations of Students

Payment dates for tuition, fees, and materials are published in the current class schedule. You are financially obligated for full tuition and fees for all classes you have not officially dropped by the drop/refund date.

**Do not assume you have been dropped from a class for missing payment deadlines or for not attending a class.**

### Non-resident Students

For tuition purposes, Colorado law determines whether a student is classified as an in-state (resident) or out-of-state (non-resident), based on information supplied on the application for admission.

To change from non-resident to resident status, obtain a petition form for in-state status from Admissions. (A copy of the regulations governing residency classification is included with the petition.) Deadlines for submission of the petition are published each semester in the current class schedule. Petitions received after the deadline will not be considered until the following semester.

Changes in classification become effective at the time of your next registration. The final decision regarding tuition status is determined by the Director of Enrollment Services.

**Information: 303.914.6543**



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## FINANCING YOUR EDUCATION

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### Tuition Payment

#### Pay in person:

You can pay by cash, personal check, MasterCard, Visa, Discover Card, or American Express at the Cashier's Office at the Lakewood campus; the Arvada campus does not accept in-person payments. If you are sponsored by a third party, such as an employer or other agency, bring a check to the Cashier's Office from the sponsor or a letter stating that

the sponsor will pay upon receipt of billing and before grades are released.

#### Pay Online:

Go to [www.rrcc.edu](http://www.rrcc.edu). Click on "My Community Education." Log in using your student ID# and PIN (birth month and date – for example, May 11 = 0511, unless you have selected your own PIN). Only MasterCard and VISA are accepted online.

#### Pay by mail:

Mail a check or money order to:  
Red Rocks Community College  
Cashier's Office, Box 2  
13300 W. 6th Ave.  
Lakewood, CO 80228-1255

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## RRCC FOUNDATION

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The RRCC Foundation is a not-for-profit organization founded in 1993 to provide financial support to the college and to its students and to increase public and business awareness of the college's important role in the community. The Foundation exists because of individuals who believe in the value of a college education and the need for students of all income levels to have access to higher education.

The Foundation began with one donor, a board of directors, and the Foundation staff, all of whom aspired to assist students and make a difference in their lives. Now, more than 15 years later, we have hundreds of donors who help us each year. The Foundation has raised more than \$6.5 million, awarded more than \$2 million in scholarships to 2,400 students, and provided more than \$2 million to the college for the Learning and Resource Centers at the Lakewood and Arvada campuses. In addition, the Foundation funds mini-grants for innovative faculty, the Teaching Chair program that recognizes excellence

in the classroom, instructional equipment, and other faculty, staff, and student grants.

More than \$400,000 is distributed annually to students, college staff, and institutional priorities. Scholarship applications are accepted year-round. The deadline for submission is early June of each year. Scholarships are given on the basis of both need and merit. The Foundation accepts and manages a variety of gifts, including cash, pledges, stock transfers, planned gifts, and bequests. Gifts may be designated for specific purposes or for the area of greatest need as determined by the Foundation board and college administration.

Only with the assistance of people who care can we continue to meet our goals and successfully assist our students. If you are a student needing assistance or a donor wishing to participate, call us at **303.914.6425** or visit our Web site at [www.rrcc.edu/foundation](http://www.rrcc.edu/foundation)

### Foundation Board

**The Foundation is governed by a board of up to 30 community and business leaders.**

Dr. Agneta Albinsson  
Kristen M. Anderson  
Robert E. Barber  
Kevin J. Bervik  
John G. Brant  
Tim Campbell  
Shelley Cook  
Michael Coughlin  
Jim Dascalos  
Dr. David Donaldson  
Dr. Michele Haney  
Jacquie Haughton  
Dan Leach  
Thomas W. Lemcke  
Al Meiklejohn  
Tom Menk  
Aldo G. Notarianni  
Skip Olson  
Carol Salzmans  
Bob Short  
Dr. John Trefny  
Shirleen Tucker  
Denise Waddell  
Jim Whitfield  
Paulann Doane, executive director

## International Students

### Admission Information

International students are those students admitted into the U.S. on an F1 non-immigrant student visa. If you are an international student, submit the following documents:

1. RRCC "International Student Admissions Application," available in the English Language/Intercultural Services Office, or the application may be downloaded from our Web site, [www.rrcc.edu/international](http://www.rrcc.edu/international). International students must not use the electronic application on the college main Web page.
2. A statement of financial resources sufficient for tuition and living expenses while in the U.S. (currently \$20,300/year based on tuition of \$4,250/full time per semester). Tuition and fees are subject to change without notice. After the admissions materials have been reviewed, we will issue the U.S. Immigration Form I-20 to qualified applicants. Applicants outside the U.S. must then present the I-20 and original copies of financial support documents to the nearest U.S. consulate or embassy to obtain the F-1 visa.

Upon arrival in the U.S., you will need to provide proof of health insurance coverage, including medical evacuation and repatriation. Health insurance application forms are available through the English Language/Intercultural Services Office.

### Application Deadlines

International students should apply as early as possible in order to allow sufficient time for the college to assess all necessary documents and for the U.S. State Department's visa interview process.

The following deadlines are application submission guidelines for new international students only. Transfer students already in the U.S. generally have one additional month to prepare their documents.

**Fall, July 15**

**Spring, Dec. 1**

**Summer, April 15**

New admissions are not accepted after classes begin.

### Assessment

Prior to registering for classes, you must take the Accuplacer basic-skills assessment and/or the English placement test and follow the placement requirements. The Accuplacer takes at least 90 minutes and is available on a walk-in basis. Test times are listed in the current schedule and on our Web site. Initial tests are free; retesting is available for a fee of \$5.00 per test section. All non-native English speakers are tested for English ability in addition to taking the Accuplacer test. You will then be placed in English as a Second Language or college level classes as appropriate.

### Guaranteed Transfer to Universities

Many RRCC courses will transfer. Please consult with an RRCC academic advisor as well as a transfer counselor at the institution you wish to attend.

### Generally, if you

- complete your AA or AS degree, including 35 credits of state-guaranteed general education courses, and
- earn a C grade or better in each course,

### then

- at least 60 hours of your AA/AS degree will transfer completely, upon admission, to a liberal arts and sciences program in Colorado's public four-year institutions,\*

### and

- you are guaranteed to be able to finish your liberal arts and sciences degree in another 60 hours.

Certain majors require essential lower-division courses. Please meet with an advisor for information about obtaining a transfer guide that will help you select lower-division credits to finish your degree.

Credit earned for prior learning, advanced placement, correspondence courses, CLEP, and other credit from "testing out" of a course may not apply. The institution to which you transfer will evaluate these credits according to its own policies.

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\* Meet with a transfer advisor as soon as possible for a list of applicable degrees. Special articulation agreements for teacher education, business, nursing, and engineering specify which lower-division credits you need.

## **Housing/Family Homestay Assistance**

American family homestay opportunities are often available to you, in addition to a variety of local housing arrangements.

## **Intensive English Program**

If you wish to study only English as a Second Language or continue with college-level courses after ESL studies, you may enter our Intensive English Program. The program offers full-time English instruction (20-25 hours per week) at the beginning, intermediate, and advanced skill levels.

## **Non-Intensive English Program**

If you have tested beyond the Intensive English Program, you are eligible to enroll in non-intensive English classes. The program offers four semester-length classes designed to boost your English skills for the reading, writing, and communication demands of college classes. Classes include advanced reading, composition, pronunciation, and iBT TOEFL preparation.

**Information: 303.914.6416,  
303.914.6536, 303.914.6538, or  
[www.rrcc.edu/international](http://www.rrcc.edu/international)**

# SCHEDULING OPTIONS

Red Rocks Community Colleges offers a wide selection of online options to meet students needs. For more information, visit [www.rbcc.edu/options/](http://www.rbcc.edu/options/) or call 303.914.6444.

## Accelerated Courses

An accelerated course takes the content from a traditional 15-week, 3-or 4-credit class and compresses it into a shorter time frame.

Accelerated online classes compress 15 weeks of instruction into seven weeks.

Accelerated classes are designed to meet the needs of busy professionals and students with active lifestyles.

Characteristics of successful students include:

- Excellent time management skills
- Self-motivation
- Ability to learn on their own
- Commitment to their education

## Hybrid/Flex Hybrid Courses

Hybrid courses are a combination of online and classroom instruction. They are designed for a curriculum that can be offered partially online but is difficult to learn completely online. In-class instruction is held at RRCC during the week or weekend.

## Flex Courses

Flex classes are designed for students to work independently, finding out solutions on their own with minimum assistance. These classes are not designed for online delivery or for communication via email. Regular attendance is not required, but students must meet with their instructors several times throughout the semester to receive and submit assignments, to ask questions, and to receive assistance. Students can enroll in flex classes at any time during the term, but all work must be submitted by the deadline indicated on the syllabus.

## Independent Study

Most areas of study at RRCC offer opportunities to engage in intensive study and/or research on a topic under the direction of a qualified faculty member. The student and the instructor determine independent study course content, credit, and contact hours jointly. Permission of the instructor is required prior to registering. Independent study can be taken an unlimited number of times, but no more than six credits will be applied to any associate degree program.

## Online Courses

### RRCC Online Courses

Courses through RRCC Online are taken anytime, anywhere at your convenience. Most courses follow a traditional semester schedule, and many also have accelerated seven-week online sections. They offer regular communication with faculty and fellow students who may be anywhere in the world. At the same time, you learn to use the Internet, chat rooms, and threaded discussions to enhance your learning experience.

You can register, pay, order books, attend class, and use library services online. If you do not have access to a computer, you can come to the Learning and Resource Center (LARC) on the RRCC Lakewood or Arvada campus to use computers.

### CCCOnline Courses

Colorado Community College Online provides a centralized program where you can take classes, earn a certificate, or even complete an associate's degree from the community college of your choice. Meet with an RRCC advisor for details.

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## SCHEDULING OPTIONS

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All courses taken through CCCOnline are associated with the Colorado community college of your choice within the state system. Choose RRCC as your home college, and your transcript will show your CCCOnline courses as RRCC courses.

**Information: 800.801.5040 or  
www.cconline.org**

### **Self-Paced Courses**

Working with an instructor, students will design their own schedules. Self-paced courses provide flexibility and the opportunity to study when students have the most time. Most instructors will meet with their students at the beginning of the semester, and then students will send assignments back and forth via traditional mail, drop-in, or email. Students who are successful in self-paced courses:

- Are self-starters
- Work independently
- Regularly meet deadlines
- Have strong reading and writing skills
- Are not looking for a social learning setting
- Are highly motivated

### **Weekend College**

If you work, have a family, or want something interesting to do on Friday nights, Saturdays, and/or Sundays, Weekend College classes are for you. You can work on a college degree, take classes for fun, or brush up on skills you need for your job.

## Bookstore

The RRCC Bookstore supplies new and used textbooks, recommended titles, reference books, and supplies for art and drafting. College specialty items and clothing are also available.

**Information: 303.914.6232**  
<http://rrcc.bkstore.com>

## Cafeteria/Coffee Bar

The RRCC Café on the Lakewood campus serves hot and cold food selections.

**Information: 303.914.6374**

The Coffee Bar, located in the Student Center, offers brewed coffee, espresso drinks, smoothies, plus quick meals and snacks.

**Information: 303.914.6586**

## Campus Police

The safety of our students and staff is important to RRCC. The Campus Police Department keeps our campuses secure by responding to medical emergencies, investigating criminal acts and auto accidents, and enforcing traffic rules.

Officers also open and close campus buildings, provide safety escorts when needed, provide car battery jumpstarts, and deliver emergency messages. A 911 Communications Center takes calls and sends officers and guards where they are needed. To contact Campus Police, stop by the information desk at the main entrance of the Lakewood campus.

**Emergency Dispatch: 911**

**Non-emergency Dispatch: 303.914.6394**

## Child Care

The Children's Center at RRCC offers full-service, full-day care for children from 18 months to kindergarten entry. The high-quality program provides secure and nurturing care. The Center serves students, staff, faculty, and the community. Some subsidies are available for low-income families. The Center does not provide drop-in care.

**Information: 303.914.6328**

## Fitness Education Center

The Fitness Education Center at Red Rocks offers students the opportunity to improve cardiovascular fitness, flexibility, muscle strength, and endurance. Equipment includes free weights, weight machines, computerized bicycles, treadmills, stepmills, a body track, and a ricochet court. Individualized fitness and nutrition programs are available.

Register for PED 110 or PED 111, Life Fitness. Or, if you don't want college credit, pay \$4 for each visit or purchase a punch card offering five visits for \$18.

**Information: 303.914.6375**

## LARC-Learning and Resource Center

The Learning and Resource Center (LARC) is a one-stop spot for skills assessment, tutoring, library and Internet resources, and adaptations for students with disabilities. The LARC is a welcoming place where

you can study on your own or meet with a tutor, a study group, or an instructor. Centers are located at both the Lakewood and Arvada campuses.

**Information: 303.914.6705 or**  
[www.rrcc.edu/larc](http://www.rrcc.edu/larc)

## College Success for All Students

Do you want to be a better student but don't know how? Do you want to study smarter, not harder? AAA 050 (Semester Survival) and/or the Connect to Success Office can help answer these questions, and more.

- AAA 050 (Semester Survival) gives both first-time and returning students the opportunity to learn and adopt proven methods that lead to success in college. Students will be introduced to a variety of skills critical to success, such as short- and long-term educational goal-setting and career planning, effective communication and time management, critical and creative thinking, motivation, note-taking, efficient text book reading, and other study techniques needed for academic success. AAA 050 is taught as a hybrid using both class time and Internet study.

**Information: 303.914.6701**

## Connect to Success

- Connect to Success is a learning support service that assists students with study tips and success strategies, learning styles, goal-setting, and interest inventories while also providing information about college services

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# STUDENT SERVICES

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and community resources.

Students can stop by the office in room 1665, e-mail [dana.kobold@rrcc.edu](mailto:dana.kobold@rrcc.edu), or call for information.

**Information: 303.914.6317 or  
[www.rrcc.edu/success](http://www.rrcc.edu/success)**

## Communication Lab

Give your Best Presentation with help from the CommLab!

- Develop presentation outlines
- Enhance oral presentation skills
- Control speech anxiety
- Develop confidence in delivery
- Practice using visual aids
- Record your presentation
- Drop-in or sign-up times available

Visit the CommLab upstairs in the LARC – Rm 2281. Free Tutoring Available to ALL Red Rocks Students.

**Information:**

**[marlene.adzema@rrcc.edu](mailto:marlene.adzema@rrcc.edu)  
303.914.6239 or**

**Dr. Sherry Messina Dewald at  
[sherry.dewald@rrcc.edu](mailto:sherry.dewald@rrcc.edu)  
303.914.6429**

## English Language/ Intercultural Services

The English Language/Intercultural Services Office provides college preparatory English classes for international and resident students for whom English is not a primary language. Also provides academic and cultural advising for a diverse student population, and specific immigration advising for International students.

**Information: 303.914.6416,  
303.914.6536, 303.914.6538, or  
[www.rrcc.edu/international](http://www.rrcc.edu/international)**

## ESL/Foreign Language Lab

The ESL/Foreign Language Lab offers CD-ROM, videotape, and audiocassette materials to help students and staff learn more than 100 world languages. Tutoring is available in Spanish, French, German, Italian, and English as a Second Language (ESL).

**Information: 303.914.6719 (Foreign Language) 303.914.6416 (ESL)**

## GED Pre-test and Preparation

A free practice test for the General Education Development (GED) is offered on a walk-in basis at the Arvada and Lakewood campuses. The GED pre-test allows students to determine whether or not they are ready for the official GED. The GED preparation course offered on the Lakewood and Arvada campuses is open-entry; therefore, students may begin at any time. The course is self-paced, so students learn based on their individual needs with personalized help from friendly, supportive tutors.

**Information: [www.rrcc.edu/ged](http://www.rrcc.edu/ged)**

## Library

The library offers extensive print, audiovisual, and electronic research resources. The library's online services access the library's book, electronic book, and audiovisual holdings; thousands of full-text articles plus several full-text encyclopedias; the holdings of other area libraries; and the research resources of the World Wide Web. All online services are accessible from on and off campus. The

library's video collection provides an alternative means of learning about subjects taught in RRCC classes while the book, electronic book, and article collections support traditional research. Interlibrary Loan lets you borrow materials from virtually any library in the world, but you must plan ahead since it can take several days for the materials to arrive at RRCC.

**Information: 303.914.6740 or  
[www.rrcc.edu/library](http://www.rrcc.edu/library)**

## Office of Special Services

The Office of Special Services (OSS) coordinates services to provide equal opportunities for individuals with documented disabilities to pursue their educational goals. The OSS staff makes determinations and provisions regarding access and reasonable accommodations and provides advocacy services for students and visitors with disabilities. The office is also a resource for college employees regarding disability issues. Services include sign language interpreters, books in alternate format, note takers, readers, tutoring for remedial classes, test accommodations, and adaptive technology. The office also arranges orientations for new and potential students with disabilities.

**[www.rrcc.edu/specialservices](http://www.rrcc.edu/specialservices)**

# STUDENT SERVICES

## Tutoring

Tutoring is provided by professional and peer tutors. Walk-in tutoring for math, writing, the sciences, accounting, Microsoft applications, and other subjects is free to RRCC students.

One-to-one tutoring is available for vocational students having difficulty with their classes and for transfer majors whose grades fall below average in selected content areas.

**Information: 303.914.6701 or [www.rrcc.edu/larc/tutoring.html](http://www.rrcc.edu/larc/tutoring.html)**

## Writing Center and Online Writing Center

The mission of the Writing Center is to help students become better writers. Tutors are available to work individually with students in any subject area to improve their writing skills, offering them strategies and resources for succeeding in any kind of writing assignment, including essays, research papers, and essay exams. Tutors will help students generate ideas, organize and develop topics, revise and edit with confidence, and observe conventions of format and documentation.

**Information: 303.914.6321 or [www.rrcc.edu/writing](http://www.rrcc.edu/writing)**

## Student Center

The Lakewood campus Student Center offers various services and activities for students, including:

- Campus/community events and entertainment
- FAX and copy services
- Leadership opportunities
- Publications and bulletin boards

- Recreation
- Student clubs and organizations
- Student ID cards
- Sports tickets and movie tickets
- Study groups
- Computers for academic and leisure use
- Locker rentals
- Food Bank

Students who are taking courses at other RRCC locations are encouraged to visit the main campus and take full advantage of the student services and resources available. The Student Center includes pinball, gaming computers, TV room, pool table, foosball, ping pong, vending machines, fitness center, coffee bar, The Den, the Student Life Desk, and the Student Project Center.

**Information: 303.914.6370 or 303.914.6900**

## Student Employment and Internship Services

### Student Employment

A wide range of full-time, part-time, and temporary jobs are available to current and former students through the Student Employment Office. While RRCC cannot guarantee employment, we make every effort to maintain contact with business and industry to generate employment opportunities. In addition, on-campus recruiting visits from business and industry are coordinated; job announcements and outlook surveys maintained; and résumé preparation, counseling, interviewing workshops, and other job search skills are provided.

Details regarding the college's Work Study program on campus are also available. Through the RRCC Internship Program, students gain practical work experience and earn college credit while working for local employers.

**Information: 303.914.6258 or [www.rrcc.edu/jobwatch](http://www.rrcc.edu/jobwatch)**

### Internships

(also known as Cooperative Education)

As an extension and application of classroom learning, internships provide valuable work experience under the supervision of professional business and industry personnel. A qualified faculty member oversees the internship, evaluates the student's progress, and issues a grade upon completion. The Student Employment/Internship office facilitates the internship placement and enrollment process and maintains all internship student records.

A "Training Agreement" signed by the student, the college, and the employer defines the responsibilities of all parties. In addition, students identify job-oriented learning objectives for approval by the work supervisor and faculty coordinator. Weekly time sheets, appropriate individual assignments, and a final report are also required to comply with specific program requirements. Evaluation of the work experience is similar to that used in other courses, with additional emphasis on the employer's rating, which constitutes part of the final evaluation process. A three-way partnership – the employer (mentor), the student



(intern), and an RRCC faculty/staff member (support) – enhances the student’s success during the internship.

A minimum of 45 clock hours of work experience is required to earn each hour of college internship credit. Most programs offer work experience opportunities, and some require them for graduation. The total number of credits that may apply toward a degree in a specific area is identified in the “Programs” section of this catalog. For programs not requiring work experience, internships are considered as an approved substitute or an elective upon permission of the faculty advisor.

Transferability of internship college credit is contingent upon approval of the receiving institutions. General education internship credit transfers to the University of Colorado, Denver and Colorado State University. All internship courses carry a specific course prefix and course number and can be found in the respective program listings and course descriptions in the catalog. Permission of the faculty coordinator is required to enroll, and all students interested in pursuing internships must begin their enrollment process in the Student Employment & Internship office.

**Information: 303.914.6258 or [www.rrcc.edu/jobwatch](http://www.rrcc.edu/jobwatch)**

## Service Learning

Service Learning (SL) is a way for you to become involved in the community and to combine experiential learning with classroom learning. The Service Learning program at RRCC connects community service with academic instruction, focusing on critical, reflective thinking and personal and civic responsibility. With the support of faculty and fellow students, service learning can add a new dimension to classroom discussions. You have the opportunity to serve your community while applying knowledge gained in the classroom. Community organizations benefit from your involvement while you enhance your own sense of personal outreach in meeting community needs.

Students with a final SL class grade of C or better will receive Service Learning designation on their official transcripts. Students interested in pursuing Service Learning in any non-designated SL classes can ask their instructors’ permission to pursue individual service projects. Transcript designation is available to these students as well.

**Information: 303.914.6258**

## The Student Voice

The Student Voice represents the interests of the student body. Members work with the college’s administration to set policy and plan various activities. To join The Student Voice, you must be enrolled at RRCC, complete the application process, and maintain a 2.5 GPA. Participation provides an opportunity to develop leadership skills that will assist you in your educational and professional endeavors.

**Information: 303.914.6248**

As an RRCC student, you have specific rights that ensure you are treated equitably and that your privacy is protected.

## **Affirmative Action/ Equal Opportunity**

RRCC is committed to diversity in its people and programs. The college is an equal opportunity educational institution and does not discriminate based on race, color, religion, national origin, sex, sexual orientation, gender expression, age, veteran status, or disability. It also does not tolerate acts of ethnic intimidation, which are any unlawful acts against persons or groups because of race, color, ancestry, religion, or national origin for the purpose of inciting and provoking bodily injury or damage to property. The State Board for Community Colleges and Occupational Education has approved the RRCC Affirmative Action/Equal Opportunity Program Plan (available for individual, public, and agency review in the Personnel Office). The college has designated the Director of Personnel as its affirmative action officer.

### **For information contact:**

Personnel Office  
Red Rocks Community College  
13300 W. Sixth Avenue, Box 17  
Lakewood, CO 80228-1255  
303.914.6570

### **Other inquiries may be made to:**

Vice President for Legal Affairs  
Colorado Community College  
System  
9101 E. Lowry Boulevard  
Denver, CO 80230-6011  
303.595.1549  
or

Office for Civil Rights  
U.S. Department of Education  
Federal Building,  
1244 Speer Boulevard, Ste. 310  
Denver, CO 80204-3582  
303.894.7822

## **Students with Disabilities**

RRCC offers many special services to students with disabilities. The college complies with and fully supports Section 504 of the Rehabilitation Act of 1973, with amendments of 1974, as well as the Americans with Disabilities Act (ADA) of 1990 regarding non-discrimination based on disability.

Reasonable accommodation is provided upon request for persons with disabilities. If you require an accommodation to participate in any class, program, service, or other activity at RRCC, contact the Office of Special Services.

**Information: Direct line 303.914.6733  
or 303.914.6737 TTY**

## **Drug and Alcohol Abuse Information The Law**

Red Rocks is a state-system community college governed by the State Board for Community Colleges and Occupational Education. Board policy requires Red Rocks to comply with the Drug Free Schools and Communities Amendments of 1989 (PL-101-226) in federal law. A copy of this law is on file in the Office of Student Life.

## **Standard of Conduct**

Neither students nor employees shall engage in the unauthorized or unlawful manufacture, distribution, possession, use, or abuse of alcohol or illicit drugs on college property or as a part of any college activity.

## **Legal Sanctions**

There are legal sanctions for violations of the Standard of Conduct. Any student or employee who is convicted of the unlawful manufacture, distribution, possession, use, or abuse of illicit drugs or alcohol is subject to criminal penalties under local, state, and federal law. These penalties range in severity from a fine of \$100 up to \$8,000,000 and/or life imprisonment. The exact penalty assessed depends upon the nature and severity of the individual offense.

## College Penalties

The college will impose penalties against students and employees who violate the Standard of Conduct. Violators will be subject to disciplinary action under employee and student disciplinary policies. The sanctions include, but are not limited to, probation, suspension, or expulsion from the college or probation, suspension, or termination of employment, and referral to authorities for prosecution as appropriate.

## Illegal Substances

A listing of controlled substances is on file in the Office of the Vice President of Student Services.

## Resources

A packet containing a list of community resources is available through the Connect to Success Office, room 1655, 303.914.6317. Consult the yellow pages of the local telephone book for a listing of all private and community-based programs. Check listings under "Alcoholism Treatment" and "Drug Abuse Information and Treatment." For 24-hour assistance, call:

- National Alcohol and Substance Abuse Hotline, 1.800.784.6776
- National HOPEline Network, 1.800.273.8255

## Health Risks

Many health risks are associated with drug and alcohol abuse. Risks include, but are not limited to, malnutrition, brain damage, heart disease, pancreatitis, cirrhosis of the liver, mental illness, death, low birth weight babies, and babies with drug

addictions. Personal relationships, family dynamics, and the ability to work and study are also at risk.

## Privacy Notification

The Family Educational Rights and Privacy Act of 1974 (FERPA) permits RRCC to release directory information about you to interested parties. This does not include grades but does include:

- student's name
- date of birth
- major field of study
- participation in officially recognized activities and sports
- dates of attendance
- degrees and certificates awarded
- most recent educational institution attended
- enrollment status

If you do not want the college to release directory information about you without your specific consent, sign a directory restriction form in the Student Records. Your directory restriction will remain in effect until you cancel the request for non-disclosure.

**Information: 303.914.6356**

## Notification of Rights Under FERPA for Postsecondary Institutions

The Family Educational Rights and Privacy Act (FERPA) affords you certain rights with respect to your education records.

**Information: Contact the College Registrar at 303.914.6350**

## Your rights include:

1. The right to inspect and review your education records within 45 days of the day RRCC receives a request for access. Submit written requests that identify the record(s) you wish to inspect to the Registrar or Coordinator of Student Records. The RRCC official will make arrangements for access and notify you of the time and place where the records may be inspected.
2. The right to request the amendment of education records that you believe are inaccurate or misleading. You may ask RRCC to amend a record that you believe is inaccurate or misleading. Write to the above RRCC official responsible for the record and clearly identify the part of the record you want changed, specifying why it is inaccurate or misleading. If RRCC does not amend the record as you request, RRCC will notify you of the decision and advise you of the right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to you when you are notified of the right to a hearing.
3. The right to consent to disclosures of personally identifiable information contained in your education records, except to the extent that FERPA authorizes disclosure without consent. One exception which permits disclosure without consent is disclosure to a school official with legitimate educational interests. A school official is an employee of the college in an administrative,

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## STUDENT RIGHTS

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supervisory, academic, research, or support staff position (including law enforcement unit, personnel, and health staff); a person or company with whom the college has contracted (such as an attorney, auditor, or collection agent); a member of the State Board for Community Colleges and Occupational Education; an individual serving on a college advisory committee; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility.

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by RRCC to comply with the requirements of FERPA.

**Family Policy Compliance Office**  
U.S. Department of Education  
600 Independence Avenue, SW  
Washington, DC 20202-4605

# PROGRAMS

Look here for information about the degrees and certificates you can earn at RRCC and the courses required for each.

Accounting .....	46	Foreign Languages .....	90
Air Conditioning, Heating and Refrigeration ....	47	Geology.....	90
Applied Technology.....	50	Health Professions .....	90
Art.....	50	History.....	91
Auto Collision Technology .....	50	Industrial Maintenance Technology.....	92
Automotive Service Technology .....	52	Mathematics .....	95
Biology .....	53	Medical Office Technology .....	96
Business.....	54	Multimedia Graphic Design .....	97
Business Technology.....	56	Outdoor Recreation.....	107
Carpentry.....	56	Park Ranger Technology.....	109
Chemistry .....	57	Philosophy.....	110
Communication .....	57	Physical Education/Outdoor Education .....	110
Communication Disorders .....	57	Physician Assistant .....	110
Computer Information Systems .....	58	Physics.....	112
Computer Science .....	64	Plumbing.....	112
Construction Management & Technology.....	65	Political Science.....	113
Cosmetology .....	69	Pre-Nursing .....	113
Criminal Justice.....	70	Precision Machining Technology.....	114
Culinary Arts.....	72	Process Technology.....	115
Early Childhood Education.....	73	Psychology .....	116
Economics .....	75	Radiologic Technology .....	116
Electricity Commercial/Industrial/Residential	75	Renewable Energy Technology .....	117
Emergency Management and Planning .....	79	Sociology.....	120
Emergency Medical Services .....	80	Sonography .....	120
Engineering (Pre-Engineering).....	81	Teacher Education.....	121
Engineering Graphics Technology .....	82	Theatre Arts.....	123
English.....	84	Theatre Technology.....	125
Environmental Technology .....	84	Water Quality Management Technology.....	125
Fine Woodworking.....	86	Welding.....	127
Fire Science Technology.....	88	Wind Energy Technology.....	128

## Accounting

If you plan to transfer to a four-year college or university to complete a major in accounting, you should consider the AA degree with a business emphasis. Consult with an accounting faculty advisor early in your college career to explore all your educational options. You must earn a C or better in all accounting courses to graduate with a degree or certificate in accounting.

## Degrees: Associate of Applied Science

### Accounting Paraprofessional Accounting Technician

## Certificates:

### Bookkeeping Clerk Accounting Clerk

## AAS Degree

### Accounting Paraprofessional

This program prepares you to work as an accounting paraprofessional or accounting assistant.

Required Courses	Credits
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
ACC 135 Spreadsheet Applications for Accounting	3
ACC 138 Payroll and Sales Tax	3
ACC 211 Intermediate Accounting I	4
ACC 212 Intermediate Accounting II	4
ACC 245 Computerized Accounting with a Professional Package	3
BTE 108 Ten-Key by Touch or faculty advisor-approved elective	1
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty advisor approved elective	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication & Report Writing	3
CIS 145 Complete PC Database: Access	3
<b>Faculty advisor-approved business electives</b>	<b>4</b>
<b>General Education Courses Required</b>	
COM 105 Career Communication or	
COM 125 Interpersonal Communication	3
ENG 121 English Composition I	3
MAT 107 Career Math/Business or any higher MAT course	3
<b>Credit from two of the following areas:</b> Social Science, Arts and Humanities, Science	6
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Accounting Technician

This program prepares you to perform bookkeeping and accounting tasks.

Required Courses	Credits
ACC 101 Fundamentals of Accounting or faculty advisor-approved electives	3
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
ACC 135 Spreadsheet Applications for Accounting	3
ACC 138 Payroll and Sales Tax	3
ACC 245 Computerized Accounting with a Professional Package	3
BTE 108 Ten-Key by Touch or faculty advisor approved elective	1
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty advisor approved elective	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication & Report Writing	3
CIS 135 Complete PC Word Processing	3
CIS 145 Complete PC Database: Access	3
<b>Faculty advisor-approved business electives</b>	<b>6</b>
<b>General Education Courses Required</b>	
COM 105 Career Communication or	
COM 125 Interpersonal Communication	3
ENG 121 English Composition I	3
MAT 107 Career Math/Business or any higher MAT course	3
<b>Credit from two of the following areas</b> Social Science, Arts and Humanities, Science	6
<b>Total Credits</b>	<b>60</b>

## Certificate

### Bookkeeping Clerk

Completing this program prepares you to perform entry-level bookkeeping and accounting tasks.

Required Courses	Credits
ACC 101 Fundamentals of Accounting or	
ACC 121 Accounting Principles I	4
ACC 138 Payroll and Sales Tax	3
BTE 100 Computer Keyboarding or faculty advisor-approved elective	1
BTE 108 Ten-Key by Touch or faculty advisor-approved elective	1
BUS 115 Introduction to Business	3
CIS 118 Introduction to PC Applications	3
<b>Total Credits</b>	<b>14-15</b>

## Certificate

### Accounting Clerk

Completing this program prepares you to perform a variety of functions in an accounting system. Examples include bookkeeper, inventory clerk, payroll clerk, accounts payable clerk, accounts receivable clerk, and fixed-assets clerk.

Required Courses		Credits
ACC 101	Fundamentals of Accounting or faculty advisor-approved elective	3
ACC 121	Accounting Principles I	4
ACC 122	Accounting Principles II	4
ACC 135	Spreadsheet Applications for Accounting	3
ACC 138	Payroll and Sales Tax	3
ACC 245	Computerized Accounting with a Professional Package	3
BTE 100	Computer Keyboarding or faculty advisor-approved elective	1
BTE 108	Ten-Key by Touch or faculty advisor-approved elective	1
BUS 115	Introduction to Business	3
BUS 116	Personal Finance or faculty advisor approved elective	3
CIS 118	Introduction to PC Applications	3
<b>Total Credits</b>		<b>31</b>

## Air Conditioning, Heating and Refrigeration

This program provides the knowledge and skills for entry into the air conditioning, heating and refrigeration industry in the areas of installation and maintenance as well as upgrading and refresher courses for those already employed in the field. All heating, air conditioning, and refrigeration classes will be updated to reflect today's changing energy efficiency requirements. LEED requirements will be incorporated into all curriculum and additional classes will be offered to support the new energy efficiency needs. Please consult with a construction technology advisor at 303.914.6367.

**Bachelor of Science transfer program:** All Construction Technology Associate of Applied Science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a Bachelor of Science in Technical Management in as few as two semesters. Additionally, graduates of the HVAC/R Program may transfer to Ferris State University to pursue a baccalaureate degree. Contact your Construction Technology advisor for details.

Related course work may be found under Carpentry, Construction Technology, Electricity, Industrial Maintenance Technology, Plumbing, Process Technology, and Renewable Energy Technology.

## Degrees: Associate of Applied Science

### Air Conditioning, Heating and Refrigeration

#### Air Conditioning

#### Refrigeration

#### Heating

#### Hydronic Heating

#### Building Automation

## Certificates:

### Air Conditioning

### Level I Refrigeration

### Level II Refrigeration

### Refrigeration

### HVAC Fundamentals

### HVAC Controls Technician

### Forced-Air Heating

### Hydronic Heating

### Building Automation

### Air Conditioning, Heating/Refrigeration

### Apprenticeship Program

## AAS Degree

### Air Conditioning, Heating and Refrigeration

Required Courses	Credits
Level I Refrigeration Certificate	10
HVA 110 Fundamentals of Gas Heating	4
HVA 111 Piping Skills	4
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 134 Air Conditioning Systems	4
HVA 162 Heating Controls	4
HVA 206 International Mechanical Code	4
HVA 240 Servicing Forced Air Systems	4
HVA 247 Hot Water Heating Systems	4
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following course prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>67</b>

## AAS Degree

### Air Conditioning

Required Courses	Credits
Air Conditioning Certificate	34
HVA 263 Chillers	4
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following classes prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>63</b>

## AAS Degree

### Refrigeration

Required Courses	Credits
Refrigeration Certificate	30
HVA 231 Pneumatic Controls	4
HVA Electives	4
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following classes prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>63</b>

## AAS Degree

### Heating

Required Courses	Credits
OSH 127 10-HR Construction Industry Standards	1
HVA 111 Piping Skills	4
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 140 Basic Sheet Metal	4
HVA 162 Heating Controls	4
HVA 206 International Mechanical Code	4
PLU 208 International Fuel Gas Code	4
HVA 247 Hot Water Heating Systems	4
HVA 257 Low Pressure Steam Heating	4
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following course prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>62</b>

## AAS Degree

### Hydronic Heating

Required Courses	Credits
Hydronic Heating Certificate	37
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following classes prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>62</b>

## AAS Degree

### Building Automation

Required Courses	Credits
Level 1 Refrigeration Certificate	10
Building Automation Certificate (less HVA 105)	25
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following classes prefixes: CON, ENT, ENY AEC, OSH.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>60</b>

## Certificate

### Air Conditioning

Required Courses	Credits
Level 1 Refrigeration Certificate	10
HVA 111 Piping Skills	4
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 134 Air Conditioning Systems	4
HVA 140 Basic Sheet Metal	4
HVA 206 International Mechanical Code	4
HVA 261 Air Conditioning Systems Service and Repair	4
<b>Total Credits</b>	<b>34</b>

## Certificate

### Level I Refrigeration

Required Courses	Credits
OSH 127 10-HR Construction Industry Standards	1
HVA 102 Basic Refrigeration	4
HVA 105 Electricity for HVAC/R	4
HVA 113 Refrigerant Recovery Training	1
<b>Total Credits</b>	<b>10</b>



## Certificate

### Level II Refrigeration

Required Courses	Credits
Level I Refrigeration Certificate	10
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 233 Advanced Refrigeration or	
HVA 261 A/C Systems Service and repair	4
<b>Total Credits</b>	<b>18</b>

## Certificate

### Refrigeration

Required Courses	Credits
Level I Refrigeration Certificate	10
HVA 111 Piping Skills	4
HVA 122 Commercial Refrigeration or	
HVA 233 Advanced Refrigeration	4
HVA 132 A/C and Refrigeration Controls	4
HVA 206 International Mechanical Code	4
HVA xxx HVA Electives	4
<b>Total Credits</b>	<b>30</b>

## Certificate

### HVAC Fundamentals

Required Courses	Credits
OSH 127 10-HR Construction Industry Standards	1
HVA 102 Basic Refrigeration	4
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 113 Refrigerant Recovery Training	1
<b>Total Credits</b>	<b>14</b>

## Certificate

### HVAC Controls Technician

Required Courses	Credits
OSH 127 10 HR Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 132 Air Conditioning/Refrigeration Controls	4
HVA 162 Heating Controls	4
HVA 231 Pneumatic Controls	4
<b>Total Credits</b>	<b>21</b>

## Certificate

### Forced-Air Heating

Required Courses	Credits
OSH 127 10-HR Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 140 Basic Sheet Metal	4
HVA 162 Heating Controls	4
HVA 200 Residential Code Mechanical and Fuel Gas 2	4
HVA 206 International Mechanical Code	4
PLU 150 Code and Piping Calculations	2
PLU 208 Fuel Gas Code	4
HVA 240 Servicing Residential Forced Air Systems	4
<b>Total Credits</b>	<b>33</b>

## Certificate

### Hydronic Heating

Required Courses	Credits
OSH 127 10-HR Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 111 Piping Skills	4
HVA 162 Heating Controls	4
HVA 206 International Mechanical Code	4
HVA 247 Hot Water Heating Systems	4
HVA 257 Low Pressure Steam Heating	4
HVA 267 Radiant Heating Systems	4
PLU 208 Fuel Gas Code	4
<b>Total Credits</b>	<b>37</b>

## Certificate

### Building Automation

Required Courses	Credits
OSH 127 10 HR Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
HVA 132 Air Conditioning/Refrigeration Controls	4
HVA 134 Air Conditioning Systems	4
HVA 231 Pneumatic Controls	4
HVA 251 Building Automation 1	4
HVA 252 Building Automation 2	4
HVA 253 Building Automation 3	4
<b>Total Credits</b>	<b>29</b>

## Certificate

### Air Conditioning, Heating/Refrigeration

#### Apprenticeship Program

Required Courses		Credits
Level 1 Refrigeration Certificate		10
HVA 110	Fundamental of Gas Heating	4
HVA 132	Air Conditioning and Refrigeration Controls	4
HVA 140	Basic Sheet Metal	4
HVA 162	Heating Controls	4
PLU 208	Fuel Gas Code	4
HVA 206	International Mechanical Code or	4
CON 230	Blueprint Reading	4
<b>Total Credits</b>		<b>34</b>

## Applied Technology

### Degree: Associate of Applied Science

Students desiring to complete the AAS degree in Applied Technology may complete the technical coursework contained in a state-approved certificate career and technical education program at one of the four area vocational technical schools (AVTS). The four AVTS are Delta-Montrose Area Vocational Technical Center, Emily Griffith Opportunity School, San Juan Basin Technical College, and Pickens Tech Center.

The general education and other degree requirements are completed at one of the Colorado public community/junior colleges. The AAS degree is conferred by the community college at which the general education and other degree requirements have been completed. The approved certificate career and technical education programs at the AVTS prepare you by providing technical, applied academic and employability skills. Credit in varying amounts from these certificate programs is applicable to the community college's AAS degree in Applied Technology.

Individual coursework from the AVTS is credited to your transcript upon completion of the requirements of both institutions.

You may enroll concurrently in both an AVTS and a community college. You must comply with the regulations and requirements relating to admission and attendance at each institution.

## Art

### Degree: Associate of Arts

If you plan to transfer to a four-year college or university to complete a major in art, you should complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to art-related careers.

Required Courses		Credits
ART 111	Art History Ancient to Medieval*	3
ART 112	Art History Renaissance to Modern*	3
ART 121	Drawing I	3
ART 122	Drawing II	3
ART 131	2D Design	3
ART 132	3D Design	3
ART 211	Painting I	3

\*Fulfills General Education requirements

Additional General Education Courses		32
See page 10		
Approved electives		7
See page 11		
<b>Total Credits</b>		<b>60</b>

## Auto Collision Technology

(In cooperation with and taught at Warren Tech)

This is a National Certified Auto Collision Repair program with the primary purpose of preparing you for careers in the auto collision industry. You can also achieve the necessary credits to obtain an associate degree. A minimum of 46 ACT credits and 15 general education credits are required for the AAS degree. Some courses may transfer to a bachelor's degree in automotive management. It is imperative that all students comply with personal and environmental safety practices associated with clothing, respiratory protection, eye protection, hand tools, power tools, power equipment, proper ventilation, and the handling, storage, and disposal of chemicals/materials in accordance with local, state, and federal safety and environmental regulations.

### Degree: Associate of Applied Science

#### Auto Collision Technology

#### Certificates:

**Non-Structural Analysis and Damage Repair**

**Painting and Refinishing**

**Structural Analysis and Damage Repair**

**Mechanical and Electrical Components Management**

**AAS Degree**

**Auto Collision Technology**

**Required Courses Credits**

A minimum of 46 credits from the following courses:

ACT 101	Introduction to Automotive Collision Tech	4
ACT 110	Safety in Collision Repair	2
ACT 111	Metal Welding and Cutting I	3
ACT 121	Non-Structural Repair Preparation	3
ACT 122	Panel Repair and Replacement	3
ACT 123	Metal Finishing and Body Filling	3
ACT 124	Exterior Panel Replacement (Weld-on)	3
ACT 131	Structural Damage Diagnosis	3
ACT 132	Structural Damage Repair	3
ACT 141	Refinishing Safety	1
ACT 142	Surface Preparation I	2
ACT 143	Spray Equipment Operation 2	
ACT 144	Refinishing I	2
ACT 170	Automotive Collision Technology Lab Experiences I	1-9
ACT 171	Automotive Collision Technology Lab Experiences II	1-9
ACT 172	Auto Collision Technology Lab Experiences III	1-9
ACT 175	Special Topics	0.5-9
ACT 180	Auto Collision Repair Internship Level I	1-9
ACT 181	Automotive Collision Repair Level II Internship	1-9
ACT 205	Estimating and Shop Management	3
ACT 211	Metal Welding and Cutting II	2
ACT 220	Structural Repair II	4
ACT 226	Production	4
ACT 231	Advanced Structural Damage Diagnosis and Repair	3
ACT 232	Fixed Glass Repair	2
ACT 241	Paint Defects	3
ACT 242	Surface Preparation II	2
ACT 243	Refinishing II	2
ACT 244	Final Detail	2

**General Education Requirements 15**

See page 17.

**Total Credits 61**

**Certificates (NATEF)**

For the following certificates, you must successfully complete the following CORE courses (prerequisites):

ACT 101	Introduction to Automotive Collision Tech	4
ACT 110	Safety in Collision Repair	2

**Certificate**

**Non-Structural Analysis/Damage Repair**

**Required Courses Credits**

ACT 111	Metal Welding and Cutting I	3
ACT 121	Non-Structural Repair Preparation	3

ACT 122	Panel Repair and Replacement	3
ACT 123	Metal Finishing and Body Filling	3
ACT 124	Exterior Panel Replacement (Weld-on)	3
ACT 170	Automotive Collision Technology Lab Experiences I	1-9
ACT 171	Automotive Collision Technology Lab Experiences II	1-9
ACT 175	Special Topics	0.5-9
ACT 180	Auto Collision Repair Internship Level I	1-9
ACT 211	Metal Welding and Cutting II	2
<b>Total Credits</b>		<b>45</b>

**Certificate**

**Painting and Refinishing**

**Required Courses Credits**

ACT 141	Refinishing Safety	1
ACT 142	Surface Preparation I	2
ACT 143	Spray Equipment Operation	2
ACT 144	Refinishing I	2
ACT 170	Automotive Collision Technology Lab Experiences I	1-9
ACT 175	Special Topics	0.5-9
ACT 180	Auto Collision Repair Internship Level I	1-9
ACT 241	Paint Defects	3
ACT 242	Surface Preparation II	2
ACT 243	Refinishing II	2
ACT 244	Final Detail	2

**Total Credits 38**

**Certificate**

**Structural Analysis and Damage Repair**

**Required Courses Credits**

ACT 111	Metal Welding and Cutting I	3
ACT 131	Structural Damage Diagnosis	3
ACT 132	Structural Damage Repair	3
ACT 171	Auto Collision Tech Lab Experiences II	1-9
ACT 172	Auto Collision Tech Lab Experiences III	1-9
ACT 175	Special Topics	0.5-9
ACT 211	Metal Welding and Cutting II	2
ACT 220	Structural Repair II	4
ACT 231	Advanced Structural Damage Diagnosis and Repair	3
ACT 232	Fixed Glass Repair	2

**Total Credits 37**

**Certificate**

**Mechanical and Electrical Components**

Call Janis Eagan at 303.914.6543 for course listings and further information about this RRCC/Warren Tech program.

## Certificate

### Management

Required Courses		Credits
ACT 172	Automotive Collision Technology Lab Experiences III	1-9
ACT 181	Automotive Collision Repair Level II Internship	1-9
ACT 205	Estimating and Shop Management	3
ACT 226	Production	4
<b>Total Credits</b>		<b>25</b>

## Automotive Service Technology

(In cooperation with and taught at Warren Tech)

This program is a nationally certified automotive repair program (NATEF) which provides you with entry-level skills in the automotive industry or upgrading for those currently in the field. Demonstrated mastery of skills is required and all tasks must be completed to satisfy industry standards. All automotive (ASE) courses are held at the Warren Tech automotive classroom/lab. The instructors are ASE Certified Master Technicians. Consult with an automotive service technology advisor before beginning your program of study.

## Degree: Associate of Applied Science

### Automotive Service Technology

### Certificates:

- Lubrication and tire service
- Manual drive train
- Brake specialist
- Automatic transmission
- Suspension and Steering
- Engine performance
- Heating and air conditioning
- Electrical/electronics
- Engine repair
- Auto parts specialist

## AAS Degree

### Automotive Service Technology

A minimum of 60 credits must be taken from the following courses.

Required Courses		Credits
ASE 101	Auto Shop Orientation	2
ASE 102	Introduction to the Auto Shop	2
ASE 110	Brakes I	3
ASE 210	Brakes II	3
ASE 140	Suspension and Steering I	3
ASE 240	Suspension and Steering II	3
ASE 265	Heating and A/C	5
ASE 150	U joint and Axle Shaft Service	2
ASE 151	Manual Transmission/Transaxles	2
ASE 152	Differentials and 4WD/AWD	2
ASE 250	Auto Trans/Transaxle Service	1
ASE 251	Auto Trans/Transaxle Diagnosis	5
ASE 130	General Engine Diagnosis	2
ASE 132	Ignition System Diagnosis/Repair	2
ASE 134	Automotive Emissions	2
ASE 233	Fuel Injection/Exhaust	4
ASE 235	Drivability Diagnosis	1
ASE 120	Basic Automotive Electricity	2
ASE 123	Automotive Battery, Starting, Charging	2
ASE 221	Auto Body Electrical	4
ASE 231	Automotive Computers	2
ASE 160	Engine Removal and Install	1
ASE 161	Engine Repair and Rebuild	5
ASE 201	Automotive Parts Management	1
ASE 282	Internship: General I	0.5-6
<b>General Education Requirements</b>		<b>15</b>
See page 17.		
<b>Total Credits</b>		<b>75</b>

## NATEF Specialty Area Certificate

### Lubrication and tire service

Required Courses		Credits
ASE 101	Auto Shop Orientation	2
ASE 102	Introduction to the Auto Shop	2
(Both courses are required for all new students)		
<b>Total Credits</b>		<b>4</b>

## NATEF Specialty Area Certificate

### Brake specialist

Required Courses		Credits
ASE 110	Brakes I	3
ASE 210	Brakes II	3
<b>Total Credits</b>		<b>6</b>

## **NATEF Specialty Area Certificate**

### **Suspension and Steering**

Required Courses	Credits
ASE 140 Suspension and Steering I	3
ASE 240 Suspension and Steering II	3
<b>Total Credits</b>	<b>6</b>

## **NATEF Specialty Area Certificate**

### **Heating and Air Conditioning**

Required Courses	Credits
ASE 265 Heating and A/C	5
<b>Total Credits</b>	<b>5</b>

## **NATEF Specialty Area Certificate**

### **Manual Drive Train and Axles**

Required Courses	Credits
ASE 150 U joint and Axle Shaft Service	2
ASE 151 Manual Transmission/Transaxles	2
ASE 152 Differentials and 4WD/AWD	2
<b>Total Credits</b>	<b>6</b>

## **NATEF Specialty Area Certificate**

### **Automatic Transmission/Transaxles**

Required Courses	Credits
ASE 250 Auto Trans/Transaxle Service	1
ASE 251 Auto Trans/Transaxle Diagnosis	5
<b>Total Credits</b>	<b>6</b>

## **NATEF Specialty Area Certificate**

### **Engine Performance**

Required Courses	Credits
ASE 130 General Engine Diagnosis	2
ASE 132 Ignition System Diagnosis/Repair	2
ASE 134 Automotive Emissions	2
ASE 233 Fuel Injection/Exhaust	4
ASE 235 Drivability Diagnosis	1
<b>Total Credits</b>	<b>11</b>

## **NATEF Specialty Area Certificate**

### **Electrical and Electronic Systems**

Required Courses	Credits
ASE 120 Basic Automotive Electricity	2
ASE 123 Automotive Battery, Starting, Charging	2
ASE 221 Auto Body Electrical	4
ASE 231 Automotive Computers	2
<b>Total Credits</b>	<b>10</b>

## **NATEF Specialty Area Certificate**

### **Engine Repair**

Required Courses	Credits
ASE 160 Engine Removal and Install	1
ASE 161 Engine Repair and Rebuild	5
<b>Total Credits</b>	<b>6</b>

## **NATEF Specialty Area Certificate**

### **Auto Parts Specialist**

Required Courses	Credits
ASE 201 Automotive Parts Management	1
ASE 282 Internship: General I	0.5-6
<b>Total Credits</b>	<b>Minimum of 7</b>

## **Biology**

### **Degree: Associate of Science**

The completion of the following courses is appropriate if you are planning to transfer to a four-year college or university to complete a major in biology. You should consult with a biology faculty advisor before beginning any program of study. These courses provide the basic preparation leading to biology-related careers. Some courses might not be offered each semester.

Required Courses	Credits
BIO 111 General College Biology I*	5
BIO 112 General College Biology II*	5
MAT 121 College Algebra*	4
BIO 201 Human Anatomy and Physiology I	4
BIO 202 Human Anatomy and Physiology II	4
BIO 208 Microbiology	5

\*Fulfills General Education requirements

**Additional General Education Courses** **27**  
See page 12.

**Approved electives** **6**  
See page 13.

**Total Credits** **60**

## Building Codes

(See Construction Technology)

## Building Maintenance

(See Construction Technology)

## Business

Businesses are looking for people who can help them achieve their goals. Training in business helps increase your opportunity for advancement within a corporate or administrative structure. If you plan to transfer to a four-year college or university to major in business, you should consider the AA degree with a business emphasis. You should consult with a business faculty advisor early in your college career to explore all your educational options.

### Degree: Associate of Arts

Business

### Degrees: Associate of Applied Science

Business - Interdisciplinary

Business - Management and Supervision

Business - Real Estate

### Certificates:

Management and Supervision

Real Estate

Registered Appraiser

Small Business Startup

### AA Degree

Business

If you plan to transfer to a four-year college or university to complete a major in business or a closely related field, you should complete the following courses. This degree reflects the business transfer agreement with the public four-year colleges and universities in Colorado. Consult with a faculty or academic advisor before beginning this program of study.

Required Courses	Credits
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
BUS 115 Introduction to Business	3

BUS 216 Legal Environment of Business	3
BUS 217 Business Communications and Report Writing	3
BUS 226 Business Statistics	3
<b>General Education Courses</b>	
<b>Communication (3 courses)</b>	<b>9</b>
See page 10.	
COM 125 is not accepted for this degree	
<b>Arts and Humanities (2 courses)</b>	<b>6</b>
See page 10.	
<b>Mathematics (2 courses)</b>	
MAT 123 Finite Mathematics or	
MAT 121 College Algebra and	4
MAT 125 Survey of Calculus	4
<b>Social and Behavioral Sciences (3 courses)</b>	
ECO 201 Principles of Macroeconomics	3
ECO 202 Principles of Microeconomics and one of the following	3
HIS 101, HIS 102, HIS 201, or HIS 202	3
<b>Physical and Life Sciences (2 courses)</b>	<b>8</b>
See page 10.	
<b>Total Credits</b>	<b>60</b>

### AAS Degree

Business – Interdisciplinary

This program allows you to add a business and management emphasis to another career area.

Required Courses	Credits
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty approved elective	3
BUS 120 Introduction to E-Commerce	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication and Report Writing	3
MAN 226 Principles of Management	3
MAR 216 Principles of Marketing	3
<b>Faculty advisor-approved business electives</b>	<b>1</b>
<b>Interdisciplinary credits</b>	<b>15</b>
Fifteen credits in 100-level courses (or higher) in one vocational program within the Community Colleges of Colorado or the equivalent through an articulation agreement. See faculty advisor.	
<b>General Education Courses Required</b>	
ENG 121 English Composition I	3
MAT 107 Career Math/Business or any MAT course 100 or higher	3
ECO 201 Principles of Macroeconomics	3
PHI 112 Ethics	3
<b>Faculty advisor-approved general education elective</b>	<b>3</b>
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Business – Management and Supervision

Required Courses	Credits
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty approved elective	3
BUS 120 Introduction to E-Commerce	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication and Report Writing	3
CIS 118 Introduction to PC Applications	3
MAN 116 Principles of Supervision	3
MAN 226 Principles of Management	3
MAR 216 Principles of Marketing	3
<b>Faculty advisor-approved business electives</b>	<b>10</b>
<b>General Education Courses Required</b>	
ENG 121 English Composition I	3
MAT 107 Career Math/Business or any MAT course 100 or higher	3
ECO 201 Principles of Macroeconomics	3
PHI 112 Ethics	3
<b>Faculty advisor-approved general education elective</b>	<b>3</b>
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Business – Real Estate

Required Courses	Credits
ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty approved elective	3
BUS 120 Introduction to E-Commerce	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication and Report Writing	3
CIS 118 Introduction to PC Applications	3
MAN 116 Principles of Supervision	3
MAN 226 Principles of Management	3
MAR 216 Principles of Marketing	3
REE 201 Real Estate Brokers I	6
REE 202 Real Estate Brokers II	6
<b>General Education Courses Required</b>	
ENG 121 English Composition I	3
MAT 107 Career Math/Business or any MAT course 100 or higher	3
ECO 201 Principles of Macroeconomics	3
PHI 112 Ethics	3
<b>Faculty advisor-approved general education elective</b>	<b>3</b>
<b>Total Credits</b>	<b>62</b>

## Certificate

### Management and Supervision

Required Courses	Credits
ACC 121 Accounting Principles I	4
BUS 115 Introduction to Business	3
BUS 116 Personal Finance or faculty approved elective	3
BUS 216 Legal Environment of Business	3
BUS 217 Business Communication and Report Writing	3
CIS 118 Introduction to PC Applications	3
MAN 116 Principles of Supervision	3
MAN 226 Principles of Management	3
MAR 216 Principles of Marketing	3
<b>Faculty advisor-approved program electives</b>	<b>2</b>
<b>Total Credits</b>	<b>30</b>

## Certificate

### Real Estate

Required Courses	Credits
REE 201 Real Estate Brokers I	6
REE 202 Real Estate Brokers II	6
<b>Total Credits</b>	<b>12</b>

## Certificate

### Registered Appraiser

Required Courses	Credits
REE 119 15-Hour National USPAP Course	1
REE 120 Basic Appraisal Principles	2
REE 121 Basic Appraisal Procedures	2
<b>Total Credits</b>	<b>5</b>

## Certificate

### Small Business Startup

Required Courses	Credits
SBM 101 Starting a Small Business	1
SBM 103 Legal Aspects of a Small Business	1
SBM 106 Recordkeeping for a Small Business	1
SBM 108 Marketing for a Small Business	1
SBM 110 Managing a Small Business	1
SBM 112 Financing a Small Business	1
SBM 113 Writing a Business Plan	1
SBM 175 Special Topics or	
MAN 117 Time Management or	
<b>Faculty advisor-approved program elective</b>	<b>1</b>
<b>Total Credits</b>	<b>8</b>

## Business Technology

### Degree: Associate of Applied Science

#### Administrative Professional

#### Certificates:

##### Clerical Assistant Office Professional

These program options are designed to prepare you for entry-level positions and/or advancement in business, governmental agencies, and other institutions that employ people in office occupations. If you aspire to advanced work placement, you should expect to have several years of work experience in addition to the degree.

BTE 111 and BTE 112 may be waived or challenged with a validated typing speed of 65 wpm for five minutes with five or fewer errors. Please see your BTE faculty advisor for choice of elective and general education courses, program planning, and transfer information. You must earn a minimum grade of C in all BTE, CIS, and ACC courses required for a certificate or degree.

### AAS Degree

#### Administrative Professional

Required Courses	Credits
ACC 101 Fundamentals of Accounting	3
BTE 102 Keyboarding Applications I	2
BTE 108 Ten-key by Touch	1
BTE 111 Keyboarding Speedbuilding I	2
BTE 112 Keyboarding Speedbuilding II	2
BTE 125 Records Management	3
BTE 166 Business Editing Skills	3
BTE 202 Office Simulation I	3
BTE 203 Office Simulation II	3
BTE 225 Administrative Office Management	3
BTE 280 Internship	3
CIS 118 Introduction to PC Applications: MS Office	3
CIS 130 Introduction to the Internet	1
CIS 135 Complete PC Word Processing: MS Word	3
CIS 140 Microsoft Outlook	1
CIS 145 Complete PC Database: MS Access	3
CIS 155 PC Spreadsheet Concepts: MS Excel	3
CIS 165 Presentation Graphics: MS PowerPoint	3
<b>General Education Courses</b>	<b>16</b>
See page 17.	
<b>Total Credits</b>	<b>61</b>

### Certificate

#### Clerical Assistant

Required Courses	Credits
BTE 100 Computer Keyboarding	1
BTE 102 Keyboarding Applications I	2
BTE 125 Records Management	3
BTE 166 Business Editing Skills	3
BTE 280 Internship	3
CIS 118 Introduction to PC Applications: MS Office	3
CIS 130 Introduction to the Internet	1
CIS 140 Microsoft Outlook	1
MAT 107 Career Math/Business	3
<b>Total Credits</b>	<b>20</b>

### Certificate

#### Office Professional

Required Courses	Credits
BTE 100 Computer Keyboarding	1
BTE 102 Keyboarding Applications I	2
BTE 111 Keyboarding Speedbuilding I	2
BTE 125 Records Management	3
BTE 166 Business Editing Skills	3
BTE 225 Administrative Office Management	3
BTE 280 Internship	3
CIS 118 Introduction to PC Applications: MS Office	3
CIS 130 Introduction to the Internet	1
CIS 140 Microsoft Outlook	1
CIS 135 Complete PC Word Processing: MS Word	3
CIS 155 PC Spreadsheet Concepts: MS Excel	3
CIS 165 Presentation Graphics: MS PowerPoint	3
MAT 107 Career Math/Business	3
<b>Total Credits</b>	<b>34</b>

## Carpentry

### Degree: Associate of Applied Science

#### Carpentry

#### Certificate: Carpentry

This program provides theory and hands-on training for job-entry skills through craftsman-level competencies in a variety of areas, in addition to general carpentry classes. All courses include current industry topics such as green building, energy conservation and efficiency techniques. Areas of emphasis are designed to meet individual needs, whether you are a part-time or full-time student. All classes are open to all skill levels unless otherwise noted. Tools are provided for entry level



classes; personal tool requirements may increase with proficiency.

**Advising:** Please contact the Construction Technology office directly at 303.914.6511 for information about the programs. You will be assigned an advisor in your program area.

**Bachelor of Science transfer program:** All Construction Technology programs' associate of applied science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a bachelor of science in Technical Management in as few as two semesters. Additional transfer options may be available in individual program areas. Contact your Construction Technology advisor for details.

Related course work may be found under Air Conditioning, Heating and Refrigeration, Construction Management/Technology, Electricity, Fine Woodworking, Industrial Maintenance Technology, Plumbing, Process Technology, and Renewable Energy Technology.

## AAS Degree

### Carpentry

Required Courses	Credits
CAR 156 Shop Tools: Stationary, Hand and Portable	4
CAR 133 Construction Framing & Safety	4
CAR 134 Exterior Finishes and Trim	4
CAR 136 Remodeling, Renovation, and Additions	4
CAR 144 Interior Trim and Finish Methods	4
CAR 155 Interior Trim-Built-ins	4
CAR 166 Stair Design & Construction	4
CAR/FIW Electives	8
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Construction Technology Requirements</b>	<b>10</b>
See page 65.	
<b>Total Credits</b>	<b>61</b>

## Certificate

### Carpentry

Required Courses	Credits
CAR 156 Shop Tools: Stationary, Hand and Portable	4
CAR 133 Construction Framing & Safety	4
CAR 134 Exterior Finishes and Trim	4
CAR 144 Interior Trim and Finish Methods	4
CAR xxx Electives	12
<b>Total Credits</b>	<b>28</b>

## Chemistry

### Degree: Associate of Science

The completion of the following courses is appropriate for those planning to transfer to a four-year college or university to complete a major in chemistry. You are urged to consult with a chemistry faculty advisor before beginning any program of study. These courses provide the basic preparation leading to chemistry-related careers. Some courses might not be offered each semester.

Required Courses	Credits
CHE 111 General College Chemistry I *	5
CHE 112 General College Chemistry II *	5
CHE 211 Organic Chemistry I	5
CHE 212 Organic Chemistry II	5
MAT 201 Calculus I *	5
MAT 202 Calculus II	5
*Fulfills General Education requirements	
<b>Additional General Education Courses</b>	<b>27</b>
See page 12.	
<b>Approved electives</b>	<b>3</b>
<b>Total Credits</b>	<b>60</b>

## Communication

### Degrees: Associate of Arts

**Communication Disorders (Speech –  
Language Pathology and Audiology)  
Communication Studies**

### AA Degree

#### Communication Disorders

This program is designed to provide orientation into a course of study in communication disorders, which usually includes speech-language pathology or audiology. The program will prepare you to pursue an undergraduate degree in the speech-language pathology or audiology areas. An articulation agreement is in place with the University of Northern Colorado for students who complete this degree. Consult a faculty advisor or the department chair before beginning this course of study.

Required Courses	Credits
CMD 160 Introduction to Human Communication Disorders	3
CMD 260 Introduction to Phonetics	2
CMD 265 Physiological and Biological Acoustics	2
CMD 266 Normal Language Development	3
CMD 267 Anatomy and Physiology of the Speech and Hearing Mechanism	3
ASL 121 American Sign Language	5

COM 125	Interpersonal Communication* or	
COM 126	Communication in Healthcare	3
BIO 201	Human Anatomy and Physiology I	4
*Fulfills General Education requirement		
<b>General Education Courses</b>		<b>35</b>
See page 10.		
<b>Recommended General Education courses:</b>		
BIO 111	General College Biology	5
MAT 121	College Algebra	4
<b>Total Credits</b>		<b>60</b>
<b>Highly recommended for transfer to UNC</b>		
(Consult a faculty advisor):		
BIO 202	Human Anatomy and Physiology II	4

## AA Degree

### Communication Studies

The study of communication helps you develop oral and written communication skills. Critical thinking, problem-solving, interpersonal skills, presentation skills, and teamwork are some of the concepts addressed. This program provides basic preparation leading to communication-related careers in organizations and corporations dealing with education, business, public service, tourism, journalism, public relations, politics, broadcasting, and sales.

Completion of the following courses is intended to be appropriate for those who plan to transfer to a four-year college or university to complete a major in communication. Consult with a faculty advisor prior to beginning any program of study.

<b>Required Courses</b>		<b>Credits</b>
COM 115	Public Speaking*	3
COM 125	Interpersonal Communication*	3
COM 216	Principles of Speech Communication II	3
COM 217	Group Communication	3
COM 220	Intercultural Communication	3
COM 230	Argumentation and Debate	3
*Fulfills General Education requirement		
<b>Additional General Education Courses</b>		<b>35</b>
See page 10.		
<b>Approved Electives</b>		<b>7</b>
See page 11.		
<b>Total Credits</b>		<b>60</b>
<b>Recommended Approved Elective course:</b>		
ASL 121	American Sign Language	5

## Computer Information Systems

### Degrees: Associate of Applied Science

**Cisco Network Associate**  
**Computer Support Technician**  
**Game Arts and Development**  
**Microsoft Web/Windows Developer (MCPD)**  
**Microsoft Database Administrator (MCITP)**  
**Microsoft Server Administrator (MCITP)**  
**Oracle Database Administrator**  
**PC Applications Specialist**  
**Programming Specialist**  
**Web Design**  
**Web Development**

### Certificates:

**Cisco Network Associate**  
**Computer Support Technician**  
**Game Development**  
**Microsoft Web/Windows Developer (MCPD)**  
**Microsoft Database Administrator (MCITP)**  
**Microsoft Server Administrator (MCITP)**  
**Oracle Database Administrator**  
**PC Applications Specialist**  
**Programming Specialist**  
**Web Design**  
**Web Development**

## Computer Information Systems Requirements for all AAS Degrees

The Computer Information Systems associate of applied science degree prepares you for entry-level positions in all areas of emphasis that are listed following the core requirements. You must earn a minimum grade of C in all CIS, CNG, CSC, CWB, and MGD courses required for a certificate or degree.

Required Courses		Credits
Faculty advisor-approved business course		
or		
ACC 121	Accounting Principles I	4
ENG 121	English Composition I	3
ENG 122	English Composition II	
or		
ENG 131	Technical Writing	3
MAT 121	College Algebra (or higher)	4
COM 115	Public Speaking	
or		
THE 118	Acting Skills: Trades/Business	3
CIS 268	System Analysis and Design I	3
CIS 289	Capstone	3
<b>Credit from any two of the following three areas:</b>		<b>6</b>
<b>Humanities</b> (ART, FRE, GER, HUM, LIT, PHI, SPA, THE)		
<b>Science</b> (AST, BIO, CHE, GEY, PHY)		
<b>Social and Behavioral Science</b> (ANT, ECO, GEO, HIS, POS, PSY, SOC)		
<b>Total Credits</b>		<b>28-29</b>

## AAS Degree

### Cisco Network Associate

This area of emphasis prepares you to take the Cisco INTRO and Cisco ICND (Interconnecting Network Devices) certification exams equating to the Cisco Certified Network Associate (CCNA) certification. Content includes basic network principles, basic router and switch configuration, intermediate routing and switching, and Wide Area Networking (WAN). Focus is on hands-on performance and assessment.

Required Courses		Credits
CIS 220	Fundamentals of UNIX	3
CNG 121	Computer Technician I: A+	4
CNG 122	Computer Technician II: A+	4
CNG 211	Windows Configuration: Vista	3
CNG 260	Cisco Network Associate I	5
CNG 261	Cisco Network Associate II	5
CNG 262	Cisco Network Associate III	5
CNG 263	Cisco Network Associate IV	5
<b>Required Credits</b>		<b>34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-63</b>

## AAS Degree

### Computer Support Technician

This area of emphasis provides both hardware and operating systems experience needed to work as a support person for both local and wide area network environments.

Required Courses		Credits
CIS 220	Fundamentals of UNIX	3
CNG 121	Computer Technician I: A+	4
CNG 122	Computer Technician II: A+	4
CNG 124	Networking I: Net+	3
CNG 125	Networking II: Net+	3
CNG 131	Network Security Fundamentals	3
CNG 209	MS Server Active Directory Configuration	4
CNG 211	Windows Configuration: Vista	3
CNG 212	Manage MS Server Environment	4
<b>Faculty advisor-approved elective</b>		<b>3</b>
<b>Required Credits</b>		<b>34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-63</b>

## AAS Degree

### Game Arts and Development

This area of emphasis prepares you for a broad range of careers in the gaming industry or as an independent game developer. You will develop 2D and 3D digital modeling, digital animation, and programming skills using an industry standard gaming engine. Course electives allow you to gain experience with digital sound, 2D game development, and additional 3D modeling.

Required Courses		Credits
CIS 220	Fundamentals of UNIX	3
CSC 119	Introduction to Programming and	3
CSC 236	C# Programming	
or		
CSC 160	Computer Science I: C++	4
CWB 162	Introduction to Image Editing: Photoshop	
or		
MGD 111	Adobe Photoshop I	3
CWB 245	Complete Web Animation: Flash	
or		
MGD 143	Motion Graphics Design: Flash	3
CSC 126	Game Design and Development	
or		
MGD 167	Game Design I	3
CSC 227	3D Game Programming	3
CSC 228	3D Game Scripting	3
CWB 262	Advanced Image Editing: Photoshop	
or		
MGD 211	Adobe Photoshop II	3
<b>Choose two electives</b>		<b>6-7</b>
CSC 161	Computer Science II	4
CSC 240	Java Programming	3
CSC 251	Programming in Visual Basic .NET	3

CSC 261	Programming in C#.NET	3
MGD 119	Maya I	3
MGD 219	Maya II	3
<b>Required Credits</b>		<b>34-35</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-64</b>

## AAS Degree

### Microsoft Web/Windows Developer (MCPD)

This area of emphasis provides you with the skill set necessary to complete the MCTS (Microsoft Certified Technology Specialist) and MCPD (Microsoft Certified Professional Developer). You will develop and maintain Windows and Web applications that use the .NET Framework and Visual Studio.

Required Courses		Credits
CSC 119	Introduction to Programming and either	3
CSC 154	Introduction to MS Visual Basic .NET (OOP) 3 or	
CSC 236	C# Programming	4
CWB 110	Complete Web Authoring: HTML	3
CWB 164	XML	3
CIS 240	Database Design and Development	3
CIS 251	Intro to Structured Query Language (SQL) 3	
CSC 251	Programming in Visual Basic .NET or	
CSC 261	Programming in C# .NET	3
CSC 250	Programming with MS ADO .NET	3
CSC 253	MS ASP .NET Web Application Development	3
CSC 262	VS.NET Application Development: VB & C#	3
CIS 252	Implement and Maintain SQL Server Database	3
<b>Required Credits</b>		<b>33-34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>61-63</b>

## AAS Degree

### Microsoft Database Administrator (MCITP)

This area of emphasis provides you with the skills necessary to design, implement, and administer Microsoft SQL Server databases.

Required Courses		Credits
CSC 160	Computer Science I or	
CSC 236	C# Programming	4
CIS 220	Fundamentals of Unix	3
CIS 240	Database Design and Development	3
CIS 251	Intro to Structured Query Language (SQL) 3	
CIS 252	Implement and Maintain SQL Server Database	3

CIS 253	Programming Microsoft SQL Server Database	3
CSC 250	Programming with MS ADO .NET	3
CWB 110	Complete Web Authoring: HTML	3
CWB 164	XML	3
<b>Choose two of the following</b>		<b>6</b>
CSC 253	MS ASP .NET Web Application Development	
CSC 262	VS.NET Application Development: VB & C#	

Faculty advisor-approved elective

<b>Required Credits</b>		<b>34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-63</b>

## AAS Degree

### Microsoft Server Administrator (MCITP)

This area of emphasis provides the skills necessary to manage and troubleshoot system environments based on Microsoft Server Platforms.

Required Courses		Credits
CIS 220	Fundamentals of Unix	3
CNG 121	Computer Technician I: A+	4
CNG 122	Computer Technician II: A+	4
CNG 124	Networking I: Net+	3
CNG 125	Networking II: Net+	3
CNG 209	MS Server Active Directory Configuration	4
CNG 210	MS Server Network Configuration	4
CNG 211	Windows Configuration: Vista	3
CNG 212	Manage MS Server Environment	4
<b>Required Credits</b>		<b>32</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
<b>Total Credits</b>		<b>60-61</b>

## AAS Degree

### Oracle Database Administrator

This area of emphasis provides you with the necessary skills to design, implement, and administer an Oracle Database.

Required Courses		Credits
CIS 220	Fundamentals of UNIX	3
CSC 236	C# Programming or	
CSC 160	Computer Science I	4
CIS 240	Database Design and Development	3
CIS 251	Intro to Structured Query Language (SQL) 3	
CIS 243	SQL PL/SQL	3
CIS 246	Oracle Database Administrator I	4
CIS 247	Oracle Database Administrator II	4
CIS 249	Oracle Performance Tuning	4
CWB 110	Complete Web Authoring	3
CWB 164	XML	3
<b>Required Credits</b>		<b>34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-63</b>

## AAS Degree

### PC Applications Specialist

This area of emphasis prepares you to become an entry-level microcomputer specialist with an emphasis in applications. Upon completion of the course work, you will be prepared to sit for the Microsoft Office certification examinations.

<b>Required Courses</b>		<b>Credits</b>
CSC 119	Introduction to Programming	3
CIS 118	Introduction to PC Applications: MS Office	3
CIS 128	Windows Complete	3
CIS 140	Microsoft Outlook	1
CIS 135	Complete PC Word Processing: MS Word	3
CIS 145	Complete PC Database: MS Access	3
CIS 155	PC Spreadsheet Concepts: MS Excel	3
CIS 165	Complete Presentation Graphics: MS PowerPoint	3
CNG 101	Introduction to Networking	3
CWB 110	Complete Web Authoring: HTML	3
<b>Faculty advisor-approved electives</b>		<b>6</b>
<b>Required Credits</b>		<b>34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>62-63</b>

## AAS Degree

### Programming Specialist

This area of emphasis prepares you to become an entry-level programmer. Upon completion of this program, you will have written a minimum of 30 programs ranging from simple business programs to the design and completion of a complex business system.

<b>Required Courses</b>		<b>Credits</b>
CSC 119	Introduction to Programming and either	3
CSC 154	Introduction to MS Visual Basic .NET (OOP)3 or	
CSC 236	C# Programming or only	4
CSC 160	Computer Science I	4
CIS 240	Database Design and Development	3
CNG 101	Introduction to Networking	3
CIS 220	Fundamentals of UNIX	3
CIS 221	UNIX Shellscripting or	
CWB 205	Complete Web Scripting: JavaScript	3

<b>Two object-oriented programming languages with at least one second semester course</b>	<b>6</b>
<b>Faculty advisor-approved electives</b>	<b>12</b>
<b>Required Credits</b>	<b>34-37</b>
<b>Computer Information Systems Requirements</b>	<b>28-29</b>
See page 59.	
<b>Total Credits</b>	<b>62-66</b>

## AAS Degree

### Web Design

This area of emphasis prepares you for an entry-level position in Internet Web design. You will learn necessary skills using a variety of our programs, all focusing on page design and implementation.

<b>Required Courses</b>		<b>Credits</b>
CIS 128	Windows Complete	3
CIS 220	Fundamentals of Unix	3
CSC 119	Introduction to Programming	3
CWB 110	Complete Web Authoring: HTML	3
CWB 130	Complete Web Editing Tools: Dreamweaver	3
CWB 162	Image Editing I: Photoshop	3
CWB 205	Complete Web Scripting: JavaScript	3
CWB 245	Complete Web Animation I: Flash	3
CWB 246	Complete Web Animation II: Flash	3
CWB 262	Image Editing II: Photoshop	3
<b>Faculty advisor-approved electives</b>		<b>6</b>
<b>Required Credits</b>		<b>36</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>64-65</b>

## AAS Degree

### Web Development

This area of emphasis prepares you for an entry-level position in Internet Web development with a focus on the programming and database aspects of Web sites. Course offerings provide a mix of programming and applications that examine both the client and server aspects of Web sites. Creation of dynamic Web pages using databases is explored.

<b>Required Courses</b>		<b>Credits</b>
CWB 110	Complete Web Authoring: HTML	3
CSC 119	Introduction to Programming and either	3
CSC 154	Introduction to MS Visual Basic .NET (OOP)3 or	
CSC 236	C# Programming	4
CIS 220	Fundamentals of UNIX	3
CIS 240	Database Design and Development	3
CIS 251	Intro to Structured Query Language (SQL)	3

CSC 240	Java Programming	
	or	
CSC 251	Programming in VB.NET	
	or	
CSC 261	Programming in C#.NET	3
CWB 164	XML	3
CSC 248	Internet Java Programming	
	or	
CSC 253	MS ASP .NET Web Application Development	3
CWB 205	Complete Web Scripting: JavaScript	3
CWB 208	Web Application Development: PHP	3
<b>Required Credits</b>		<b>33-34</b>
<b>Computer Information Systems Requirements</b>		<b>28-29</b>
See page 59.		
<b>Total Credits</b>		<b>61-63</b>

## Certificate

### Cisco Network Associate

This area of emphasis prepares you to take the Cisco INTRO and Cisco ICND (Interconnecting Network Devices) certification exams equating to the Cisco Certified Network Associate (CCNA) certification. Content includes basic network principles, basic router and switch configuration, intermediate routing and switching, and Wide Area Networking (WAN). Focus is on hands-on performance and assessment.

Required Courses	Credits
CIS 220 Fundamentals of UNIX	3
CNG 121 Computer Technician I: A+	4
CNG 122 Computer Technician II: A+	4
CNG 211 Windows Configuration: Vista	3
CNG 260 Cisco Network Associate I	5
CNG 261 Cisco Network Associate II	5
CNG 262 Cisco Network Associate III	5
CNG 263 Cisco Network Associate IV	5
<b>Total Credits</b>	<b>34</b>

## Certificate

### Computer Support Technician

This area of emphasis provides both hardware and operating systems experience needed to work as a support person for both local and Wide Area Network environments.

Required Courses	Credits
CIS 220 Fundamentals of UNIX	3
CNG 121 Computer Technician I: A+	4
CNG 122 Computer Technician II: A+	4
CNG 124 Networking I: Net+	3
CNG 125 Networking II: Net+	3
CNG 131 Network Security Fundamentals	3
CNG 209 MS Server Active Directory Configuration	4
CNG 211 Windows Configuration: Vista	3
CNG 212 Manage MS Server Environment	4
<b>Faculty advisor-approved elective</b>	<b>3</b>
<b>Total Credits</b>	<b>34</b>

## Certificate

### Game Development

This area of emphasis prepares you for entry-level programming positions in the gaming industry. You will have the opportunity to work with an industry standard gaming engine.

Required Courses	Credits
CWB 162 Intro to Image Editing: Photoshop	
	or
MGD 111 Adobe Photoshop I	3
CSC 119 Introduction to Programming	3
CSC 236 C# Programming	
	or
CSC 160 Computer Science I: C++	4
CIS 220 Fundamentals of UNIX	3
CWB 245 Complete Web Animation: Flash	
	or
MGD 143 Web Motion Graphics Design I: Flash	3
CSC 126 Game Design and Development	
	or
MGD 167 Game Design I	3
CSC 227 3D Game Programming	3
CSC 228 3D Game Scripting	3
CWB 262 Advanced Image Editing: Photoshop	
	or
MGD 211 Adobe Photoshop II	
<b>Choose two electives</b>	<b>6-7</b>
CSC 161 Computer Science II	
CSC 240 Java Programming	
CSC 251 Programming Visual Basic.NET	
CSC 261 Programming C#.NET	
<b>Total Credits</b>	<b>34-35</b>

## Certificate

### Microsoft Web/Windows Developer (MCPD)

This area of emphasis provides you with the skill set necessary to complete the MCTS (Microsoft Certified Technology Specialist) and MCPD (Microsoft Certified Professional Developer). You will develop and maintain Windows and Web applications that use the .NET Framework and Visual Studio.

Required Courses	Credits
CSC 119 Introduction to Programming	3
	and
CSC 154 Introduction to MS Visual Basic .NET (OOP)	3
	or
CSC 236 C# Programming	4
CWB 110 Complete Web Authoring: HTML	3
CWB 164 XML	3
CIS 240 Database Design and Development	3
CIS 251 Intro to Structured Query Language (SQL)	3
CSC 251 Programming in Visual Basic .NET	
	or
CSC 261 Programming in C#.NET	3
CSC 250 Programming with MS ADO .NET	3

CSC 253	MS ASP .NET Web Application Development	3
CSC 262	VS.NET Application Development: VB & C#	3
CIS 252	Implement and Maintain SQL Server Database	3
<b>Total Credits</b>		<b>33-34</b>

## Certificate

### Microsoft Database Administrator (MCITP)

This area of emphasis provides you with the skills necessary to design, implement, and administer Microsoft SQL Server databases.

Required Courses	Credits
CSC 160 Computer Science I or	
CSC 236 C# Programming	4
CIS 220 Fundamentals of Unix	3
CIS 240 Database Design and Development	3
CIS 251 Intro to Structured Query Language (SQL)	3
CIS 252 Implement and Maintain SQL Server Database	3
CIS 253 Programming Microsoft SQL Server Database	3
CSC 250 Programming with MS ADO .NET	3
CWB 110 Complete Web Authoring: HTML	3
CWB 164 XML	3
<b>Choose two of the following:</b>	<b>6</b>
CSC 253 MS ASP .NET Web Application Development	
CSC 262 VS.NET Application Development: VB & C#	
<b>Faculty advisor-approved elective</b>	
<b>Total Credits</b>	<b>34</b>

## Certificate

### Microsoft Server Administrator (MCITP)

This area of emphasis provides the skills necessary to manage and troubleshoot system environments based on Microsoft Server Platforms.

Required Courses	Credits
CIS 220 Fundamentals of Unix	3
CNG 121 Computer Technician I: A+	4
CNG 122 Computer Technician II: A+	4
CNG 124 Networking I: Net+	3
CNG 125 Networking II: Net+	3
CNG 209 MS Server Active Directory Configuration	4
CNG 210 MS Server Network Configuration	4
CNG 211 Windows Configuration: Vista	3
CNG 212 Manage MS Server Environment	4
<b>Total Credits</b>	<b>32</b>

## Certificate

### Oracle Database Administrator

This area of emphasis provides you with the necessary skills to design, implement, and administer an Oracle Database.

Required Courses	Credits
CIS 220 Fundamentals of UNIX	3
CSC 236 C# Programming or	
CSC 160 Computer Science I	4
CIS 240 Database Design and Development	3
CIS 251 Intro to Structured Query Language (SQL)	3
CIS 243 SQL PL/SQL	3
CIS 246 Oracle Database Administrator I	4
CIS 247 Oracle Database Administrator II	4
CIS 249 Oracle Performance Tuning	4
CWB 110 Complete Web Authoring	3
CWB 164 XML	3
<b>Total Credits</b>	<b>34</b>

## Certificate

### PC Applications Specialist

This area of emphasis prepares you to become an entry-level microcomputer specialist with an emphasis in applications. Upon completion of the course work, you will be prepared to sit for the Microsoft Office certification examinations.

Required Courses	Credits
CSC 119 Introduction to Programming	3
CIS 118 Introduction to PC Applications: MS Office 3	
CIS 128 Windows Complete	3
CIS 140 Microsoft Outlook	1
CIS 135 Complete PC Word Processing: MS Word	3
CIS 145 Complete PC Database: MS Access	3
CIS 155 PC Spreadsheet Concepts: MS Excel	3
CIS 165 Complete Presentation Graphics: MS PowerPoint	3
CNG 101 Introduction to Networking	3
CWB 110 Complete Web Authoring: HTML	3
<b>Faculty approved electives</b>	<b>6</b>
<b>Total Credits</b>	<b>34</b>

## Certificate

### Programming Specialist

This area of emphasis prepares you to become an entry-level programmer. Upon completion of this program, you will have written a minimum of 30 programs ranging from simple business programs to the design and completion of a complex business system.

<b>Required Courses</b>		<b>Credits</b>
CSC 119	Introduction to Programming and either	3
CSC 154	Introduction to MS Visual Basic .NET (OOP)3 or	3
CSC 236	C# Programming or only	4
CSC 160	Computer Science I	4
CIS 220	Fundamentals of UNIX	3
CIS 240	Database Design and Development	3
CNG 101	Introduction to Networking	3
CIS 221	UNIX Shellscripting or	3
CWB 205	Complete Web Scripting: JavaScript	3
CIS 268	System Analysis and Design	3
<b>Two object-oriented programming languages with at least one, second-semester course</b>		<b>6</b>
<b>Faculty advisor-approved electives</b>		<b>9</b>
<b>Total Credits</b>		<b>34-37</b>

## Certificate

### Web Design

This area of emphasis prepares you for an entry-level position in Internet Web design. You will learn necessary skills using a variety of programs, all focusing on page design and implementation.

<b>Required Courses</b>		<b>Credits</b>
CIS 128	Windows Complete	3
CIS 220	Fundamentals of UNIX	3
CSC 119	Introduction to Programming	3
CWB 110	Complete Web Authoring: HTML	3
CWB 130	Complete Web Editing Tools: Dreamweaver	3
CWB 162	Image Editing I: Photoshop	3
CWB 205	Complete Web Scripting: JavaScript	3
CWB 245	Complete Web Animation I: Flash	3
CWB 246	Complete Web Animation II: Flash	3
CWB 262	Image Editing II: Photoshop	3
<b>Faculty advisor-approved electives</b>		<b>6</b>
<b>Total Credits</b>		<b>36</b>

## Certificate

### Web Development

This area of emphasis prepares you for an entry-level position in Internet Web development with a focus on the programming and database aspects of Web sites. Course offerings provide a mix of programming and applications

that examine both the client and server aspects of Web sites. Creation of dynamic Web pages using databases is explored.

<b>Required Courses</b>		<b>Credits</b>
CWB 110	Complete Web Authoring: HTML	3
CSC 119	Introduction to Programming and	3
CSC 154	Introduction to MS Visual Basic .NET (OOP) 3 or	3
CSC 236	C# Programming	4
CIS 220	Fundamentals of UNIX	3
CIS 240	Database Design and Development	3
CIS 251	Intro. to Structured Query Language (SQL)	3
CSC 240	Java Programming or	3
CSC 251	Programming in VB.NET or	3
CSC 261	Programming in C#.NET	3
CWB 164	XML	3
CSC 248	Internet Java Programming or	3
CSC 253	MS ASP .NET Web Application Development	3
CWB 205	Complete Web Scripting: JavaScript	3
CWB 208	Web Application Development: PHP	3
<b>Total Credits</b>		<b>34-35</b>

## Computer Science

Important note: Please refer to the CIS department Web site, [www.rrcc.edu/cis/](http://www.rrcc.edu/cis/) or talk to an advisor for the most current course, degree, and certificate information. You must earn a minimum grade of C in all CIS, CNG, CSC, CWB, and MGD courses required for a certificate or degree.

## Degree: Associate of Science

The completion of the following courses is for those planning to transfer to a four-year college or university to complete a major in computer science. Consult a faculty advisor before beginning any program.

<b>Required Courses</b>		<b>Credits</b>
CSC 160	Computer Science I	4
CSC 161	Computer Science II	4
CSC 165	Discrete Structures	3
MAT 201	Calculus I*	5
MAT 202	Calculus II*	5
PHY 211	Physics: Calculus-based I*	5
PHY 212	Physics: Calculus-based II*	5
*Fulfills General Education Requirements		
<b>Additional General Education Courses</b>		<b>24</b>
See page 12.		
<b>Approved Electives</b>		<b>5</b>
See page 13.		
<b>Total Credits</b>		<b>60</b>



## Construction Management and Technology Programs

### Information for Students in All Construction Technology Programs:

Construction Technology Core Requirements and General Education Requirements are included in most program areas degree requirements. The basic requirements are outlined below. A Construction Technology advisor will work with you to identify courses within the area which complement your career goals.

### Construction Technology Core Requirements

Choose a minimum of 10 credits from the following course prefixes: CON, ENT, ENY AEC, OSH.

#### General Education Requirements

**English/Communication:** 3

ENG, COM 100 or higher

**Mathematics:** 3

MAT 107-Technical or higher

**Choose from any two of the following areas:** 6

**Humanities:**

ART, FRE, GER, HUM, LIT, MUS, PHI, SPA

**Science:**

AST, BIO, CHE, GEY, PHY

**Social and Behavioral Sciences:**

ANT, ECO, GEO, HIS, POS, PSY, SOC

**Three credits from the General Education Electives** 3

(from any of the above prefixes) & CIS 118

**Total General Education Requirements** 15

**Advising:** Please contact the Construction Technology office directly at 303.914.6511 for information about the programs. You will be assigned an advisor in your program area.

**Bachelor of Science transfer program:** All Construction Technology programs' associate of applied science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a bachelor of science in Technical Management in as few as two semesters. Additional transfer options may be available in individual program areas. Contact your Construction Technology advisor for details.

Skills upgrade courses, certificates, and associate of applied science degrees are available in the following program areas. These programs offer core skills required to install and maintain new energy technologies using practices that promote energy efficiency and sustain our natural resources.

**Air Conditioning, Heating and Refrigeration – Energy Efficiency**

(See page 47.)

**Carpentry – Energy Efficiency**

(See page 56.)

**Construction Management and Technology – Energy Efficiency**

(See page 65.)

**Electricity: Commercial/Industrial/Residential – Energy Maintenance & Operations**

(See page 75.)

**Environmental Technology – Natural Resource Management**

(See page 84.)

**Fine Woodworking**

(See page 86.)

**Industrial Maintenance Technology – Energy Maintenance**

(See page 92.)

**Plumbing**

(See page 112.)

**Process Technology – Energy Operations**

(See page 115.)

**Renewable Energy Technology – Energy Efficiency**

(See page 117.)

**Water Quality Management – Environmental Technology**

(See page 125.)

**Wind Energy Technology – Energy Maintenance**

(See page 128.)

## Construction Management and Technology

Construction Technology coursework bridges all trade and specialty areas, providing the basic technology, supervision and management skills needed in all segments of the industry. Coursework in this program will provide the entry-level skills needed to begin a career in construction management, building maintenance, or the trades. In addition to the courses listed below, special topic seminars are offered each semester, allowing students to keep current with new trends in the industry such as LEED, BIM, energy conservation/efficiency management tools, green building techniques, etc. The flexible program allows you to choose courses that build on previous employment or academic experience. Consult with a Construction Technology advisor to develop your individual educational plan.

**Information: 303.914.6511**

Related course work may be found under Air Conditioning, Heating and Refrigeration, Carpentry, Electricity, Fine Woodworking, Industrial Maintenance Technology, Plumbing, Process Technology, and Renewable Energy Technology.

## Degree: Associate of Applied Science

**Construction Management**  
**Construction Technology Technician**  
**Building Maintenance Technician**  
**Trades Degree**  
**Building Code Enforcement (online only)**

### Certificates:

**Construction Management 1**  
**Construction Management 2**  
**Construction Management 3**  
**Construction Technology Fundamentals**  
**Construction Technology Technician**  
**Building Maintenance Technician**  
**Building Codes**  
**International Residential Code**  
**International Plumbing and Mechanical Codes**  
**Building Code Enforcement (online only)**

## AAS Degree

### Construction Management

Major Requirements	Credits
Construction Management Certificate 3	46
General Education Requirements (See page 61.)	15
<b>Total Credits</b>	<b>61</b>

## Certificate

### Construction Management 1

It is not required that courses be taken in this order: please consult with your construction management advisor to determine the most useful sequencing of courses to meet your career goals.

Requirements	Credits
CON 105 Construction Technology	4
CON 230 Blueprint Reading	4
ENT 146 Construction Materials and Methods	3
Construction Management Major Elective Options	4
See page 66.	
<b>Total Credits</b>	<b>15</b>

## Certificate

### Construction Management 2

It is not required that courses be taken in this order: please consult with your construction management advisor to determine the most useful sequencing of courses to meet your career goals.

Requirements	Credits
Construction Management 1 Certificate	15
AEC 221 Building Electrical/Mechanical Systems	3
CON 262 Oral and Written Communication	2
CON 265 Planning and Scheduling	2
ENT 141 Surveying 1	4
Construction Management Major Elective Options	4
See page 66.	
<b>Total Credits</b>	<b>30</b>

## Certificate

### Construction Management 3

It is not required that courses be taken in this order: please consult with your construction management advisor to determine the most useful sequencing of courses to meet your career goals.

Requirements	Credits
Construction Management 2 Certificate	30
CON 245 Construction Project Management	4
Construction Management Major Elective Options	12
See page 66.	
<b>Total Credits</b>	<b>46</b>

### Construction Management Suggested Major Elective Options

CON 228 Estimating (EIC 217, Elect. Est. may be substituted)	4
CON 261 Leadership and Motivation	2
CON 263 Problem Solving and Decision Making	2
CON 264 Contract Documents and Construction Law2	
CON 266 Understanding and Managing Project Costs	2
CON 267 Accident Prevention and Loss Control	2
CON 268 Managing the Project	2
CON 269 Productivity Improvement	2
ACC 121 Accounting Principles 1	4
BUS 217 Business Communication and Report Writing	3

MAN, SBM. BUS, CIS courses as approved

**Trade Classes: CAR, EIC, HVA, PLU, ENY (up to 8 credits)**

CON 280 Internship (1-6 credits)

CON 285 Independent Study (1-6 credits)

**Others as approved by Construction Management Advisor**

Please be sure to discuss the alternative credit pathways with you're advisor, including: credit transfers from other colleges, credit for apprenticeship classes, and portfolio credit for prior learning (recognizing work-based skills which align with our coursework). Semester schedules should be checked for special topic seminars offered under the CON program which will address current industry topics and will qualify as major elective options.

## AAS Degree

### Construction Technology Technician

You must complete a minimum of 46 credits in a variety of construction areas. Meet with your Construction Technology advisor to design an educational plan. Construction Technology electives must be pre-approved by your Construction Technology advisor.

<b>Requirements</b>	<b>Credits</b>
Construction Technology Technician Certificate	30
Construction Technology Electives	16
<b>General Education Requirements</b>	<b>15</b>
See page 65.	
<b>Total Credits</b>	<b>61</b>

## Certificate

### Construction Technology Fundamentals

Construction Technology electives must be pre-approved by your Construction Technology advisor.

<b>Requirements</b>	<b>Credits</b>
Construction Technology Core Requirements	10
See page 65.	
Construction Technology Electives	4
<b>Total Credits</b>	<b>14</b>

## Certificate

### Construction Technology Technician

Construction Technology electives must be pre-approved by your Construction Technology advisor.

<b>Requirements</b>	<b>Credits</b>
Construction Technology Fundamentals Certificate	14
Construction Technology Electives	16
<b>Total Credits</b>	<b>30</b>

## AAS Degree

### Building Maintenance Technician

<b>Requirements</b>	<b>Credits</b>
Building Maintenance Technician Certificate	36
Construction Technology Core Requirements	10
See page 65.	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>61</b>

## Certificate

### Building Maintenance Technician

You must complete a total of 36 credits, including one course from each of the four areas listed under "Building Maintenance Technician Elective Options" on page 63. No more than four courses from any one area will count toward the completion of this certificate. Meet with your Construction Technology advisor to design an education plan.

<b>Requirements</b>	<b>Credits</b>
Building Maintenance Technician Electives	36
See page 67.	
Construction Technology Core Requirements	10
See page 65.	
<b>Total Credits</b>	<b>46</b>

### Building Maintenance Technician Elective

#### Options

Courses must be pre-approved by Construction Technology Advisor

#### Air Conditioning, Heating, Refrigeration and Ventilation

HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 110	Fundamentals of Gas Heating	4
HVA 132	Air Conditioning and Refrigeration Controls	4
HVA 134	Air Conditioning Systems	4
HVA 162	Heating Controls	4

#### Carpentry

CAR 156	Tools: Stationary, Hand and Portable	4
CAR 165	Shop Carpentry	4
CAR 155	Interior Trim, Built-Ins	2
CAR xxx	Approved by Advisor	4

#### Electricity

EIC 100	Electrical Construction and Planning	4
EIC 110	Electrical Installations I	4
EIC 120	Electrical Installation II	4
EIC 130	National Electrical Code I	4
EIC 150	DC Circuit Fundamentals	4
EIC 155	AC Circuit Fundamentals	4
EIC 167	Electrical Maintenance Techniques	4
EIC 240	Fire Alarm Fundamentals	4

#### Plumbing

PLU 100	Introduction to Plumbing	4
PLU 101	Piping Skills	4
PLU 104	Plumbing Service	4
PLU 244	Commercial Plumbing Service	4
PLU 247	Hot Water Heating Systems	4

## AAS Degree

### Trades Degree

The trades AAS degree program consists of a maximum of 58 credits of trade-specific credits. Students may earn these credits via apprenticeship training (classroom and on-the-job hours) or technical education course work and training, plus a maximum of 20 credits of core general education courses at RRCC. For those registered apprentices who complete a three-year registered apprenticeship program, 20 RRCC credits will be required. For those completing a four-year or five-year apprenticeship program, 17 RRCC general education credits will be required. This program is offered jointly by RRCC, Emily Griffith Opportunity School, and the Joint Apprenticeship Training Committee.

## AAS Degree

### Building Code Enforcement

(This is an online degree.)

#### Major Requirements:

#### Building Code Enforcement Certificate 31

EMP 101	Principles of Emergency Management	3
EMP 109	Incident Command Systems	3
EMP 247	Decision Making in a Crisis	3
MAN 116	Principles of Supervision	3
MAN 226	Principles of Management	3

#### General Education Requirements

ENG 131	Technical Writing I	3
GEY 111	Physical Geology	3
MAT 107	Career Math (or higher)	3
PSY 101	General Psychology I	3
SOC 101	Introduction to Sociology I	3

**Total Credits 60**

## Certificate

### Building Code Enforcement

#### Major Requirements

CON 140	Intro to Building Codes & Enforcement	3
CON 241	Overview of International Codes	4
CON 242	Residential and Non-Residential Plan Review	3
ECO 201	Principles of Macroeconomics	3
EMP 105	Emergency Planning	3
EMP 240	Leadership and Influence	3
EMP 241	Decision Making and Problem Solving	3
EMP 242	Effective Communication	3
EMP 244	Developing Volunteer Resources	3
EMP 291	Public Information Officer	3

**Total 31**

## Certificate

### Building Codes

#### Choose any two courses

		Credits
CON 142	International Residential Code	4
CON 143	International Building Code	4
EIC 130	National Electrical Code I	4
EIC 135	National Electrical Code II	4
HVA 206	International Mechanical Code	4
PLU 207	International Plumbing Code	4
PLU 208	International Fuel Gas Code	4
<b>Total Credits</b>		<b>8</b>

## Certificate

### International Residential Codes

#### Required Courses

		Credits
CON 142	International Residential Code	4
HVA 200	International Residential Code/ Mechanical and Fuel Gas	2
PLU 150	Code and Piping Calculations	2
PLU 202	International Residential Code-Plumbing	2
<b>Total Credits</b>		<b>10</b>

## Certificate

### International Plumbing and Mechanical Codes

#### Required Courses

		Credits
HVA 200	International Residential Code- Mechanical and Fuel Gas	2
HVA 206	International Mechanical Code	4
PLU 150	Code and Piping Calculations	2
PLU 202	International Residential Code-Plumbing	2
PLU 207	International Plumbing Code	4
PLU 208	International Fuel Gas Code	4
<b>Total Credits</b>		<b>18</b>

## Cosmetology

(In cooperation with and taught at Warren Tech)

The Cosmetology Program is designed to develop the skills necessary for entry-level employment in areas of hairstylist, esthetics (esthetician-skin care), and nail technology (manicurist).

### Certificates:

**Cosmetologist**

**Hairstylist**

**Manicurist**

**Esthetician (skin)**

### Certificate

#### Cosmetologist

The comprehensive Cosmetologist Certificate is designed to develop the skills necessary for entry-level employment in areas of the cosmetology field to include hairstylist, esthetician (skin), and manicurist (nail technology). In order to obtain this certificate, the hairstylist, manicurist, and esthetician programs must all be completed.

#### Required Courses

	<b>Credits</b>
COS 103 Shampoo/Rinses/Conditioners I	1
COS 203 Shampoo/Rinse/Conditioners II	1
COS 110 Intro to Hair Coloring	2
COS 111 Intermediate I: Hair Coloring	2
COS 210 Intermediate II: Hair Coloring	2
COS 211 Advanced Hair Coloring	2
COS 120 Introduction to Hair Cutting	2
COS 121 Intermediate I: Hair Cutting	2
COS 220 Intermediate II: Hair Cutting	2
COS 221 Advanced Hair Cutting	2
COS 130 Intro to Hair Styling	2
COS 131 Intermediate I: Hair Styling	2
COS 230 Intermediate II: Hair Styling	2
COS 231 Advanced Hair Styling	1
COS 140 Intro to Chemical Texture	1
COS 141 Intermediate I: Chemical Texture	1
COS 240 Intermediate II: Chemical Texture	1
COS 241 Advanced Chemical Texture	1
NAT 110 Intro to Manicures & Pedicures	3
NAT 111 Intermediate Manicures & Pedicures	2
NAT 210 Advanced Manicures and Pedicures	2
NAT 211 Application of Artificial Nails	5
EST 110 Intro to Facials & Skin Care	3
EST 111 Intermediate Facials & Skin Care	2
EST 210 Advanced Massage & Skin Care	2
EST 211 Facial Makeup	1
EST 212 Hair Removal	3
COS 150 Laws, Rules and Regulations	1
COS 250 Mgmt, Ethics, Interpersonal Skills & Sales	1
COS 160 Intro to Disinfection, Sanitation & Safety	2

COS 161 Intermediate I: Disinfection, Sanitation & Safety	1
COS 260 Intermediate II: Disinfection, Sanitation & Safety	2
COS 261 Advanced Disinfection, Sanitation & Safety	1
<b>Total Credits</b>	<b>60</b>

### Certificate

#### Hairstylist

The Hairstylist Certificate is designed to develop the skills necessary for entry-level employment as a hairstylist.

#### Required Courses

	<b>Credits</b>
COS 103 Shampoo/Rinses/Conditioners I	1
COS 203 Shampoo/Rinse/Conditioners II	1
COS 110 Intro to Hair Coloring	2
COS 111 Intermediate I: Hair Coloring	2
COS 210 Intermediate II: Hair Coloring	2
COS 211 Advanced Hair Coloring	2
COS 120 Introduction to Hair Cutting	2
COS 121 Intermediate I: Hair Cutting	2
COS 220 Intermediate II: Hair Cutting	2
COS 221 Advanced Hair Cutting	2
COS 130 Intro to Hair Styling	2
COS 131 Intermediate I: Hair Styling	2
COS 230 Intermediate II: Hair Styling	2
COS 231 Advanced Hair Styling	1
COS 140 Intro to Chemical Texture	1
COS 141 Intermediate I: Chemical Texture	1
COS 240 Intermediate II: Chemical Texture	1
COS 241 Advanced Chemical Texture	1
COS 150 Laws, Rules and Regulations	1
COS 250 Mgmt, Ethics, Interpersonal Skills & Sales	1
COS 160 Intro to Disinfection, Sanitation & Safety	2
COS 161 Intermediate I: Disinfection, Sanitation & Safety	1
COS 260 Intermediate II: Disinfection, Sanitation & Safety	2
COS 261 Advanced Disinfection, Sanitation & Safety	1
COS 262 Advanced II: Disinfection, Sanitation & Safety	3
<b>Total Credits</b>	<b>40</b>

### Certificate

#### Manicurist

The Manicurist Certificate (nail technology) is designed to develop the skills necessary for entry-level employment as a manicurist.

#### Required Courses

	<b>Credits</b>
NAT 110 Intro to Manicures & Pedicures	3
NAT 111 Intermediate Manicures & Pedicures	2
NAT 210 Advanced Manicures and Pedicures	2
NAT 211 Application of Artificial Nails	5
COS 150 Laws, Rules and Regulations	1

COS 250	Mgmt, Ethics, Interpersonal Skills & Sales	1
COS 160	Intro to Disinfection, Sanitation & Safety	2
COS 161	Intermediate I: Disinfection, Sanitation & Safety	1
COS 260	Intermediate II: Disinfection, Sanitation & Safety	2
COS 261	Advanced Disinfection, Sanitation & Safety	1
<b>Total Credits</b>		<b>20</b>

## Certificate

### Esthetician (skin)

The Esthetician Certificate (esthetics-skin care) is designed to develop the skills necessary for entry-level employment as an esthetician.

Required Courses		Credits
EST 110	Intro to Facials & Skin Care	3
EST 111	Intermediate Facials & Skin Care	2
EST 210	Advanced Massage & Skin Care	2
EST 211	Facial Makeup	1
EST 212	Hair Removal	3
COS 150	Laws, Rules and Regulations	1
COS 250	Mgmt, Ethics, Interpersonal Skills & Sales	1
COS 160	Intro to Disinfection, Sanitation & Safety	2
COS 260	Intermediate II: Disinfection, Sanitation & Safety	2
COS 262	Advanced II: Disinfection, Sanitation & Safety	3
<b>Total Credits</b>		<b>20</b>

## Criminal Justice

The Criminal Justice Program is designed for those seeking a career in the criminal justice field. If you have a felony conviction, or any kind of criminal or significant driving record, you may not be employable in the criminal justice field. The associate of general studies degree is articulated with Metropolitan State College of Denver (Metro), and Regis University. The associate of art degree in criminal justice is articulated with the University of Northern Colorado for those planning to continue in the criminal justice and criminology field. An associate of general studies degree with an emphasis in criminal justice with the AA or AS core completed and stamped will be considered to have completed Metro's lower division general studies. It is critical to consult with a criminal justice faculty advisor early in your college career to explore all your educational options. Articulations are pending with several four-year colleges in psychology, human services, social work and counseling psychology for the associate of art degree with an emphasis in victim assistance.

## Degree: Associate of General Studies

**Criminal Justice**

## Degree: Associate of Arts

**Criminal Justice**

**Victim Assistance**

For information on Law Enforcement Degrees and Certificates below, go to: [www.rccc.edu/lawenforcement](http://www.rccc.edu/lawenforcement) or call 303.914.6333

## Degree: Associate of Applied Science

**Criminal Justice: Law Enforcement**

## Certificates:

**Investigations**

**Basic Law Enforcement Training**

**Academy P.O.S.T. Certification**

## AGS Degree

### Criminal Justice

You are urged to consult with the criminal justice faculty advisor before beginning any program of study. This degree is articulated for transfer to Metropolitan State College of Denver (Metro State). These courses provide the basic preparation leading to criminal justice-related careers. The Criminal Justice program also offers an AGS transfer degree to Regis University for completion of a bachelor of science degree in public administration, criminal justice. Contact 303.914.6434 for advising. Note: The general education requirements are specific to this articulation agreement between RRCC and Regis. The AA degree in criminal justice transfers to the University of Northern Colorado. Contact criminal justice degree faculty for information on the AA in Victim Assistance.

Required Courses		Credits
CRJ 110	Introduction to Criminal Justice	3
CRJ 205	Principles of Criminal Law	3
CRJ 112	Procedural Criminal Law	3
CRJ 125	Law Enforcement Operations	3
CRJ 135	Judicial Function	3
CRJ 145	Correctional Process	3
CRJ 210	Constitutional Law	3
CRJ 220	Human Relations and Social Conflict	3
CRJ 230	Criminology	3
CRJ 236	CRJ Research Methods	3
CRJ 289	Capstone	1

**General Education Courses Required** 35  
See page 15.

**Total Credits** 66

The Criminal Justice degree is also available online. Transfer your credits to Regis University and complete a bachelor of science in public administration online as well.

## AA Degree Criminal Justice

The completion of the following courses is appropriate for those planning to transfer to a four-year college or university to complete a major in criminal justice or criminology. You are urged to consult with a criminal justice advisor before beginning any program of study. These courses provide the basic preparation leading to criminal justice related careers. Some courses might not be offered each semester. Contact 303.914.6434 for advising.

Required Courses	Credits
CRJ 110 Introduction to Criminal Justice	3
CRJ 112 Procedural Criminal Law*	3
CRJ 125 Law Enforcement Operations**	3
CRJ 135 Judicial Function**	3
CRJ 145 Correctional Process	3
CRJ 205 Principles of Criminal Law	3
CRJ 210 Constitutional Law*	3
CRJ 220 Human Relations and Social Conflict	3
CRJ 230 Criminology	3
CRJ 236 CRJ Research Methods	3
CRJ 289 Capstone	1

\* Take either CRJ 112 or CRJ 210

\*\* Take either CRJ 125 or CRJ 135

**General Education Courses Required** 35

See page 10.

**Total Credits** 60

## AA Degree Victim Assistance

The completion of the following courses is appropriate for those planning to transfer to a four year college or university to complete a major in psychology, counseling psychology, social work or human services; with the intent of a career working with victims of crime and trauma. Contact 303.914.6434 for advising.

Required Courses	Credits
CRJ 110 Introduction to Criminal Justice	3
CRJ 150 Victims of Crime and Trauma	3
CRJ 151 Domestic Violence	3
CRJ 152 Sexual Assault	3
CRJ 153 Violence Against Children	3
CRJ 210 Constitutional Law	3
CRJ 225 Crisis Intervention	3
CRJ 239 Managing Emergency Worker Stress	3
CRJ 289 Capstone	1

**General Education Courses Required** 35  
See page 10.

**Total Credits** 60

## Requirements for the Criminal Justice: Law Enforcement AAS Degree:

Required Courses	Credits
CRJ 110 Introduction to Criminal Justice	3
CRJ 111 Substantive Criminal Law	3
CRJ 112 Procedural Criminal Law	3
CRJ 125 Law Enforcement Operations	3
CRJ 135 Judicial Function	3
CRJ 205 Principles of Criminal Law	3
CRJ 145 Correctional Process	3
CRJ 210 Constitutional Law	3
CRJ 220 Human Relations and Social Conflict	3
CRJ 230 Criminology	3
CRJ 289 Capstone	1

### General Education Required Courses

ENG 121 English Composition I	3
COM 125 Interpersonal Communications	3
MAT 107 Career Math (or above)	3
PHI 112 Ethics	3

**A course from one of the following two areas:** 3

Science (AST, BIO, CHE, GEY, PHY)

Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)

**Other Required Courses (see individual degrees)** 21

Note: Course substitutions may be made with the permission of a CRJ faculty advisor. Those who are not presently employed in the field will be required to take a minimum of three credits in CRJ 280 Internship.

**Total Credits** 64

## AAS Degree

### Criminal Justice: Law Enforcement

You must complete seven CRJ courses for a total of 21 credits, but first confer with an advisor to determine the appropriate courses. **Information: 303.914.6333.** Specific courses required may vary, depending upon your background and work experience. Upon completion of this program, you should be able to be employed as a law enforcement patrol officer at departments requiring a two-year college degree. The following courses are required for all law enforcement students:

Required Courses	Credits
CRJ 151 Domestic Violence	3
or	
CRJ 152 Sexual Assault	3
CRJ 225 Crisis Intervention	3
CRJ 239 Managing Emergency Worker Stress	3

**The remaining four courses must be chosen with CRJ faculty approval.**

**Total Credits** 21\*

\*With proof of successful completion of a POST-certified academy and passing the POST exam, you may portfolio

up to five of the following courses:

<b>Courses</b>	<b>Credits</b>
CRJ 118 Report Writing	3
CRJ 125 Law Enforcement Operations	3
CRJ 126 Patrol Procedures	3
CRJ 220 Human Relations and Social Conflict	3
CRJ 240 Criminal Investigations*	3
CRJ 246 Traffic Investigation	3
<b>Total Credits</b>	<b>15-18</b>

\*CRJ 240 credit is given only to those who graduated POST academy from Dec. 2005 to the present.

## Certificate

### Investigations

The Investigations Certificate Program will be of interest to you if you are seeking employment in the private sector or academic recognition in a specialized area of law enforcement. **Information: 303.914.6333.**

<b>Required Courses</b>	<b>Credits</b>
CRJ 110 Introduction to Criminal Justice	3
CRJ 112 Procedural Criminal Law	3
CRJ 118 Report Writing	3
CRJ 205 Principles of Criminal Law	3
CRJ 210 Constitutional Law	3
CRJ 240 Criminal Investigations	3
CRJ 245 Interview and Interrogation	3
<b>Elective Courses (Select two courses):</b>	
CRJ 190 Financial Investigations	3
CRJ 218 Drug Investigative Strategies	3
CRJ 231 Introduction to Forensic Science and Criminalistics	3
CRJ 246 Traffic Investigation	3
FST 252 Fire Arson Investigation	3
<b>Total Credits</b>	<b>27</b>

## Certificate

### Basic Law Enforcement Training Academy

#### P.O.S.T. Certification

This certificate program exceeds the Colorado Peace Officers Standards and Training (P.O.S.T.) requirements for peace officer entry-level training. Students earn 36 credits during this intense course of study. Eighteen of these credits may be used to meet a portion of the Law Enforcement Emphasis Area requirement of the Associate of Applied Science degree in Criminal Justice. This is not an open enrollment offering. You must make separate application to the Academy. See the Academy Director for details.

**Information: 303.914.6333.**

<b>Required Courses</b>	<b>Credits</b>
CRJ 101 Basic Police Academy I	6
CRJ 102 Basic Police Academy II	12
CRJ 104 Basic Law Enforcement Academy IV	1
CRJ 105 Basic Law	8
CRJ 106 Arrest Control Techniques	3

CRJ 107 Law Enforcement Driving	3
CRJ 108 Firearms	3
PED xxx Check with academy director	1
<b>Total Credits</b>	<b>37</b>

## Culinary Arts

**(In cooperation with the Rocky Mountain Chefs of Colorado and taught at Warren Tech)**

This program is designed to prepare culinarians in hands-on, paid, full-time employment with an approved RMCC sponsoring house. Related classes are taught at Warren Tech for five hours per week, 90 hours per semester.

This demanding six-semester (three-year) program will prepare and teach you to achieve certified culinarian status through the American Culinary Federation (ACF) and to earn a journeyman certificate through the United States Department of Labor, Bureau of Apprenticeship. For additional information, contact Joachim Schaaf at 303.982.8556.

## Degree: Associate of Applied Science

### Culinary Arts

## Certificate:

### Culinary Arts

## AAS Degree

### Culinary Arts

<b>Required Courses</b>	<b>Credits</b>
CUA 101 Food Safety and Sanitation	2
CUA 105 Food Service Concepts and Management Skills	3
CUA 121 Introduction to Food Production Principles and Practices	1
CUA 122 Introduction to Stocks, Soups and Sauces	1
CUA 123 Intro to Garde Manger	1
CUA 124 Vegetable Preparation and Breakfast Cookery	1
CUA 127 Soups, Sauces and Consommés	3
CUA 131 Starches, Pastas, Casseroles and Grain Products	1
CUA 132 Center of the Plate: Meat	1
CUA 133 Center of the Plate: Poultry, Fish and Seafood	1
CUA 141 Baking: Principles and Ingredients	1
CUA 142 Basic Yeast-Raised Products and Quick Breads	1
CUA 143 Baking: Cakes, Pies, Pastries and Cookies	1
CUA 144 Baking Applications	1
CUA 150 Baking: Decorating and Presentation	3



CUA 151	Baking: Intermediate Bread Preparation	3
CUA 152	Individual Fancy Dessert Production	3
CUA 156	Nutrition for the Hospitality Professional	3
CUA 157	Menu Planning	3
CUA 180	Culinary Arts Internship 1	5
CUA 182	Culinary Arts Internship 2	5
CUA 210	Advanced Cuisine and Garde Manger	4
CUA 242	Intermediate Garde Manger	1
CUA 255	Supervision in the Hospitality Industry	3
CUA 281	Culinary Arts Internship 3	5

**General Education Requirements**

<b>Required Courses</b>		<b>Credits</b>
ENG 121	English Composition I	3
MAT 107	Career Math (or above)	3
COM 115	Public Speaking	3
CIS 118	Intro to PC Application	3
	Humanities elective	3
	Social Science elective	3
<b>Total Credits</b>		<b>75</b>

**Certificate**

**Culinary Arts**

<b>Required Courses</b>		<b>Credits</b>
CUA 101	Food Safety and Sanitation	2
CUA 105	Food Service Concepts and Management Skills	3
CUA 121	Introduction to Food Production Principles and Practices	1
CUA 122	Introduction to Stocks, Soups and Sauces	1
CUA 123	Intro to Garde Manger	1
CUA 124	Vegetable Preparation and Breakfast Cookery	1
CUA 127	Soups, Sauces and Consommés	3
CUA 131	Starches, Pastas, Casseroles and Grain Products	1
CUA 132	Center of the Plate: Meat	1
CUA 133	Center of the Plate: Poultry, Fish and Seafood	1
CUA 141	Baking: Principles and Ingredients	1
CUA 142	Basic Yeast-Raised Products and Quick Breads	1
CUA 143	Baking: Cakes, Pies, Pastries and Cookies	1
CUA 144	Baking Applications	1
CUA 150	Baking: Decorating and Presentation	3
CUA 151	Baking: Intermediate Bread Preparation	3
CUA 152	Individual Fancy Dessert Production	3
CUA 156	Nutrition for the Hospitality Professional	3
CUA 157	Menu Planning	3
CUA 180	Culinary Arts Internship 1	5
CUA 182	Culinary Arts Internship 2	5
CUA 210	Advanced Cuisine and Garde Manger	4
CUA 242	Intermediate Garde Manger	1
CUA 255	Supervision in the Hospitality Industry	3
CUA 261	Cost Controls	3
CUA 281	Culinary Arts Internship 3	5
<b>Total Credits</b>		<b>57</b>

**Diagnostic Medical Sonography**

(See Sonography)

**Early Childhood Education**

All Early Childhood Education degrees and certificates require students to take the Accuplacer test before their first semester. You must earn a C or better in all ECE courses to graduate with a degree or certificate in Early Childhood.

**Degree: Associate of Arts**

**Degree: Associate of Applied Science**

**Certificates:**

- Preschool Group Leader**
- Infant/Toddler Group Leader**
- Director Early Childhood Education**

**AA Degree**

**Early Childhood Education**

If you plan to transfer to a four-year public college or university to complete a degree with an emphasis in early childhood education, you should complete the following courses. These courses provide the basic preparation leading to professional early childhood education careers. You must earn a B or better in ENG 121 to receive the AA in Early Childhood Education.

Consult with the ECE advisor before beginning this program of study.

<b>Required Courses</b>		<b>Credits</b>
ECE 101	Intro to Early Childhood Education	3
ECE 102	Early Childhood Lab Techniques	3
ECE 188	Field Based Experience	1
ECE 205	Nutrition, Health and Safety	3
ECE 238	Child Growth and Development	4
ECE 241	Human Relations for ECE	3
<b>Transfer institution-approved ECE elective credits</b>		<b>6</b>
(Meet with a faculty advisor for institution-specific information.)		
<b>Early Childhood Education</b>		<b>23</b>
<b>General Education Courses</b>		<b>38</b>
<b>Communication (3 courses)</b>		<b>9</b>
See page 10. COM 125 not acceptable.		
<b>Mathematics (2 courses)</b>		
MAT 155	Integrated Math I	3
MAT 156	Integrated Math II	3
<b>Arts and Humanities (2 courses)</b>		

MUS 120	Music Appreciation or	
ART 110	Art Appreciation	3
LIT 255	Children's Literature or	
LIT 115	Introduction to Literature	3
<b>Science (2 courses)</b>		
SCI 155	Integrated Science I	4
SCI 156	Integrated Science II	4
<b>Social Sciences (3 courses)</b>		
GEO 105	World Regional Geography	3
HIS 201	U.S. History I	3
POS 111	American Government	3
<b>Total Credits</b>		<b>61</b>

## AAS Degree

### Early Childhood Education

This program prepares you to work as a professional in a variety of capacities in early childhood education. If you complete the degree requirements, you will have met the requirements for both preschool group leader and director certificates.

<b>Required Courses</b>		<b>Credits</b>
ECE 101	Intro to Early Childhood Education	3
ECE 102	Early Childhood Lab Techniques	3
ECE 103	Guidance Strategies for Children	3
ECE 188	Field Based Experience	1
ECE 205	Nutrition, Health and Safety	3
ECE 220	Curriculum Development: Methods and Techniques	3
ECE 238	Child Growth and Development	4
ECE 241	Human Relations for ECE	3
ECE 240	Administration of Early Childhood Care and Education Programs (capstone)	3
<b>Faculty advisor-approved ECE electives</b>		<b>6</b>
<b>Specific Program Requirements</b>		
EDU 153	ESL and Cultural Issues for Paraprofessionals	3
BUS 217	Business Communications and Report Writing	
CIS 118	Introduction to PC Applications or	
EDU 261	Teaching, Learning and Technology	3
<b>General Education Requirements</b>		
ENG 121	(or above) English Composition I or	
COM 115	Public Speaking or	
COM 125	Interpersonal Communication	3
MAT 107	Career math (or above)	4
<b>Credit from two of the following areas:</b> Arts and Humanities, Science, Social Sciences		
<b>Faculty advisor-approved electives from above</b>		<b>3</b>
<b>Elective credits to be determined by student</b> 100 level and above		
<b>Total Credits</b>		<b>60</b>

## Certificate

### Preschool Group Leader

Completing this program prepares you for group leader positions in early childhood care and education settings. Upon completion of these classes, you will have met academic requirements for a Colorado Group Leader Certificate. In addition to the academic requirements, the Colorado Department of Human Services requires nine months (1,395 hours) of verifiable work experience.

<b>Required Courses</b>		<b>Credits</b>
ECE 101	Intro to Early Childhood Education	3
ECE 102	Early Childhood Lab Techniques	3
ECE 103	Guidance Strategies for Children	3
ECE 188	Field Based Experience	1
ECE 220	Curriculum Development: Methods and Techniques	3
ECE 238	Child Growth and Development	4
<b>Total Credits</b>		<b>17</b>

## Certificate

### Infant/Toddler Group Leader

Completing this program prepares you for infant nursery supervisor positions in early childhood care and education settings. Upon completion of these classes, you will have met academic requirements as a Colorado Infant Nursery Supervisor. In addition to the academic requirements, the Colorado Department of Human Services requires 12 months (1,820 hours) of verifiable work experience.

<b>Required Courses</b>		<b>Credits</b>
ECE 101	Intro to Early Childhood Education	3
ECE 103	Guidance Strategies for Children	3
ECE 111	Infant and Toddler Theory and Practice	3
ECE 112	Infant and Toddler Lab Techniques	3
ECE 238	Child Growth and Development	4
<b>Total Credits</b>		<b>16</b>

## Certificate

### Director, Early Childhood Education

Completing this program prepares you for director-qualified positions in early childhood care and education programs. Upon completion of these classes, you will have met the academic requirements for an Early Childhood Director Certificate. In addition to the academic requirements, the Colorado Department of Human Services requires 24 months (3,640 hours) of verifiable work experience.

<b>Required Courses</b>		<b>Credits</b>
ECE 101	Intro to Early Childhood Education	3
ECE 102	Early Childhood Lab Techniques	3
ECE 103	Guidance Strategies for Children	3
ECE 188	Field Based Experience	1
ECE 205	Nutrition, Health and Safety	3

ECE 220	Curriculum Development: Methods and Techniques	3
ECE 238	Child Growth and Development	4
ECE 241	Human Relations for ECE	3
ECE 240	Administration of Early Childhood Care and Education Programs (capstone)	3
<b>Total Credits</b>		<b>26</b>

## Economics

Economics is the study of how society feeds, clothes, houses, and otherwise materially supports itself. It answers the fundamental questions of How? What? and For whom? Graduates work in business, government, and education in very colorful and varied careers, and they are able to contribute in many ways to answering these basic questions that confront all societies and individuals. Consult with a faculty advisor before beginning any program of study.

If you plan to transfer to a four-year college or university to complete a major in economics, you should complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to political science-related careers.

## Degree: Associate of Arts

Required Courses	Credits
MAT 121 College Algebra *	4
POS 105 Introduction to Political Science*	3
HIS 247 Contemporary World History*	3
ECO 201 Principles of Macroeconomics*	3
ECO 202 Principles of Microeconomics*	3
* Fulfills General Education requirements.	
<b>Additional General Education courses</b>	<b>29</b>
See page 10.	
<b>Approved Electives</b>	<b>15</b>
See page 11.	
<b>Total Credits</b>	<b>60</b>

## Electricity Commercial/ Industrial/Residential

This program prepares you for the many career opportunities in the electrical industry. A thorough treatment of DC, AC, and polyphase electric circuits and solid-state power devices minimizes the possibility of technological obsolescence. Motor controls and programmable controllers let you design and build control systems. The electrical installation courses use the latest techniques according to the National Electrical Code. The electrical code and fire alarm classes are especially useful as preparation for state license and NICET certification examinations. This program is excellent for electricians, engineers, firefighters, building department inspectors, and maintenance personnel because it uses an extensive lab environment for important, hands-on experience in electrical classes. For advising, please call 303.914.6511.

**Bachelor of Science transfer program:** All Construction Technology associate of applied science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a bachelor of science in Technical Management in as few as two semesters. Contact your Construction Technology advisor for details.

Related course work may be found under Air Conditioning, Heating and Refrigeration, Carpentry, Construction Technology, Industrial Maintenance Technology, Plumbing, Process Technology, and Renewable Energy Technology.

## Degrees: Associate of Applied Science

**Construction Electrician  
Maintenance Electrician  
Fire Protection Technology  
Construction Electrician/IBEW/NECA  
Power Technology**

## Certificates:

**Electrical Installation  
National Electrical Code  
Electrical Codes and Standards  
Residential Construction Electrician  
Construction Electrician  
Advanced Construction Electrician**

**Maintenance Electrician  
Introduction to Instrumentation and  
Controls Technician  
Advanced Instrumentation and Controls  
Technician  
Advanced Maintenance Electrician  
Post-Degree Specialization for Advanced  
Fire Code  
Introduction to Fire Alarm Technician  
Fire Alarm and Detection Technician  
Post-Degree Specialization for Advanced  
Construction Electrician**

EIC 165*	Solid State Circuits and Devices	4
EIC 167*	Electrical Maintenance	4
EIC 130	National Electrical Code I	4
EIC 220	Advanced Industrial Controls	4
EIC 223*	Advanced Industrial Controls	4
EIC 225	Programmable Controllers	4
EIC 230*	Instrumentation and Controls I	4
* Choose four of these courses		
<b>Total Major Credits</b>		<b>36</b>
<b>Construction Technology Requirements</b>		<b>10</b>
Choose a minimum of 10 credits from the following course prefixes: CON, ENT, ENY AEC, OSH, also EIC 211 and EIC 217.		
<b>General Education Requirements</b>		<b>15</b>
See page 17.		
<b>Total Credits</b>		<b>61</b>

**AAS Degree  
Construction Electrician**

This degree can eliminate up to one year of apprenticeship hours required by the State of Colorado to become a licensed electrician.

<b>Required Major Courses</b>		<b>Credits</b>
EIC 100	Electrical Construction and Planning	4
EIC 110	Electrical Installations I	4
EIC 120	Electrical Installations II	4
EIC 130	National Electrical Code I	4
EIC 135	National Electrical Code II	4
EIC 150	DC Circuit Fundamentals	4
EIC 155	AC Circuit Fundamentals	4
EIC 169*	Electrical Code Calculations	4
EIC 220*	Advanced Industrial Controls	4
EIC 240*	Fire Alarm Fundamentals	4

\* Choose two of these courses

<b>Total Required Major Credits:</b>	<b>36</b>
<b>Construction Technology Core Requirements</b>	<b>10</b>
Choose a minimum of 10 credits from the following course prefixes: CON, ENT, ENY AEC, OSH. Also EIC 217 and EIC 211	
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>61</b>

**AAS Degree  
Maintenance Electrician**

This degree can eliminate up to one year of apprenticeship hours required by the State of Colorado to become a licensed electrician.

<b>Required Courses</b>		<b>Credits</b>
EIC 100	Electrical Construction and Planning	4
EIC 120*	Electrical Installations II	4
EIC 150	DC Fundamentals	4
EIC 155	AC Circuit Fundamentals	4

**AAS Degree  
Fire Protection Technology**

This degree prepares you for entry into a career in fire alarm systems design, fire alarm systems technician, or fire sprinkler systems design. This degree is also useful for anyone working for building or fire departments and conducting plan review or inspections. Emphasis is placed on the latest technologies in accordance with national and local fire codes. Preparation for NICET (National Institute for Certification in Engineering Technologies) certification in fire alarm systems levels I, II, III and IV is included in the program.

<b>Required Courses</b>		<b>Credits</b>
AEC 221*	Building Electrical/Mechanical Systems	3
CON 105*	Construction Technology	4
CON 245*	Construction Project Management	4
CAD 111	Auto CAD and File Management	1
CON 230	Blueprint Reading	4
EIC 110	Electrical Installations I	4
EIC 120	Electrical Installations II	4
EIC 130	National Electrical Code I	4
EIC 135	National Electrical Code II	4
EIC 150	DC Circuit Fundamentals	4
EIC 155*	AC Circuit Fundamentals	4
EIC 240	Fire Alarm Fundamentals	4
EIC 241	Fire Alarm Systems	4
EIC 242	National Fire Alarm Code	4
ENT 146*	Construction Materials and Methods	3

\*Choose three of these courses.

<b>Total Major Credits (minimum)</b>	<b>47</b>
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits (minimum)</b>	<b>62</b>

**AAS Degree  
Construction Electrician/IBEW/NECA**

Combine your four or five years of apprenticeship with general education classes at RRCC for an associate of

applied science degree via an articulation agreement between IBEW/NECA and RRCC.

The objective of the program is to allow members who have served their apprenticeship program through the National Joint apprenticeship (NJATC) to earn associate's degrees. This program allows you to combine your excellent trade skills with your academic skills. Upon completion of the IBEW/NECA NJATC apprenticeship program, RRCC will grant 43 credits toward an AAS degree. The degree requires a total of 61 credits, of which 18 must be taken at RRCC or through RRCC Online. You must show proof of completion of IBEW/NECA Wireman or Outside Lineman NJATC programs.

Consult with a Construction Technology advisor for details.

## AAS Degree Power Technology

This associate of applied science degree is available for only those who have completed or are currently enrolled in a power utility based apprenticeship. RRCC's Construction Technology Electrical Program will grant 43 college credits toward an AAS degree. The degree requires a total of 61 credits, of which 18 must be taken at RRCC or through RRCC Online. By using your apprentice training and taking only six additional classes, you may obtain a degree online, at home, and at times of your choosing. Consult with a Construction Technology advisor for details.

### Emphasis determined by the apprenticeship program completed:

- Line Technician
- Substation Electrician
- Meter Specialist
- Apparatus Electrician
- Instrument and Control Specialist
- Electrician Specialist
- Mechanic Specialist
- Power Plant Operator
- Field Engineering Specialist
- Relay and Control Specialist
- Utility Engineering Standards Specialist Tech

## Certificate

Relating to AAS/Construction Electrician

### Electrical Installation

Required Courses	Credits
EIC 100 Electrical Construction and Planning	4
EIC 110 Electrical Installations I	4
EIC 120 Electrical Installations II	4
EIC 130 National Electric Code I	4
<b>Total Credits</b>	<b>16</b>

## Certificate

Relating to AAS/Construction Electrician

### National Electrical Code

Required Courses	Credits
EIC 130 National Electrical Code I	4
EIC 135 National Electrical Code II	4
EIC 169 Electrical Code Calculations	4
<b>Total Credits</b>	<b>12</b>

## Certificate

Relating to AAS/Construction Electrician

### Electrical Codes and Standards

Required Courses	Credits
EIC 130 National Electrical Code I	4
EIC 135 National Electrical Code II	4
EIC 169 Electrical Code Calculations	4
EIC 211 IECC International Energy Conservation Code	4
<b>Total Credits</b>	<b>16</b>

## Certificate

Relating to AAS/Construction Electrician

### Residential Construction Electrician

Required Courses	Credits
CON 230 Blueprint Reading	4
EIC 100 Electrical Construction and Planning	4
EIC 110 Electrical Installations I	4
EIC 130 National Electric Code I	4
EIC 150 DC Circuit Fundamentals	4
EIC 155 AC Circuit Fundamentals	4
<b>Total Credits</b>	<b>24</b>

## Certificate

Relating to AAS/Construction Electrician

### Construction Electrician

Required Courses	Credits
CON 230 Blueprint Reading	4
EIC 100 Electrical Construction and Planning	4
EIC 110 Electrical Installations I	4
EIC 120 Electrical Installations II	4
EIC 130 National Electric Code I	4
EIC 135 National Electric Code II	4
EIC 150 DC Circuit Fundamentals	4
EIC 155 AC Circuit Fundamentals	4
EIC 169 Electrical Code Calculations	4
<b>Total Credits</b>	<b>36</b>

## Certificate

Relating to AAS/Construction Electrician

### Advanced Construction Electrician

Requires Construction Electrician Certificate or instructor's approval

Required Courses	Credits
AEC 221 Building Electrical/Mechanical Systems	3
EIC 215 Advanced Code Calculations	4
EIC 205 Advanced Electrical Planning	4
EIC 217 Electrical Estimating	4
EIC 240 Fire Alarm Fundamentals	4
OSH 127 10 Hr Construction Industry Standards	1
<b>Total Credits</b>	<b>20</b>

## Certificate

Relating to AAS/Maintenance Electrician:

### Maintenance Electrician

Required Courses	Credits
CON 230 Blueprint Reading	4
EIC 110 Electrical Installations I	4
EIC 120 Electrical Installations II	4
EIC 130 National Electric Code I	4
EIC 135 National Electric Code II	4
EIC 150 DC Circuit Fundamentals	4
EIC 155 AC Circuit Fundamentals	4
EIC 167 Electrical Maintenance	4
EIC 220 Industrial Electrical Controls I	4
<b>Total Credits</b>	<b>36</b>

## Certificate

Relating to AAS/Maintenance Electrician

### Introduction to Instrumentation and Controls Technician

Required Courses	Credits
EIC 220 Industrial Electrical Controls	4
Pre-requisite: EIC 150 and EIC 155 or permission	
EIC 225 Programmable Controls	4
EIC 230 Instrumentation and Controls I	4
<b>Total Credits</b>	<b>12</b>

## Certificate

Relating to AAS/Maintenance Electrician

### Advanced Instrumentation and Controls Technician

Required Courses	Credits
EIC 220 Industrial Electrical Controls	4
Pre-requisite: EIC 150 and EIC 155 or permission	
EIC 223 Advanced Industrial Electrical Controls	4
EIC 225 Programmable Controls	4

EIC 226 Programmable Controls Advanced	4
EIC 230 Instrumentation & Controls I	4
<b>Total Credits</b>	<b>20</b>

## Certificate

Relating to AAS/Maintenance Electrician:

### Advanced Maintenance Electrician

Requires Maintenance Electrician Certificate or advisor approval

Required Courses	Credits
EIC 160 Electrical Instruments and Measurements	4
EIC 169 Electrical Code Calculations	4
EIC 205 Advanced Electrical Planning	4
EIC 210 Advanced National Electrical Code	4
EIC 230 Instrumentation and Controls I	4
EIC 240 Fire Alarm Fundamentals	4
EIC 225 Programmable Controllers	4
<b>Total Credits</b>	<b>28</b>

## Certificate

Relating to AAS/Fire Protection Technology

### Introduction to Fire Alarm Technician

Required Courses	Credits
EIC 240 Fire Alarm Fundamentals	4
EIC 241 Fire Alarm Systems Design	4
EIC 242 National Fire Alarm Code	4
<b>Total Credits</b>	<b>12</b>

## Certificate

Relating to AAS/Fire Protection Technology

### Fire Alarm and Detection Technician

Required Courses	Credits
CAD 111 Auto CAD and File Management	1
CON 230 Blueprint Reading	4
EIC 150 DC Circuit Fundamentals	4
EIC 155 AC Circuit Fundamentals	4
EIC 240 Fire Alarm Fundamentals	4
EIC 241 Fire Alarm Systems Design	4
EIC 242 National Fire Alarm Code	4
<b>Total Credits</b>	<b>25</b>

## Certificate

Relating to AAS/Fire Protection Technology

### Post-Degree Specialization for Advanced Fire Code

Required Courses	Credits
EIC 130 National Electrical Code I	4
EIC 135 National Electrical Code II	4
EIC 242 National Fire Alarm Code	4

FST 204	Fire Codes and Ordinances	3
	Pre-requisite: Permission of instructor (Exemption from FST pre-requisite courses is granted to Construction Technology students.)	
<b>Total Credits</b>		<b>15</b>

## Certificate

Relating to AAS/Construction Electrician

### Post-Degree Specialization for Advanced Construction Electrician

Requires AAS/Construction Electrician or instructor's approval.

Required Courses	Credits
EIC 160 Electrical Instruments and Measurements	4
EIC 205 Advanced Electrical Planning	4
EIC 210 Advanced National Electrical Code	4
EIC 215 Advanced Code Calculations	4
<b>Total Credits</b>	<b>16</b>

## Certificate

Relating to AAS/Maintenance Electrician:

### Post-Degree Specialization for Advanced Maintenance Electrician

Prerequisite: AAS degree maintenance electrician emphasis or advisor approval

Required Courses	Credits
EIC 165 Solid State Devices and Circuits	4
EIC 210 Advanced National Electric Code	4
EIC 230 Instrumentation and Controls I	4
EIC 241 Advanced Fire Alarm Systems	4
<b>Total Credits</b>	<b>16</b>

## Elementary Education

(See Teacher Education)

## Emergency Management and Planning

(In cooperation with the Colorado Division of Emergency Management)

## Degree: Associate of Applied Science

### Emergency Management and Planning

## Certificate:

### Emergency Management and Planning

## AAS Degree

### Emergency Management and Planning

(Offered through CCCOnline)

**Completion of this curriculum prepares you for**

- Entry into a career in emergency management and planning.
- Promotion within an emergency management agency or the private sector.
- Advancement to a four-year college in pursuit of a bachelor of science degree in public administration with emphasis in emergency management and planning.

Emphasis is placed on modern emergency management and planning techniques as currently practiced by the public and private sectors. The ability to perform essential work in a disaster requires unique skills and knowledge of emergency management and planning. These skills are covered in depth. The Federal Emergency Management Agency (FEMA) recognizes this program as one of the pioneering programs in the country. The emergency management and planning courses are available over the Internet, providing flexibility and avoiding lengthy and costly travel. You may register for the program online at [www.cconline.org](http://www.cconline.org). (Select RRCC as your home college, then Emergency Management and Planning.)

**Information: 303.914.6462.**

Required Courses	Credits
<b>(30 credits required)</b>	
EMP 101 Principles of Emergency Management	3
EMP 105 Emergency Planning	3
EMP 106 Exercise Design and Evaluation	3
EMP 107 Emergency Operations Center and Communications	3
EMP 109 Incident Command System	3
EMP 240 Leadership and Influence	3
EMP 241 Decision Making and Problem Solving or	
EMP 247 Decision Making in a Crisis	3
EMP 242 Effective Communications	3

EMP 244	Developing Volunteer Resources	3
EMP 280	Business Emergency Management	3
EMP 291	Public Information Officer	3

**General Education Courses Recommended**

**(15 credits required)**

ENG 131	Technical Writing or	
ENG 121	English Composition I	3
MAT 107	Career Math (or higher)	3
PSY 101	General Psychology	3
SOC 101	Introduction to Sociology	3
HUM 121	Early Civilizations	3

**Elective Recommendations**

**(15 credits required)**

ENV 101	Intro to Environmental Science	3
FST* 107	Hazardous Materials Operations	3
FST 201	Instructional Methodology	3
MAN 200	Human Resource Management	3
CIS 115	Introduction to Computer Systems	
CIS 118	Introduction to PC Applications	3
MAN 226	Principles of Management	3
POS 211	Public Finance	3
EMP 285*	Independent Study	1-6

\*Not available online

**Total Credits 60**

## Certificate

### Emergency Management and Planning

The certificate program is geared toward current emergency management practitioners who want to upgrade their skills. The certificate program requires the completion of 30 hours of coursework.

**Required Courses Credits**

Choose 10 courses from the listing below:

EMP 101	Principles of Emergency Management	3
EMP 105	Emergency Planning	3
EMP 106	Exercise Design and Evaluation	3
EMP 107	Emergency Operations Center and Communications	3
EMP 109	Incident Command System	3
EMP 240	Leadership and Influence	3
EMP 241	Decision Making and Problem Solving or	
EMP 247	Decision Making in a Crisis	3
EMP 242	Effective Communications	3
EMP 244	Developing Volunteer Resources	3
EMP 280	Business Emergency Management	3
EMP 291	Public Information Officer	3

**Total Credits 30**

## Emergency Medical Services

This program is designed to train workers in the field of emergency medical service. It begins with an entry-level EMT-Basic certificate program and includes an associate of applied science degree in Paramedicine. Consult with an Emergency Medical Service faculty advisor early in your college career to explore all your educational options. A grade of C or better must be achieved in all EMS courses to graduate. Student's must complete a criminal background check prior to enrolling in this program by using American Data Bank's online background check procedures: [www.healthcareex.com](http://www.healthcareex.com).

## Degree: Associate of Applied Science

### Paramedicine

## Certificate:

### Emergency Medical Technician-Basic

## AAS Degree

### Paramedicine

This program assists in advancing a graduate's career in the EMS system.

**Prerequisite Courses Credits**

EMS 125	Emergency Medical Technician – Basic	9
EMS 170	Emergency Medical Technician – Basic Clinical	1
EMS 130	Intravenous Therapy for EMTs	2
HPR 190	Basic EKG Interpretation	2

**Required Courses Credits**

EMS 225	Fundamentals of Paramedic Practice	3
EMS 226	Fundamentals of Paramedic Practice Lab	2
EMS 227	Paramedic Special Considerations	3
EMS 228	Paramedic Special Considerations Lab	2
EMS 229	Paramedic Pharmacology	3
EMS 230	Paramedic Pharmacology Lab	2
EMS 231	Paramedic Cardiology	5
EMS 232	Paramedic Cardiology Lab	1
EMS 233	Paramedic Medical Emergencies	4
EMS 234	Paramedic Medical Emergencies Lab	1
EMS 235	Paramedic Trauma Emergencies	4
EMS 236	Paramedic Trauma Emergencies Lab	1
EMS 237	Paramedic Internship Preparatory	2
EMS 280	Paramedic Internship I	6
EMS 281	Paramedic Internship II	6

**General Education Courses Credits**

**Communications** (Any ENG or COM) 3

**Mathematics** MAT 107 or above 3

**Science**

BIO 201 Anatomy and Physiology I 4

BIO 202 Anatomy and Physiology II 4

**Arts, Humanities, or Social Science** (Any) 3

**Total Credits 62**



## Certificate

### Emergency Medical Technician-Basic

This program prepares the student to sit for the National Registry practical and written certification exams, which are required for Colorado state certification. Once certified, the graduate is eligible for entry-level employment in the emergency medical services system.

Required Courses	Credits
EMS 125 Emergency Medical Technician-Basic	9
EMS 170 Emergency Medical Technician-Basic Clinical	1
<b>Total Credits</b>	<b>10</b>

## Energy and Environmental Technology Programs

### Pending Approval

Information for Students in Energy and Environmental Technology Programs:

Energy and Energy Efficiency courses, certificates, and associate of applied science degrees are available in the following program areas. These programs offer core skills required to install and maintain new energy technologies using practices that promote energy efficiency and sustain our natural resources.

#### Air Conditioning, Heating and Refrigeration – Energy Efficiency

(See page 47.)

#### Carpentry – Energy Efficiency

(See page 56.)

#### Construction Management and Technology – Energy Efficiency

(See page 65.)

#### Electricity: Commercial/Industrial/Residential – Energy, Efficiency Maintenance and Operations

(See page 75.)

#### Environmental Technology – Natural Resource Management

(See page 84.)

#### Industrial Maintenance Technology – Energy Maintenance

(See page 92.)

#### Plumbing

(See page 112.)

#### Process Technology – Energy Operations

(See page 115.)

#### Renewable Energy Technology – Energy Efficiency

(See page 117.)

#### Water Quality Management – Environmental Technology

(See page 125.)

#### Wind Energy Technology – Energy Maintenance

(See Page 128.)

**Advising:** Please contact the Energy and/or Environmental Technology programs offices directly:

**Larry Snyder** – Renewable Energy Technology, 303.914.6306, larry.snyder@rrcc.edu;

**Chuck Beck** – Process Technology and Industrial Maintenance, 303.914.6063, chuck.beck@rrcc.edu;

**Mike Smith** – Water Quality Environmental Technology, 303.914.6325, mike.smith@rrcc.edu.

**Bachelor of Science transfer program:** All associate of applied science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a bachelor of science in Technical Management in as few as two semesters. Additional transfer options may be available in individual program areas. Contact your Construction Technology advisor for details.

## Engineering (Pre-Engineering)

If you plan to transfer to a four-year college or university to complete a major in engineering, you should complete the following courses. Consult with a faculty advisor before beginning this program of study. These courses provide the basic preparation leading to engineering-related careers.

## Degree: Associate of Science

Required Courses	Credits
CHE 111 General College Chemistry I*	5
PHY 211 Physics: Calculus-based I *	5
PHY 212 Physics: Calculus-based II	5
MAT 201 Calculus I *	5
MAT 202 Calculus II	5
MAT 204 Calculus III	5
MAT 261 Differential Equations	4
* Fulfills General Education requirements	
<b>Additional General Education Courses</b>	<b>26</b>
See page 12.	
<b>Total Credits</b>	<b>60</b>

## Engineering Graphics Technology

The Engineering Graphics Technology Program offers associate of science degrees and certificates. This program prepares you for employment as a design drafter.

Prerequisites may be waived or challenged for previous educational, occupational, or related experience. The curricula are designed to develop communication, leadership, and critical thinking skills. The classroom setting will provide experience in the team approach to problem solving. You will use CAD (Computer-Aided Design) to form the foundation for drafting standards, conventions, layouts, designs, and details of working drawings and models. Specifications, handbooks, and technical data applicable to engineering graphics are emphasized. Lab fees are assessed. Consult with an Engineering Graphics Technology faculty advisor with any questions you have at 303.914.6572. Students must earn a C or better in all courses to graduate.

## Degrees: Associate of Applied Science

**Architectural**

**Mechanical**

**Civil**

**Interior Design**

## Certificates:

**Architectural**

**Mechanical**

**Civil**

**Interior Design**

**SolidWorks**

**Furniture Design\***

\* Pending Approval

### Engineering Graphics Technology – Requirements for all AAS Degrees:

Required Courses	Credits
CIS 118 Introduction to PC Applications: MS Office	3
ENG 131 Technical Writing	3
MAT 107 Career Math	3
<b>Choose one from the following:</b>	
COM 115 Public Speaking	
or	
COM 125 Interpersonal Communication	
or	
THE 118 Acting Skills Trades / Business	3
<b>General Education Requirements</b>	<b>3</b>
See page 17.	
<b>Total Credits</b>	<b>15</b>

## AAS Degree

### Architectural

The Architectural AAS degree prepares you for a career in a construction or architectural firm. Electives allow you to select a preferred path in this field. It might be helpful to remember that one credit is equal to 20 hours of class time.

Required Courses	Credits
CAD 101 Computer Aided Drafting I	3
CAD 102 Computer Aided Drafting II	3
EGT 230 Drafting and Design I	6
EGT 231 Drafting and Design II	6
CAD 219 3Ds Max	3
CAD 220 3Ds Max Advanced	3
CAD 224 Revit	3
CAD 225 Architectural Desktop	3
CAD 289 Capstone (Fourth Semester Class)	6
CON 230 Blueprint Reading	4
Choose one from the following:	
CAR 133 Construction Framing and Safety	
or	
CAR 136 Remodeling, Renovation & Additions	
or	
CAR 166 Stair Design & Construction	4
Choose one from the following:	
MGD 111 Adobe Photoshop I	
or	
CWB 162 Intro to Image Editing: Photoshop I	3
<b>Architectural AAS Degree Requirements:</b>	
<b>Required Engineering Graphics Technology Credits</b>	<b>15</b>
<b>Required Architectural Credits</b>	<b>40</b>
<b>Required Architectural Elective Credits</b>	<b>7</b>
<b>Total Required Credits for Architectural AAS Degree</b>	<b>62</b>

## AAS Degree

### Mechanical

The Mechanical AAS degree prepares you for a career with many options to choose from, such as mechanical design, piping, electrical, mining, or welding. Course electives allow you to select a preferred path in this field.

Required Courses	Credits
CAD 101 Computer Aided Drafting I	3
CAD 102 Computer Aided Drafting II	3
EGT 230 Drafting and Design I	6
EGT 231 Drafting and Design II	6
CAD 289 Capstone (Fourth Semester Class)	6
PHY 105 Conceptual Physics	4
TEC 205 Geometric, Dimensioning and Tolerancing 3	
<b>Required Electives:</b>	
Choose a minimum of 16 credit hours from the list below. You may substitute 6 of the 15 credit hours with other CAD/EGT department courses.	
<b>Courses</b>	
MAC 102 Blueprint Reading	3
MAC 105 Introduction to Machining Technology	4
PLU 100 Intro to Plumbing	4

PLU 101	Piping Skills	4
PLU 150	Code and Piping Calculations	2
PRO 110	Safety, Health and Environment	3
PRO 120	Process Technology I: Equipment	4
PRO 130	Instrumentation	3
WEL 130	Maintenance Welding	4

**Total Mechanical Elective Credits 16**

**Mechanical AAS Degree Requirements:**

**Required Engineering Graphics Technology Credits 15**

**Required Mechanical Credits 31**

**Required Mechanical Elective Credits 16**

**Total Required Credits for Mechanical AAS Degree 62**

## AAS Degree

### Civil

Required Courses	Credits	
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
EGT 230	Drafting and Design I	6
EGT 230	Drafting and Design II	6
CAD 231	Land Desktop / Autodesk	3
CAD 233	Civil 3D	3
CAD 289	Capstone (Fourth Semester Class)	6
COM 105	Career Communications	3
EGT 220	Introduction to Civil Graphics Technology	3
GIS 101	Intro to Geographic Information Systems	3
GIS 110	Introduction to Cartography	3
PHY 105	Conceptual Physics	4

**Civil AAS Degree Requirements:**

**Required Engineering Graphics Technology Credits 15**

**Required Civil Credits 46**

**Total Required Credits for Civil AAS Degree 61**

## AAS Degree

### Interior Design

Required Courses	Credits	
ART 121	Drawing I	3
ART 138	Photography I	3
ART 140	Color Photography I	3
ART 264	Marketing for Visual Arts	3
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
CAD 219	3Ds Max	3
CAD 220	3Ds Max Advanced	3
CAD 224	Revit	3
CAD 225	Architectural Desktop	3
CAD 227	Revit Advanced	3
CAD 289	Capstone (Fourth Semester Class)	6
COM 105	Career Communications	3
FIW 104	Elements of Design	2

**Choose one from the following:**

MGD 111	Adobe Photoshop I	
	or	
CWB 162	Intro to Image Editing: Photoshop I	3

**Interior Design AAS Degree Requirements:**

**Required Engineering Graphics Technology Credits 15**

**Required Interior Design Credits 44**

**Required Elective Credits 3**

**Total Required Credits for Interior Design AAS Degree 62**

## Certificate

### Architectural

Required Courses	Credits	
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
CAD 224	Revit	3
EGT 230	Drafting and Design I	6
EGT 231	Drafting and Design II	6

**Total Credits 21**

## Certificate

### Mechanical

Required Courses	Credits	
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
EGT 231	Drafting and Design II	6

**Total Credits 12**

## Certificate

### Civil

Required Courses	Credits	
CAD 101	Computer Aided Drafting I	3
CAD 233	Civil 3D	3
EGT 230	Drafting and Design I	6
EGT 231	Drafting and Design II	6

**Total Credits 18**

## Certificate

### Interior Design

Required Courses	Credits	
CAD 101	Computer Aided Drafting I	3
CAD 102	Computer Aided Drafting II	3
IND 100	Interior Design Fundamentals	4
CAD 219	3Ds Max	3
CAD 260	CAD Project	2

**Total Credits 15**

## Certificate

### SolidWorks

Required Courses	Credits	
CAD 256	SolidWorks Basics	6
CAD 257	SolidWorks Intermediate	6
CAD 258	SolidWorks Advanced	6

**Total Credits 18**

## Certificate

### Furniture Design\*

\*PENDING APPROVAL

Furniture Design Certificate will prepare you to work with architects, designers, and contractors to translate their concepts into reality. Custom furniture makes the value of a house higher making it unique. Course electives allow you to select a preferred path in this field.

Required Courses	Credits
CAD 101 Computer Aided Drafting I	3
IND 100 Interior Design Fundamentals	4
IND 111 Drafting for Interiors	4
IND 114 Space Planning	3
IND 117 Interior Textiles	3
FIW 101 Introduction to Woodworking	8
FIW 104 Elements of Design	2
FIW 201 Joinery	4
FIW --- Elective	4
<b>Total Credits</b>	<b>35</b>

## English

If you plan to transfer to a four-year college or university to complete a major in English or literature, you should complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to English-related careers. You may earn an associate of arts degree by meeting the general education requirements on page 10. See page 11 for approved electives.

## Degree: Associate of Arts

### English

Required Courses	Credits
LIT 115 Introduction to Literature *	3
ENG 221 Creative Writing	3

Choose two courses from the following:

LIT 201 Masterpieces of Literature I *	3
LIT 202 Masterpieces of Literature II*	3
LIT 211 Survey of American Literature I*	3
LIT 212 Survey of American Literature II*	3
LIT 221 Survey of British Literature I*	3
LIT 222 Survey of British Literature II*	3

\*State-guaranteed general education courses

<b>Additional General Education Courses</b>	<b>32</b>
See page 10.	

<b>Approved electives</b>	<b>16</b>
Select electives with ENG and LIT prefixes from the list on page 26 after talking to an English faculty advisor.	
<b>Total Credits</b>	<b>60</b>

## Degree: Associate of Arts

### Emphasis in Creative Writing

Required Courses	Credits
ENG 221 Creative Writing	3
ENG 226 Fiction Writing	3
ENG 227 Poetry Writing	3
ENG 230 Creative Nonfiction	3
ENG 231 Literary Magazine	3
<b>Additional General Education Courses</b>	<b>32</b>
See page 10.	
<b>Approved electives</b>	<b>13</b>
Select electives with LIT prefixes from the list on page 11 after talking to an English faculty advisor.	
<b>Total Credits</b>	<b>60</b>

## Entrepreneurship

(See Business)

## Environmental Technology – Natural Resource Management

The Environmental Technology Degree program is an introduction program to the environmental sciences with emphases in environmental control and compliance strategies. The program prepares students to seek entry level employment in environmental professions in water, soil, solid waste and air monitoring career opportunities. The program provides specific training in environmental monitoring programs, field analysis requirements and corrective active planning. In addition, the student will also gain skills and knowledge of equipment and alternative power sources to assist industry with pollution control efforts.

Information: Mike Smith 303.914.6325

## Degree: Associate of Applied Science

### Environmental Technology

### Certificates:

Introduction to Air Compliance  
Introduction to Soil Compliance  
Introduction to Water Compliance  
Environmental Compliance Operations  
Environmental Pre Engineering  
Environmental Safety Systems

## AAS Degree

### Environmental Technology

#### PENDING APPROVAL

Required Courses	Credits
XXX 100 Sustainability in Environmental Technology	3
XXX 110 Atmospheric Environmental Application	4
XXX 120 Soil and Solids Waste Studies	4
XXX 140 Regulatory Studies	4
XXX 150 Global Environmental Awareness	4
XXX 200 Environmental Engineering	4
XXX 210 Environmental Energy Science and Technology	4
WQM 100 Introduction to Water Quality	3
WQM 121 Environmental Sampling and Volume Measurement	3
WQM 160 Managing the Global Water Supply	3
PRO 110 Safety, Health and Environment	3
ENY 101 Introduction to Energy Technologies	3
GIS 101 Introduction to Geographic Systems	3

#### Approved Substitutions

WQM 123 Water Reuse Systems	3
WQM 165 Water Law	3
WQM 212 Drinking Water Regulations	4

#### Approved Substitutions:

(CPL: OSHA HAZWOPER - 40 hour)

**Total Credits** 45

#### General Education Requirements

(MAT, ENG + 3 credit elective) 9

#### Required Electives

PHY 107 Energy Science and Technology	4
GIS 101 Geographic Information Systems	3

**Total General Education Requirements** 16

**Total AAS Degree Credits** 61

### Environmental Certificates

Students completing this program possess the skills and knowledge for entry level positions within the industry in a specific area of interest.

## Certificate

### Introduction to Air Compliance

Required Courses	Credits
XXX 100 Sustainability in Environmental Technology	4
XXX 110 Atmospheric Environmental Application	3
<b>Total Credits</b>	<b>7</b>

## Certificate

### Introduction to Solid Waste Compliance

Required Courses	Credits
XXX 100 Sustainability in Environmental Technology	4
XXX 120 Soil and Solid Waste Studies	3
<b>Total Credits</b>	<b>7</b>

## Certificate

### Introduction to Water Compliance

Required Courses	Credits
XXX 100 Sustainability in Environmental Technology	4
WQM 100 Introduction to Water Quality	3
WQM 160 Managing the Global Water Supply	3
<b>Total Credits</b>	<b>10</b>

## Certificate

### Environmental Compliance Operations

Required Courses	Credits
XXX 140 Regulatory Studies	4
XXX 150 Global Environmental Awareness	4
<b>Total Credits</b>	<b>8</b>

## Certificate

### Environmental Pre Engineering

Required Courses	Credits
XXX 200 Environmental Engineering	4
XXX 210 Environmental Energy Science and Technology	4
GIS 101 Introduction to Geographic Systems	3
<b>Total Credits</b>	<b>11</b>

## Certificate

### Environmental Safety Systems

Required Courses	Credits
XXX 140 Environmental Regulations	4
PRO 110 Safety Health and Environment	3
ENY 101 Introduction to Renewable Energy Technologies	3
<b>Total Credits</b>	<b>10</b>

## Esthetician (skin)

(See Cosmetology)

## Fine Woodworking

This program provides theory and hands-on training for entry-level skills through craftsman/master-level competencies. Day, evening, and weekend classes for part-time or full-time students include the areas of lutherie (musical instrument building), furniture building, cabinet making, chair making, carving, and wood turning. Courses may be repeated up to three times to increase proficiency. All courses are sequenced as shown in the certificate.

### Degree: Associate of Applied Science

#### Fine Woodworking

#### Certificates:

General Fine Woodworking  
Woodworking Fundamentals

Wood Turners

Luthier Fundamental

Cabinetmaker

Craftsman

Joiner

Artisan

Post-Degree Master Craftsman

### AAS Degree

#### Fine Woodworking

The AAS degree includes an additional requirement of ten electives which could be fulfilled outside the fine woodworking program. These electives must be approved by your advisor and must complement your goals. Examples of such electives include courses from small business, art, photography, multi-media, CAD, or perhaps a Web design course.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 104 Elements of Design	2
FIW 118 Lathe Turning	4
FIW 125 Finishing	4
(4 credits of special topics finishing classes may be substituted for FIW 125 with the advisor's permission)	
FIW 201 Joinery	4
(Honors joinery is highly recommend)	
FIW 206 Chairmaking	4
(the Maloof Chairmaking class may be substituted with advisors permission)	
FIW 213 Furniture Making	4
FIW xxx FIW Electives	6
<b>Additional Electives (see description above)</b>	<b>10</b>

<b>General Education Electives</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>61</b>

## Certificate

### General Fine Woodworking

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 104 Elements of Design	2
FIW 118 Lathe Turning	4
FIW 125 Finishing	4
(4 credits of special topics finishing classes may be substituted for FIW 125 with the advisor's permission)	
FIW 201 Joinery	4
(Honors joinery is highly recommend)	
FIW 213 Furniture Making	4
<b>Approved Electives</b>	<b>6</b>
<b>Total Credits</b>	<b>32</b>

## Certificate

### Woodworking Fundamentals

This certificate is designed to give students the basics of most woodworking applications. It is well suited for those students seeking an occupation within an existing woodworking industry and/or continuing their pursuit of a degree or a more advanced certificate.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 201 Joinery	4
<b>Total Credits</b>	<b>12</b>

## Certificate

### Wood Turners

This certificate is designed for students desiring to validate their experience in the world of wood turning. Students who successfully complete this degree are seeking to begin their own woodturning or craft-based businesses.

Required Courses	Credits
FIW 100 Fundamentals of Woodworking	4
FIW 118 Lathe Turning	4
FIW 119 Intermediate Turning I	4
FIW 121 Intermediate Turning II	4
<b>Total Credits</b>	<b>16</b>

## Certificate

### Luthier Fundamentals

As students progress through our rapidly growing luthier program, they often seek employment within the musical instrument repair and construction business or become

entrepreneurs within this field of woodworking. Students should plan to take their electives under the luthier program with special topic classes focused on their field of study. This certificate is designed to validate their experience in this field.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 102 Classical Guitar Making	5
FIW 103 Steel String Guitar Making	5
FIW xxx FIW Electives as selected by advisor	10
<b>Total Credits</b>	<b>28</b>

## Certificate

### Cabinetmaker

Students seeking employment within the cabinetmaking business are required to show competencies on the tools associated with and the design of, basic box cabinetmaking. This certificate is designed to include those skills which are commonly sought within this field.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 128 Doormaking	4
FIW 209 Cabinetmaking	4
<b>Total Credits</b>	<b>16</b>

## Certificate

### Craftsman

This certificate is designed for students who desire to show evidence of their knowledge of the basic skills required for a woodworking craftsman in order to pursue an entrepreneurial career within the field.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 201 Honors Joinery (Bench Building)	4
FIW 171 Woodworking Lab II	2
FIW 213 Furniture Making	4
<b>Total Credits</b>	<b>18</b>

## Certificate

### Joiner

This certificate is designed for students who desire to show evidence of their knowledge of the skills required in order to seek employment within an existing furniture-making business.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW 201 Honors Joinery (Bench Building)	4
FIW 171 Woodworking Lab II	2
FIW 206 Chairmaking (two semesters)	8
(Students must complete at least two semesters of the	

chairmaking class. They are required to have completed no fewer than six chairs. The Maloof ricking chair class may be substituted for one of the chairmaking classes.)

FIW 213 Furniture Making	4
<b>Total Credits</b>	<b>26</b>

## Certificate

### Artisan

The artisan of old was the builder of the product. As students progress through this certificate, they come to realize that the builder needs to have an intimate relationship with design. This certificate requires the completion of two particular projects chosen to illustrate the need to combine the building with the designing in the field of custom furniture building. The first project is a workbench and the second the completion of a toolbox. These are designed by the student to fit his or her individual needs. Projects will be judged by a panel of instructors and/or professionals in the field.

Required Courses	Credits
FIW 101 Introduction to Woodworking	8
FIW xxx Lutherie Class (Acoustic, Madolin, Electric, or Violin)	5
FIW 118 Lathe Turning	4
FIW 122 Woodcarving	4
FIW 200 Veneering and Marquetry	4
FIW 201 Honors Joinery (Bench Building)	4
FIW 171 Woodworking Lab II	2
FIW 213 Furniture Making	4
FIW xxx Elective approved by advisor	5
<b>Total Credits</b>	<b>40</b>

## Certificate

### Post-Degree Master Craftsman

This certificate expands skills to the level of Master Craftsman. Students are expected to develop individual portfolios that demonstrate their ability to set up and maintain equipment, design and build original pieces, and demonstrate specific skills through presentations from each course. Design skills and drawing proficiency are required. Additional courses may be required. A Master Craftsman designation requires submittal of three pieces to be judged by a board of professional woodworkers and instructors. Preliminary rehearsal submittals are encouraged to establish standards of craftsmanship.

Required Courses	Credits
FIW 102 Guitar Making	5
FIW 104 Elements of Design	2
FIW 122 Woodcarving	4
FIW 128 Doormaking	4
FIW 200 Veneering and Marquetry	4
FIW 205 Tablemaking	4
FIW 206 Chairmaking	4
FIW 209 Cabinetmaking	4

FIW 210	Bending and Laminating	4
FIW 220	Advanced Furniture & Cab Construction	4
FIW xxx	Electives approved by advisor	14
<b>Total Credits</b>		<b>53</b>

## Fire Protection Technology

(See Electricity)

## Fire Science Technology

### Degree: Associate of Applied Science

Fire Science Technology  
Fire Service Management

#### Certificates:

Fire Fighter I  
Fire Instructor  
Fire Officer I  
Fire Officer II  
Fire Officer III  
Driver Operator  
Technical Heavy Rescue  
Wildland Management  
Fire Inspector  
Fire Investigator

Completion of this curriculum prepares you for

- Entry into a career in fire suppression, prevention, or related fields
- Promotion within a fire department or within the fire service
- Transfer to a four-year college in pursuit of a bachelor of science degree.

## AAS Degree

### Fire Science Technology

This program of study is designed for students new to or preparing for the fire service. Students must earn a C or better in all fire science and general education courses to graduate.

Required Courses	Credits
FST 100 Firefighter I Academy	9
FST 102 Intro to Fire Science and Suppression	3
FST 103 Firefighter Occupational Health and Safety	3

FST 104	Fire Protection Systems	3
FST 105	Building Plans and Construction	3
FST 106	Fire Inspection Practices (Fire Inspector I)	3
FST 107	Hazardous Materials Awareness Operations	3
FST 110	Job Placement and Assessment	3
FST 151	Driver Operator	3
	or	
FST 259	Wildland Firefighting	3
FST 201	Instructional Methodology	3
FST 202	Firefighting Strategy and Tactics	3
FST 204	Fire Codes and Ordinances	3
FST 205	Fire Cause Determination	3
FST 206	Fire Company Supervision and Leadership	3
<b>Total Required Course Credits</b>		<b>48</b>
<b>General Education Requirements</b>		<b>15</b>
See page 17.		
<b>Faculty advisor-approved electives</b>		<b>9</b>
<b>Total Credits</b>		<b>72</b>

## AAS Degree

### Fire Service Management

This degree is for students experienced as firefighters preparing for career advancement. Students must earn a C or better in all fire science and general education courses to graduate.

Emphasis is placed on the latest methodologies of fire prevention, incident management, and leadership principles within the fire service. Upper level course work includes the study of fire scene strategy and tactics, the national incident management system, legal and administration issues in the fire service, and fire service leadership. The majority of this degree program is available online.

The Fire Service Management degree program credits may be transferred to Regis University, or other colleges, towards a bachelor of science degree in public administration or applied science.

Required Courses	Credits	
FST 201	Instructional Methodology	3
FST 202	Firefighting Strategy and Tactic I	3
FST 204	Fire Codes and Ordinances	3
FST 205	Fire Cause Determination	3
FST 206	Fire Company Supervision and Leadership	3
FST 207	Strategy and Tactics II	3
FST 251	Fire Service and the Law	3
FST 253	Fire Ground Organization and Command (ICS)	3
FST 255	Fire Service Management (Fire Officer II)	3
FST 257	Fire Department Administration	3
FST 275	Special Topics--Fire Analysis Thesis	3
<b>Total Required Course Credits</b>		<b>33</b>
<b>General Education Requirements</b>		<b>15</b>
See page 17.		
<b>Faculty advisor-approved electives</b>		<b>12</b>
<b>Total Credits</b>		<b>60</b>



## Certificate

### Fire Fighter I

Prerequisite: FST 160 (CPAT Test Prep)

Strongly recommended prerequisite: EMS 125/170 (EMT-Basic)

Required Courses	Credits
FST 100 Firefighter I Academy	9
FST 102 Intro to Fire Science and Suppression	3
FST 170 Fire Academy Clinical	1
<b>Total Credits</b>	<b>13</b>

## Certificate

### Fire Instructor

Required Courses	Credits
FST 201 Instructional Methodology	3
COM 115 Public Speaking	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Fire Officer I

Prerequisites: ENG 121 English Composition I

Firefighter I (Colorado CDFS certification)

Required Courses	Credits
FST 201 Instructional Methodology	3
FST 202 Firefighting Strategy and Tactics I	3
FST 204 Fire Codes and Ordinances	3
FST 206 Fire Company Supervision and Leadership	3
<b>Total Credits</b>	<b>12</b>

## Certificate

### Fire Officer II

Prerequisite: Fire Officer I Certificate

Required Courses	Credits
FST 205 Fire Cause Determination	3
FST 207 Strategy and Tactics II	3
FST 253 Fire Ground Organization and Command (ICS)	3
FST 255 Fire Service Management	3
<b>Total Credits</b>	<b>12</b>

## Certificate

### Fire Officer III

Prerequisites: Fire Officer I and II Certificates

Required Courses	Credits
FST 251 Fire Service and the Law	3
FST 257 Fire Department Administration	3
FST 275 Special Topics--Fire Analysis	3
<b>Total Credits</b>	<b>9</b>

## Certificate

### Driver Operator

Required Courses	Credits
FST 151 Driver Operator	3
FST 203 Fire Science Hydraulics	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Technical Heavy Rescue

Required Courses	Credits
FST 121 Rope Rescue	4
FST 132 Structural Collapse	2
FST 133 Trench Rescue	2
FST 134 Confined Space	2
FST 137 Vehicle Extrication	2
<b>Total Credits</b>	<b>12</b>

## Certificate

### Wildland Management

Required Courses	Credits
FST 259 Wildland Firefighting	3
FST 253 Fire Ground Organization and Command (ICS)	3
FST 261 Fire Operations in the Urban Interface	2
<b>Total Credits</b>	<b>8</b>

## Certificate

### Fire Inspector

Prerequisite: Fire Officer I

Required Courses	Credits
FST 105 Building Plans and Construction	3
FST 106 Fire Inspection Practices	3
FST 204 Codes and Ordinances	3
<b>Total Credits</b>	<b>9</b>

## Certificate

### Fire Investigator

(Police and fire personnel only)

Required Courses	Credits
FST 205 Fire Cause Determination	3
FST 252 Arson Investigation	3
FST 285 Independent Study--Fire Analysis	3
CRJ 240 Criminal Investigations	3
CRJ 245 Interviewing and Interrogation	3
<b>Total Credits</b>	<b>15</b>

## Certificate

### Hazardous Materials

Required Courses		Credits
FST 107	Hazardous Materials Awareness Operations	3
FST 202	Firefighting Strategy and Tactics	3
FST 253	Fire Ground Organization & Command (ICS)	3
FST 254	Hazardous Materials Technician	3
<b>Total Credits</b>		<b>12</b>

GEY 121	Historical Geology*	4
GEY xxx	GEY elective	4
MAT 121	College Algebra*	4
MAT 122	College Trigonometry	3
*Fulfills General Education requirement		
<b>Additional General Education Courses</b>		<b>27</b>
See page 12.		
<b>Approved electives</b>		<b>4</b>
<b>Total Credits</b>		<b>60</b>

## Foreign Languages

If you plan to transfer to a four-year college or university to complete a major in a foreign language, you must complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to professional advancement in careers such as business, computer technology, medicine, engineering, and in the natural and behavioral sciences.

### Degree: Associate of Arts

Required Courses		Credits
<b>Choose one (FRE, GER, SPA)</b>		
FRE/GER/SPA 111	French/German/Spanish Language I	5
FRE/GER/SPA 112	French/German/Spanish Language II	5
FRE/GER/SPA 211*	French/German/Spanish Language III	3
FRE/GER/SPA 212*	French/German/Spanish Language IV	3
* Fulfills General Education requirement		
<b>Additional General Education Courses</b>		<b>32</b>
See page 10.		
<b>Approved Electives</b>		<b>12</b>
See page 11.		
<b>Total Credits</b>		<b>60</b>

## Geology

The completion of the following courses is appropriate for you if you plan to transfer to a four-year college or university to complete a major in geology. Consult with a geology faculty advisor before beginning any program of study. Some courses might not be offered each semester. These courses provide the basic preparation leading to geology-related careers.

### Degree: Associate of Science

Required Courses		Credits
BIO 112	General College Biology II	5
CHE 111	General College Chemistry I	5
GEY 111	Physical Geology*	4

## Hairstylist

(See Cosmetology)

## Health Professions

### Certificates:

- Phlebotomy
- RN Refresher Program
- Nurse Aid
- Holistic Health Professional

## Certificate

### Holistic Health Professional

This program was originally created for nurses and is now open to all interested persons who are ready to expand their knowledge and skills in holistic care. The program is intended to enhance health-care practice as well as to prepare you to be a facilitator in the redesigning of the new health care system. Courses are offered to integrate healing on all levels – physical, emotional, mental, and spiritual. To ensure enrollment, register no later than 10 days before class.

Required Courses		Credits
HHP 229	Wellness Counseling	1
HHP 244	Holistic Health I	1
HHP 254	Holistic Health II	2
HHP 256	Holistic Health III*	2
*13 credits must be completed before participating in HHP 256 Holistic Health III		
<b>Faculty advisor-approved electives</b>		<b>10</b>
<b>Total Credits</b>		<b>16</b>

## Certificate

### Nurse Aide

Requirements for this program: Proof of immunizations, health care provider - BLS, and a letter from a physician stating you are physically and mentally able to participate in this course, including a lifting requirement. Register for the NUA 170 clinical section that corresponds

to the NUA 101 class. You must pass NUA 101 with a grade of C or better in order to participate in the NUA 170 clinical rotation. You must pass both NUA 101 and NUA 170 with a grade of C or better in order to receive a certificate of completion. For a Step by Step Nursing Assistant Enrollment process, please visit our Web site at [www.rrcc.edu/health/nuraidcour.html](http://www.rrcc.edu/health/nuraidcour.html). Please contact the department for availability before completing the enrollment process including the background check. You must complete a criminal background check prior to enrolling in this course (valid for 90 days) by using American DataBank's online background check procedures at [www.healthcareex.com](http://www.healthcareex.com). The cost is currently \$59.00

Required Courses	Credits
NUA 101 Nurse Aide Theory/Lab	4
NUA 170 Nurse Aide Clinical	1
<b>Total Credits</b>	<b>5</b>

## Certificate Phlebotomy

This CCHE approved certificate is designed to prepare individuals to gain employment as a phlebotomist in the health care industry. Students will receive an extensive and varied program of study that includes theory and practice, specimen setup and process, medical terminology specific to the laboratory, customer service skills, regulatory issues, venipuncture and fingerstick technique and numerous other collection procedures. After successful completion of this course and the phlebotomy internship, the student is eligible to apply and sit for the national AMT (American Medical Technologist) certification exam. Immunizations and background check are required before the start of the internship. Students must complete a criminal background check 90 days prior to enrolling in the internship by using American DataBank's online background check procedures at [www.healthcareex.com](http://www.healthcareex.com). The internship, HPR 180, must be started within four months of completing HPR 112. Please fill out an application form to be considered for this course. This can be found on the Red Rocks/ programs/ Health Careers Web site. Permission of the instructor is required to register for both courses. Students must be at least 18 years old to register for this program.

Required Courses	Credits
HPR 112 Phlebotomy Certification	4
HPR 180 Phlebotomy Internship	3
<b>Total Credits</b>	<b>7</b>

## Certificate RN Refresher Program

Requirements for this program: A current Colorado RN license, proof of immunizations, liability insurance,

Health Care Provider – BLS certification, and a letter from a physician stating you are physically and mentally able to participate in this course, including a lifting requirement. You must pass HPR 210 and NUR 290 with a grade of C or better in order to participate in NUR 291 clinical rotation. You also must pass HPR 210, NUR 290, and NUR 291 with a grade of C or better in order to receive a Certificate of Completion. Please contact the department for availability before completing the enrollment process, including background checks.

For further information, call 303.914.6621. You must complete a criminal background check prior to enrolling in this course (valid for 90 days) by using American DataBank's online background check procedures at [www.healthcareex.com](http://www.healthcareex.com). The cost is currently \$59.00.

Required Courses	Credits
NUR 290 RN Refresher	10
NUR 291 RN Refresher Clinical	2
HPR 210 Physical Assessment	2
<b>Total Credits</b>	<b>14</b>

## Heating

(See Air Conditioning, Heating, and Refrigeration)

## History

The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in history. This program provides preparation if you are interested in teaching, government service, law, research, business and industry, journalism, publishing, libraries, or working with historical societies, museums, and/or archives. Consult with a faculty advisor before beginning this program of study.

## Degree: Associate of Arts

Required Courses	Credits
Take one of the following courses:	
HIS 101 Western Civilization I *	3
HIS 102 Western Civilization II *	3
HIS 111 World Civilization I*	3
HIS 112 World Civilization II*	3
HIS 201 U.S. History I*	3
HIS 202 U.S. History II*	3
HIS 247 Contemporary World History*	3
*Fulfills General Education requirement.	
<b>Additional General Education Courses</b>	<b>35</b>
See page 10.	
<b>Approved Electives</b>	<b>22</b>
See page 11.	
<b>Total Credits</b>	<b>60</b>

## Holistic Health Professional

(See Health Professions)

## HVAC/R

(See Air Conditioning, Heating, and Refrigeration)

## Industrial Maintenance Technology – Energy Maintenance

The Industrial Maintenance Technology program will prepare students for entry level employment as industrial maintenance technicians. An industrial maintenance technician is a vital member of a team of people responsible for planning, analyzing, and maintaining a wide variety of complex production equipment, power generation equipment and sophisticated control systems. Colorado industrial firms require employees with knowledge and skills in technology application, engineering and design, production processes planning and control, equipment maintenance, communication and data manipulation and file exchange. Increasingly complex and automated industrial electrical and mechanical systems require maintenance skills, diagnostic and troubleshooting skills and repair skills to assure their continued and safe operation.

The AAS degrees and certificates found within this program will provide the student with the basic skills required to safely maintain production equipment and understand the basic principles of operation and control. The graduate will understand the technical aspects of the work, the work place responsibilities of the individual and the importance of safety in this vitally important, shift oriented position.

The industries interested in the graduates from the program include, but are not limited to alternate energy source production, petroleum product manufacturing, pharmaceutical production, food and beverage, electric power generation, drinking water treatment and wastewater treatment, oil exploration and production, mining and mineral processing and numerous product manufacturing facilities.

**Information: 303.914.6063, Chuck.Beck@rrcc.edu  
www.rrcc.edu/isod**

## Degree Associate of Applied Science

**Industrial Maintenance Technology – Mechanical**

**Industrial Maintenance Technology – Electrical**

**Electro-Mechanical Industrial Maintenance**

## Certificate

**Industrial Maintenance Technology**

**Industrial Electrical Technician Codes and Standards**

**Commercial and Industrial Heating and Cooling**

**Low Voltage Technician**

**Electro-Mechanical Technician**

**Introduction to Predictive Maintenance Technology\***

**Introduction to Industrial Control Systems\***

**Introduction to Industrial Electrical Maintenance\***

**Introduction to Industrial Instrumentation and Controls\***

**Introduction to Industrial Maintenance Team Leadership\***

\* Pending Approval

## AAS Degree

### Industrial Maintenance Technology - Mechanical

Required Courses		Credits
BUS	118 Business Survival Skills	3
ENT	106 Print Reading for Manufacturing	3
ENT	238 Industrial Fluid Power and Controls	3
HVA	105 Electricity for HVAC/R	4
IMA	120 Pumps, Seals and Rotating Equipment	3
IMA	100 Intro Industrial Maintenance	3
IMA	150 Industrial Problem Solving Methods	2
IMA	210 Vibration Principles I	3
MAC	105 Introduction to Machining Technology	4
IMA	250 Industrial Machine Lubrication	3
MIL	107 Installing Belts, Chain Drives and Bearings	4
PLU	101 Piping Skills	4

PRO 110	Safety, Health and Environment	3
PRO 280	Internship	4
WEL 130	Maintenance Welding	4
<b>Required Course Credits</b>		<b>50</b>
<b>General Education Requirements</b>		<b>15</b>
<b>Total Credits</b>		<b>65</b>

## AAS Degree

### Industrial Maintenance Technology - Electrical

Required Courses		Credits
BUS 118	Business Survival Skills	3
EIC 160	Electrical Instruments and Measurements	4
EIC 167	Electrical Maintenance	4
EIC 220	Industrial Electrical Controls I	4
EIC 223	Advanced Industrial Electrical Controls	4
EIC 230	Instrumentation and Controls I	4
EIC 225	Programmable Controllers	4
ENT 106	Print Reading for Manufacturing	3
HVA 105	Electricity for HVAC/R	4
IMA 100	Intro Industrial Maintenance	3
PRO 110	Safety, Health and Environment	3

**Choose a minimum of 8 credits from the following courses:**

EIC 226	PLC Controllers Advanced	4
MTE 210	Networks and Control Systems	4
PRO 280	Internship	4

<b>Total Required Course Credits:</b>		<b>48</b>
<b>General Education Requirements</b>		<b>15</b>
<b>Total Credits</b>		<b>63</b>

## AAS Degree

### Electro-Mechanical Industrial Maintenance

Required Courses		Credits
EIC 110	Electrical Installations I	4
EIC 120	Electrical Installations II	4
EIC 220	Industrial Electrical Controls I	4
HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 113	Refrigerant Recovery Training	1
HVA 132	Air Conditioning and Refrigeration Controls	4
HVA 231	Pneumatic Controls	4

<b>Required Course Credits</b>		<b>29</b>
<b>Technical Elective Course Credits</b>		<b>16</b>
(Select from Electives group 1)		
<b>General Education Requirements</b>		<b>15</b>
<b>Total Credits</b>		<b>60</b>

#### Electives Group I

EIC 160	Electrical Measurement	4
EIC 167	Electrical Maintenance	4
EIC 221	Trouble Shooting Control Circuits	1.5
EIC 223	Advanced Industrial Electrical Controls	4
EIC 225	Programmable Controls	4
EIC 226	PLC Controllers Advanced	1.5
EIC 229	AC and DC Variable Speed Drives	1.5

EIC 230	Instrumentation and Controls I	4
ENT 106	Print Reading for Manufacturing	3
ENT 238	Basic Fluid Power	3
HVA 110	Heating Fundamentals	4
HVA 113	Refrigerant Recovery Training	1
HVA 114	Centrifugal Pumps	1.5
HVA 162	Heating Controls	4
HVA 231	Pneumatic Controls	4
HVA 247	Hot Water Heating	4
HVA 251	Building Automation I	4
HVA 263	Chillers	4
IMA 100	Introduction to Industrial Maintenance	4
IMA 150	Effective Problem Solving (Cause Mapping I)	2
IMA 210	Vibration Principles I	3
MAC 105	Introduction to Machining Technology	3
IMA 250	Industrial Machine Lubrication	3
MIL 107	Installing Belts, Chains, Drives and Bearings	4
PLU 101	Pipe/Piping Systems	4
PRO 110	Safety, Health and Environment	3
WEL 130	Maintenance Welding	4
<b>Total Select Courses</b>		<b>16</b>

## Industrial Maintenance Technology

### Certificates:

**Contact Chuck Beck at 303.914.6063 for additional information about the following certificates:**

## Certificate

### Industrial Maintenance Technology

Required Courses		Credits
EIC 110	Electrical Installations I	4
EIC 120	Electrical Installations II	4
EIC 220	Industrial Electrical Controls I	4
HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 113	Refrigerant Recovery Training	1
HVA 132	Air Conditioning and Refrigeration Controls	4
HVA 231	Pneumatic Controls	4
<b>Total Credits</b>		<b>29</b>

#### Elective Courses for Certificate

EIC 160	Electrical Measurement	4
EIC 167	Electrical Maintenance	4
EIC 221	Trouble Shooting Control Circuits	1.5
EIC 223	Advanced Industrial Electrical Controls	4
EIC 225	Programmable Controllers	4
EIC 226	PLC Controllers Advanced	4
EIC 229	AC and DC Variable Speed Drives	1.5
EIC 230	Instrumentation and Controls I	4
ENT 106	Print Reading for Manufacturing	3
ENT 238	Basic Fluid Power	3
HVA 110	Heating Fundamentals	4
HVA 113	Refrigerant Recovery Training	1
IMA 120	Pumps, Seals Rotating Equipment	3
HVA 162	Heating Controls	4
HVA 231	Pneumatic Controls	4
HVA 247	Hot Water Heating	4

HVA	251	Building Automation I	4
HVA	263	Chillers	4
IMA	100	Introduction to Industrial Maintenance	4
IMA	150	Industrial Problem Solving Methods	2
IMA	210	Vibration Principles I	3
MAC	105	Introduction to Machining Technology	3
IMA	250	Industrial Machine Lubrication	3
MIL	107	Installing Belts, Chains, Drives and Bearings <sup>4</sup>	
PLU	101	Pipe/Piping Systems	4
PRO	110	Safety, Health and Environment	3
WEL	130	Maintenance Welding	4
<b>Total Elective Credits Required</b>			<b>16</b>
<b>Total Credits</b>			<b>45</b>

## Certificate

### Industrial Electrical Technician

Choose 9 credits from the following:

HVA	105	Basics Of AC & DC Electricity	4
EIC	104	Basics Of Indust. Electricity	1
EIC	124	Electrical Safety Requirements	1
EIC	130	National Electrical Code	4
EIC	144	Grounding And Bonding	1.5
EIC	166	Tuning Ddc/Process Cont.Loops	1.5
EIC	221	Trouble Shooting Control Cir	1.5
EIC	222	Intro. Instr. & Process Control	1.5
EIC	224	Understanding PLC's	1.5
EIC	229	AC & DC Variable Speed Drive	1.5
EIC	234	High Voltage Elect. Safety	1

## Certificate

### Codes and Standards

Choose 7.5 credits from the following:

EIC	124	Electrical Safety Requirements and Procedures	1
EIC	130	National Electrical Code	4
EIC	132	National Electrical Code 2005	1.5
EIC	134	Life Safety Code (NFPA 72)	1
EIC	144	Grounding and Bonding	1.5
EIC	234	High Voltage Electrical Safety	1
EIC	242	National Fire Alarm Code	1.5

## Certificate

### Commercial and Industrial Heating and Cooling - CIHC

Choose 7.5 credits from the following:

HVA	105	Basics Of AC & DC Electricity	4
EIC	166	Turning DDC/Process Control Loops	1
EIC	122	Introduction to Instrumentation and Process Controls	1.5
HVA	114	Centrifugal Pumps	1.5
HVA	131	Refrigeration and Air Conditioning	1.5
HVA	192	Refrigerant Retrofit Training	1.5
HVA	194	Fundamentals of Pneumatic Comfort Controls	1.5
HVA	263	Chillers	4

## Certificate

### Low Voltage Technician

Choose 7.5 credits from the following:

HVA	105	Basics Of AC & DC Electricity	4
EIC	124	Electrical Safety	1
EIC	104	Basic of Industrial Electricity	1.5
HVA	132	Air Conditioning and Refrigeration Controls	4
EIC	132	Electrical Code	1.5
EIC	250	Fiber Optics Training	1.5
EIC	251	Fiber Optics Advanced Training	1.5
EIC	252	Comprehensive Structured Cabling	3
EIC	253	Fiber Optics Certification	1
EIC	254	Telephony	1.5
EIC	268	Fiber Optics Networks	2

## Certificate

### Electro-Mechanical Technician

Choose 9 credits from the following:

HVA	105	Basics Of AC & DC Electricity	4
HVA	102	Basic Refrigeration	4
EIC	104	Basics of Industrial Electricity	1.5
EIC	124	Electrical Safety Requirements	1
EIC	144	Grounding And Bonding	1.5
EIC	166	Tuning Ddc/Process Cont.Loops	1.5
EIC	221	Trouble Shooting Control Circuits	1.5
EIC	222	Intro. Instr. & Process Control	1.5
EIC	224	Understanding PLC's	1.5
EIC	226	PLC's Controllers Advanced	1.5
EIC	227	Mechanical Drives	1.5
EIC	229	AC & DC Variable Speed Drive	1.5
EIC	231	Electro-Pneumatic Training	1.5
EIC	234	High Voltage Elect. Safety	1.5
HVA	114	Centrifugal Pumps	1.5
HVA	124	Advanced Air Conditioning	4
HVA	196	Refrigerant Retrofit Training	1.5

## Certificate

### Industrial & Commercial HVAC Technician

HVA	102	Basic Refrigeration	4
HVA	105	Basics Of AC & DC Electricity	4
HVA	110	Heating Fundamentals	4
HVA	113	Refrigerant Recovery Training	4
HVA	132	Air Conditioning and Refrigeration Controls <sup>4</sup>	
HVA	162	Heating Controls	4
HVA	247	Hot Water Heating	4
HVA	263	Chillers	4

**Total credits** **32**

**Certificate**

**Introduction to Predictive Maintenance Technology**

PRO 110	Safety, Health and Environment	3
IMA 210	Vibration I	3
IMA 250	Industrial Machine Lubrication	3
<b>Total credits</b>		<b>9</b>

**Certificate**

**Introduction to Industrial Control Systems**

EIC 220	Basic Motor Control	4
EIC 227	Mechanical Drives	1.5
EIC 225	PLC Basic	4
<b>Total credits</b>		<b>9.5</b>

**Certificate**

**Introduction to Industrial Electrical Maintenance**

HVA 105	AC/DC Fundamentals	4
EIC 220	Industrial Electrical Controls I	4
EIC 226	Advanced Motor Control	4
<b>Total credits</b>		<b>12</b>

**Certificate**

**Introduction to Industrial Instrumentation and Controls**

EIC 230	Industrial Instrumentation and Controls I	4
EIC 225	PLC Basic	4
<b>Total credits:</b>		<b>8</b>

**Certificate**

**Introduction to Industrial Maintenance Team Leadership**

PRO 110	Safety, Health and Environment	3
BUS 118	Business Survival Skills	3
PSY/SOC	Psychology or Sociology	3
IMA 150	Industrial Problem Solving Methods	2
<b>Total credits</b>		<b>11</b>

**Manicurist**

(See Cosmetology)

**Management/Marketing**

(See Business)

**Mathematics**

If you plan to transfer to a four-year college or university to complete a major in mathematics, you should complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to mathematics-related careers. You may earn an associate of science degree by meeting the general education requirements.

**Degree: Associate of Science**

<b>Required Courses</b>		<b>Credits</b>
MAT 201	Calculus I *	5
MAT 202	Calculus II	5
MAT 204	Calculus III	5
MAT 261	Differential Equations	4
CSC 160	Computer Science I	4
PHY 211	Physics: Calculus Based I*	5
PHY 212	Physics: Calculus Based II*	5
*Fulfills General Education requirements		
<b>Additional General Education Courses</b>		<b>27</b>
See page 12.		
<b>Total Credits</b>		<b>60</b>

**Medical Imaging**

(See Radiologic Technology or Sonography)

## Medical Office Technology

The medical office programs are designed to prepare the student for a career as an allied health professional, assisting physicians in ambulatory settings. The TOEFL or Accuplacer test is required for international applicants whose primary language is other than English. CPR certification and immunizations are required prior to the start of clinical (Assisting) internships. Students must complete a criminal background check 90 days prior to enrolling in internships by using American DataBank's online background check procedures at [www.healthcareex.com](http://www.healthcareex.com). Immunizations and CPR are required of all Medical Assisting students prior to internship. A minimum grade of C must be achieved for all required courses to graduate with a certificate or degree. Students should consult with the Medical Assisting Coordinator to ensure proper sequencing of courses and other educational options.

## Degrees: Associate of Applied Science

### Medical Assisting Medical Office

## Certificates:

### Medical Assisting Medical Office

## AAS Degree

### Medical Assisting

The Medical Assisting program prepares you for a career as a multi-skilled professional in the allied health field performing administrative and clinical procedures. This program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). All students who successfully complete the program are required to take the national certification exam (AAMA) to become a Certified Medical Assistant. A math prerequisite of MAT 060 or higher is required for MOT 140 and 150 for all certificate and degree students. Internship must be started within four months of completing MOT 140. Please note that not all courses are offered in the summer session.

Required Courses	Credits
BIO 106 Basic Anatomy and Physiology	4
CIS 118 Introduction to PC Applications	3
COM 126 Communication in Healthcare	3
HPR 106 Law and Ethics for Health Prof	2
HPR 178 Medical Terminology	2
MOT 110 Medical Office Administration	4
MOT 120 Medical Office Financial Management	3
MOT 150 Pharmacology for Medical Assistants	3

MOT 130 Insurance Billing and Coding	3
MOT 136 Introduction to Clinical Skills	2
MOT 140 Medical Assisting Clinical Skills	4
MOT 138 Medical Assisting Laboratory Skills	4
PSY 101 General Psychology	3
MOT 181 Administrative Internship and	2
MOT 182 Clinical Internship or	3
MOT 183 Medical Assisting Internship	5
<b>Additional General Education Courses</b>	<b>16</b>
See page 17.	
<b>Total Credits</b>	<b>61</b>

## AAS Degree

### Medical Office

The Medical Office Program is designed to prepare the student for a career as an allied health professional, assisting physicians in front-office operations. This program provides a wide range of medical office administration services. Internship must be started within four months of completing all required courses. Please note that not all courses are offered in the summer session

Required Courses	Credits
ACC 101 Fundamentals of Accounting	3
BIO 106 Basic Anatomy and Physiology	4
CIS 118 Introduction to PC Applications	3
COM 126 Communication in Healthcare	3
HPR 106 Law and Ethics for Health Prof	2
HPR 178 Medical Terminology	2
MAN 116 Principles of Supervision or	
BUS 115 Introduction to Business	3
MOT 110 Medical Office Administration	4
MOT 120 Medical Office Financial Management	3
MOT 130 Insurance Billing and Coding	3
MOT 136 Introduction to Clinical Skills	2
MOT 181 Administrative Internship	2
Faculty advisor approved electives	10
<b>Additional General Education Courses Required</b>	<b>16</b>
See page 17.	
<b>Total Credits</b>	<b>60</b>

## Certificate

### Medical Assisting

The Medical Assisting program prepares you for a career as a multi-skilled professional in the allied health field performing administrative and clinical procedures. This program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). All students who successfully complete the program are required to take the national certification exam (AAMA) to become a Certified Medical Assistant. A math prerequisite of MAT 060 or higher is required for MOT 140 and 150 for all certificate and degree students.



Internship must be started within four months of completing MOT 140. Please note that not all courses are offered in the summer session.

<b>Required Courses</b>		<b>Credits</b>
BIO 106	Basic Anatomy and Physiology	4
CIS 118	Introduction to PC Applications	3
COM 126	Communication in Healthcare	3
HPR 106	Law and Ethics for Health Prof	2
HPR 178	Medical Terminology	2
MOT 110	Medical Office Administration	4
MOT 120	Medical Office Financial Management	3
MOT 130	Insurance Billing and Coding	3
MOT 136	Introduction to Clinical Skills	2
MOT 138	Medical Assisting Laboratory Skills	4
MOT 140	Medical Assisting Clinical Skills	4
MOT 150	Pharmacology for Medical Assistants	3
PSY 101	General Psychology	3
MOT 181	Administrative Internship	2
MOT 182	Clinical Internship or	3
MOT 183	Medical Assisting Internship	5
<b>Total Credits</b>		<b>45</b>

## Certificate Medical Office

The Medical Office Program is designed to prepare the student for a career as an allied health professional, assisting physicians in front-office operations. This program provides a wide range of medical office administration services. Internship must be started within four months of completing all required courses. Please note that not all courses are offered in the summer session.

<b>Required Courses</b>		<b>Credits</b>
ACC 101	Fundamentals of Accounting	3
HPR 106	Law and Ethics for Health Prof	2
HPR 178	Medical Terminology	2
BIO 106	Basic Anatomy and Physiology	4
CIS 118	Introduction to PC Applications	3
COM 126	Communication in Healthcare	3
MAN 116	Principles of Supervision or	
BUS 115	Introduction to Business	3
MOT 110	Medical Office Administration	4
MOT 120	Medical Office Financial Management	3
MOT 130	Insurance Billing and Coding	3
MOT 136	Introduction to Clinical Skills	2
MOT 181	Administrative Internship	2
<b>Total Credits</b>		<b>35</b>

## Multimedia Graphic Design

The Multimedia-Gaming-Design, Photography and Journalism Departments use state of the art equipment and have four classroom instructional labs with 16 - 24 workstations in each classroom. The MGD/PHO/JOU Student Computer Lab allows you to work outside the classroom with the same applications that are used in the classrooms. The computers in MGD, PHO and JOU are the fastest available. Currently, the labs are equipped with Intel Power Macs, which allow students to choose between operating systems, the computers are loaded with both Windows Vista and Macintosh OSX. Peripheral devices are also available, including color output, black and white output, flatbed scanners, 3D digital scanner, Wacom tablets and video capture stations.

The MGD/PHO/JOU Department also has two darkrooms for the use of MGD/PHO/JOU students. The department has several film, digital, and digital video cameras which students may use on a 48-hour check-out basis.

Red Rocks Community College offers both associate degrees and certificates in the MGD/PHO/JOU programs. If you plan to transfer to a baccalaureate institution, you should consider the Associate of General Studies. The certificate programs and associate of applied science degrees will prepare you to enter the work force upon graduation.

## Degrees: Associate of Applied Science

**Graphic Design & Print Production**

**Video Production**

**Motion Graphics Animation**

**Game Design & Development**

**Web Design & Development**

**Professional Photography: Traditional Film**

**Professional Photography: Digital Photography**

**Professional Photography: Traditional Film and Digital Photography**

**\*Digital Media Journalism (pending approval)**

**\*3D Design and Animation (pending approval)**

**\*Interactive Training and Simulation (pending approval)**

## Degrees: Associate of General Studies – MSCD

Graphic Design/Print Production  
Video Production  
Motion Graphics and Animation

## Degrees: Associate of General Studies – RMCAD

Graphic Design

## Certificates:

Graphic Design & Print Production  
Video Production  
Motion Graphics and Animation  
Game Arts  
Web Design  
Advanced Web Design  
Professional Photography: Traditional Film  
Professional Photography: Digital Photography  
Professional Photography: Traditional Film and Digital Photography  
\*Digital Media Journalism (pending approval)  
\*Interactive Training and Simulation (pending approval)  
\*3D Design and Animation (pending approval)

## Recommended General Education Courses for AAS in MGD/PHO/JOU:

<b>Mathematics</b>		
MAT 107	Career Math	3
<b>Humanities</b>		
ART 149	Animation Drawing/Design or	3
*ART 121	Drawing I or	3
ART 143	Digital Photography I	3
<b>English</b>		
ENG 131	Technical Writing	3
<b>General Education Elective</b>		
*ART 131	Visual Concepts 2-D Design or	3
*ART 132	Visual Concepts 3-D Design	3

\*ART 121 and ART 131 or ART 132 may be used to fulfill one humanities and the General Education course electives. You may substitute MGD/PHO advisor approved-classes if ART 121, 149 and 131 or 132 are used to fulfill the General Education Course Requirements.

## AAS Degree Emphasis in Graphic Design & Print Production

The Graphic Design/Print Production emphasis within the Multimedia Graphic Design Department prepares you to work in the traditional graphic design and printing industries. You will develop designs for electronic production for both digital and traditional press. In addition, you will learn design techniques for packaging and point of sale and other forms of print media. Printing press technology is also addressed.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

<b>Required Courses</b>		<b>Credits</b>
*ART 121	Drawing I or ART 149 Animation Drawing/Design	3
*ART 131	Visual Concepts 2-D Design	3
MGD 101	Introduction to Computer Graphics	3
MGD 103	Introduction to Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 114	Adobe InDesign	3
MGD 118	Digital Color Theory or MGD 116 Typography I	3
MGD 121	Painter for Digital Media or MGD 216 Adobe Acrobat Professional	3
MGD 202	Point of Purchase Packaging Design or MGD 212 Adobe Illustrator II	3
MGD 211	Adobe Photoshop II	3
MGD 213	Electronic Prepress	3
MGD xxx	Business for Creatives or MGD 280 Internship or MGD 289 Capstone	3
MGD/PHO	Advisor Approved Electives	6

**Recommended MGD Electives**

- MGD 141 Web Design I: Dreamweaver
- MGD 143 Motion Graphic Design I: Adobe Flash
- JOU 225 Internet Media
- \*ART 143 Digital Photography I

**Required General Education Courses 15**

\*ART 121 and ART 132 or ART 143 may be used to fulfill one Humanities and the General Education Elective. Students may substitute additional MGD/PHO classes if ART 121 and ART 132 or ART 143 are used for the Humanities and General Education Course Requirements.

**Total Credits 60**

**AAS Degree**

**Emphasis in Video Production**

The video production emphasis within the Multimedia Graphic Design Department prepares you for work in video and DVD production. You are exposed to many exciting aspects of video production, such as sound and digital editing, as well as motion graphics.

**MGD Advisor: Thomas Harrop, thomas.harrop@rrcc.edu**

**Required Courses Credits**

- MGD 101 Introduction to Computer Graphics or MGD 102 Introduction to Multimedia 3
- MGD 111 Adobe Photoshop I 3
- MGD 112 Adobe Illustrator I 3
- MGD 104 Videography I 3
- MGD 143 Motion Graphic Design I: Adobe Flash 3
- MGD 152 Digital Animatics 3
- MGD 163 Sound Design I: Apple Logic Pro 3
- MGD 164 Digital Video Editing I: Final Cut Pro 3
- MGD 165 Adobe After Effects I 3
- MGD 204 Videography II 3
- MGD 263 Sound Design II: Apple Logic Pro 3
- MGD 264 Digital Video Editing II: Final Cut Pro 3
- MGD xxx Business for Creatives or MGD 280 Internship or MGD 289 Capstone 3
- MGD/PHO Advisor Approved Electives 6

**Recommended MGD Electives:**

- MGD 265 Adobe AfterEffects II
- MGD 121 Painter for Digital Media
- \*ART 143 Digital Photography
- \*ART 149 Animation Drawing and Design
- \*MUS105 Intro to Electronic/Computer Music

**Required General Education Courses 15**

\*ART 143 and /or ART 149 and/or MUS 105 may be used to fulfill one Humanities and the General Education Elective Course Requirements.

**Total Credits 60**

**AAS Degree**

**Emphasis in Motion Graphics Animation**

The motion graphics animation emphasis within the Multimedia Graphic Design Department prepares you to work in digital 2D modeling environments. You will

combine traditional artistic skills of drawing and design with digital storyboarding, animation, sound, and special effects training. You will combine these skills to produce complex 2D animation projects.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

**Required Courses Credits**

- \*ART 149 Animation Drawing and Design or \*ART 121 Drawing I 3
- \*ART 131 Visual Concepts: 2D Design or \*ART 156 Figure Drawing 3
- MGD 129 History of Animation 3
- MGD 111 Adobe Photoshop I 3
- MGD 112 Adobe Illustrator I 3
- MGD 142 2D Animation Production 3
- MGD 143 Motion Graphic Design I: Adobe Flash 3
- MGD 152 Digital Animatics 3
- MGD 163 Sound Design I 3
- MGD 165 Adobe AfterEffects I 3
- MGD 212 Adobe Illustrator II or MGD 211 Adobe Photoshop II 3
- MGD 243 Motion Graphic Design II: Adobe Flash or MGD 161 Adobe Director I 3
- MGD 265 Adobe AfterEffects II 3
- Faculty Advisor Approved Electives from MGD 6

**Recommended MGD Electives**

- JOU 225 Internet Media
- MGD 264 Digital Video Editing I: Apple Final Cut Pro
- MGD 211 Photoshop II
- MGD 263 Sound Design II: Apple Logic

**Required General Education Courses 15**

\*ART 149 or 121 and ART 132 or ART 156 may be used to fulfill one Humanities and the General Education Elective. Students may substitute additional MGD/PHO classes if ART 149 or 121 and ART 132 or ART 156 are used for the Humanities and General Education Course Requirements.

**Total Credits 60**

**AAS Degree**

**Emphasis in Game Design & Development**

The game design and development AAS degree prepares you for a broad range of careers in the gaming industry or as an independent game developer. You will develop skills in 2D and 3D digital modeling, digital animation, and programming skills using an industry standard gaming engine. Course electives allow you to gain experience with digital sound, 2D game development, and additional 3D modeling.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

**Required Courses Credits**

- MGD 111 Adobe Photoshop I or CWB 162 Introduction to Image Editing 3
- MGD 125 3D Modeling for Gaming: 3DS Max 3
- MGD 152 Digital Animatics 3
- MGD 153 3D Animation I: Maxon Cinema 4D 3
- MGD 163 Sound Design I: Apple Logic Pro 3
- MGD 119 Autodesk Maya I 3

CSC 119	Introduction to Programming	3
	AND CSC 236 C# Programming	4
	or CSC 160 Computer Science I: C++(4)	
MGD 143	Motion Graphic Design I: Adobe Flash	3
	or CWB 245 Complete Web Animation	
MGD 167	Game Design I	3
	or CSC 126 Game Design and Development	
MGD 267	Game Design II	3
CSC 227	3D Game Programming: Torque Engine	3
CSC 228	3D Game Scripting	3
CIS 289	Capstone	3
	or MGD 289 Capstone	
	or MGD 280 Internship	

Faculty Advisor Approved Electives from MGD/CIS/CSC 6

#### Recommended MGD Electives

MGD 129	History of Animation
*ART 149	Animation Drawing and Design
*ART 121	Drawing I
*ART 132	Visual Concepts: 3D Design
*ART 156	Figure Drawing

#### Required General Education Courses 15

\*ART 149 and/or ART 121 and ART 132 and/or ART 156 may be used to fulfill one Humanities and the General Education Elective Course Requirements.

**Total Credits 64-67**

## AAS Degree

### Emphasis in Web Design & Development

The Web design and development AAS degree prepares you for a broad range of careers in the Web industry. You will evaluate the look and feel of sites and learn HTML/XML editors as well as advanced Web production techniques. You will be exposed to all stages of production. Motion graphic techniques, video-editing, and sound design used in Web development also will be addressed.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

Required Courses	Credits
MGD 101 Introduction to Computer Graphics	3
or MGD 102 Introduction to Multimedia	
or CIS 118 Intro to PC Applications	
MGD 104 Videography I	3
MGD 111 Adobe Photoshop I	3
or CWB 162 Introduction to Image Editing	
MGD 112 Adobe Illustrator I	3
CWB 110 Complete Web Authoring (HTML)	3
MGD 141 Web Design I: Adobe Dreamweaver	3
or CWB 130 Complete Web Authoring	
MGD 143 Motion Graphic Design I: Adobe Flash	3
or CWB 245 Complete Web Animation	
MGD 241 Web Design II: Adobe Dreamweaver	3
MGD 243 Motion Graphic Design II: Adobe Flash	3
CWB 205 Complete Web Scripting	3
MGD 163 Sound Design I: Apple Logic Pro	3
MGD 164 Digital Video Editing I: Final Cut Pro	3
MGD xxx Business for Creatives	3
or MGD 289 Capstone	
or MGD 280 Internship	
MGD/PHO/CWB Advisor Approved Electives	6

#### MGD Recommended Electives

JOU 225	Internet Media
MGD 204	Videography II
*MUS105	Intro to Computer/Electronic Music
*ART 143	Digital Photography I
*ART 121	Drawing I

#### Required General Education Courses 15

\*ART 121 and/or ART 143 and/or MUS 105 may be used to fulfill one Humanities and the General Education Elective Course Requirements.

**Total Credits 60**

## AAS Degree

### Emphasis in 3D Design and Animation

#### (pending approval)

The motion graphics animation emphasis within the Multimedia Graphic Design Department prepares you to work in digital 3D modeling and animation environments. You will combine traditional artistic skills of drawing and design with storyboarding, animation and special effects training. You will combine these skills to produce complex 3D designs and models and 3D animation projects.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

#### Required Courses Credits

*ART 149	Animation Drawing and Design	3
	or *ART 121 Drawing I	
*ART 132	Visual Concepts: 3D Design	3
	or *ART 156 Figure Drawing	
MGD 129	History of Animation	3
MGD 111	Adobe Photoshop I	3
MGD 125	3D Modeling for Gaming I: 3DS Max	3
MGD 152	Digital Animatics	3
MGD 153	3D Animation I: Maxon Cinema 4D	3
MGD 165	Adobe AfterEffects I	3
MGD 119	Autodesk Maya I	3
MGD 122	Sculpting for Digital Media	3
MGD 253	3D Animation II: Maxon Cinema 4D	3
MGD 219	Autodesk Maya II	
	or	
MGD 270	Adv. 3D Character Design: Maya	3
MGD 257	Animation Production	3
	or MGD 280 Internship	
	or MGD 289 Capstone	

Faculty Advisor Approved Electives from MGD 6

#### MGD Recommended Electives

MGD 167	Game Design I
MGD 267	Game Design II
MGD xxx	Advanced 3D Studio Max
MGD xxx	3D Modeling in 3DS Max and Maya

#### Required General Education Courses 15

\*ART 149 and/or 121 and ART 132 and/or ART 156 may be used to fulfill one Humanities and the General Education Elective. Students may substitute additional MGD/PHO classes if ART 149 or 121 and ART 132 or ART 156 are used for the Humanities and General Education Course Requirements.

**Total Credits 60**

## AAS Degree

### Emphasis in Interactive Training and Simulation (pending approval)

The Interactive Training and Simulation Degree prepares you to create interactive training multimedia and simulation scenarios used for corporate training, educational training and professional development. You will combine design and multimedia skills to create training videos, training quizzes, and training multimedia which combine animation, video, and sound to create rich media training applications for both business and education for use online or via CD or DVD.

**MGD Advisor: Christine Shock, christine.shock@rrcc.edu**

Required Courses	Credits
MGD 102 Intro to Multimedia	3
MGD 104 Videography I	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 114 Adobe InDesign	3
MGD 115 Multimedia Team Development	3
MGD 141 Web Design I: Dreamweaver	3
MGD 143 Motion Graphic Design: Adobe Flash I or MGD 161 Adobe Director I	3
MGD 163 Sound Design I	3
MGD 164 Digital Video Editing I: Apple Final Cut Pro	3
MGD 254 Multimedia Design and Production I	3
MGD 216 Adobe Acrobat Professional	3
MGD 269 Multimedia Design and Production II or MGD 289 Capstone	3
Faculty Advisor Approved Electives from MGD	6
<b>MGD Recommended Electives</b>	
MGD 241 Web Design II: Dreamweaver	
MGD 243 Motion Graphic Design II: Adobe Flash	
MGD 167 Game Design I	
MGD 267 Game Design II	
*ART 143 Digital Photography I	
*MUS105 Intro to Computer/Electronic Music	
Required General Education Courses	15
*ART 143 and *MUS 105 may be used to fulfill one Humanities and the General Education Elective Course Requirements.	
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Emphasis in Digital Media Journalism (pending approval)

The AAS in Digital Media Journalism prepares students for work with blogs, microblogs, social networking applications, virtual worlds, audio and video podcasting for delivering mass media using the internet as the primary means of media distribution. Students will combine traditional journalism skills in writing and editing with digital skills in video, page layout and production to produce, e-zines, blogs, podcasts and other relevant internet publications.

**MGD Advisor: Thomas Harrop, thomas.harrop@rrcc.edu**

Required Courses	Credits
JOU 102 Intro to Editing	3
JOU 105 Introduction to Mass Media	3
JOU 106 Fundamentals of Reporting	3
MGD 102 Intro to Multimedia	3
MGD 104 Videography I	3
MGD 111 Adobe Photoshop I	3
MGD 114 Adobe InDesign	3
JOU 114 TV Production or JOU 121 Photojournalism	3
JOU 206 Intermediate Newswriting and Editing	3
JOU 241 Magazine Article Writing	3
MGD 216 Adobe Acrobat Professional	3
JOU 225 Internet Media	3
JOU 215 Publications Production and Design	3
Faculty Advisor Approved Electives from MGD	6

### MGD Recommended Electives

JOU 121 Photojournalism	
MGD 143 Motion Graphic Design I: Adobe Flash	
MGD 141 Web Design I: Adobe Dreamweaver	
MGD 164 Digital Video Editing I: Apple Final Cut Pro	
*ART 143 Digital Photography I	
*MUS105 Intro to Computer/Electronic Music	

### Required General Education Courses 15

\*ART 143 and \*MUS 105 may be used to fulfill one Humanities and the General Education Elective Course Requirements.

**Total Credits 60**

## AAS Degree

### Emphasis in Professional Photography: Traditional Film

The Professional Photography: Traditional Film AAS degree prepares you for a career as a professional film photographer. You will learn traditional film photography techniques in print production, lighting, equipment, and business management. History and photographic film theory are covered as well. You will need a 35mm SLR film camera.

**PHO Advisor: Michael Fulks, michael.fulks@rrcc.edu**

Required Courses	Credits
ART 113 History of Photography	3
ART 138 Film Photography I	3
ART 139 Film Photography II	3
PHO 143 Perception and Photography	3
PHO 260 Event and Wedding Photography	3
ART 251 Portrait Photography	3
ART 252 Landscape Photography	2
AND PHO 240 Field Techniques & Exploration or ART 158 Figure Photography I	1
PHO 204 Commercial Studio Lighting	3
MGD xxx Business for Creatives	3
JOU 121 Photojournalism	3
PHO 235 Architectural Photography	3
PHO xxx Close Up & Macro Photography	3
PHO xxx Darkroom Alternative Processes	3
MGD/PHO Advisor Approved Electives	6

**PHO Recommended Electives:**

*ART 143 Digital Photography I	
*MUS105 Intro to Computer/Electronic Music	
*ART 121 Drawing I	
*ART 131 Visual Concepts: 2D Design	
<b>Required General Education Courses</b>	<b>15</b>
*ART 121 and/or ART 131 or ART 143 and/or MUS 105 may be used to fulfill one Humanities and the General Education Elective.	
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Emphasis in Professional Photography: Digital Photography

The Professional Photography: Digital Photography AAS degree prepares you for a career as a professional photographer in a digital work environment. You will learn techniques in digital photography, such as camera techniques, digital printing production, lighting, equipment, and business management. History and digital photography theory are covered as well. You will need a digital SLR camera or a digital camera with manual settings.

**PHO Advisor: Michael Fulks, michael.fulks@rcc.edu**

Required Courses	Credits
ART 113 History of Photography	3
PHO 143 Perception and Photography	3
ART 143 Digital Photography I	3
ART 243 Digital Photography II	3
MGD 111 Adobe Photoshop I	3
ART 248 Digital Darkroom I	3
ART 251 Portrait Photography	3
ART 252 Landscape Photography	2
AND PHO 240 Field Techniques & Exploration	1
or ART 158 Figure Photography I	3
PHO 204 Commercial Studio Lighting	3
MGD xxx Business for Creatives	3
MGD 121 Corel Painter for Digital Media	3
JOU 121 Photojournalism	3
or PHO 260 Event and Wedding Photography	
PHO 266 Professional Digital Workflow: Adobe Lightroom	3
PHO/MGD Advisor Approved Electives	6

**PHO Recommended Electives**

*MUS105 Intro to Computer/Electronic Music	
*ART 121 Drawing I	
*ART 131 Visual Concepts: 2D Design	
<b>Required General Education Courses</b>	<b>15</b>
*ART 121 and/or ART 131 or ART 143 and/or MUS 105 may be used to fulfill one Humanities and the General Education Elective.	
<b>Total Credits</b>	<b>60</b>

## AAS Degree

### Emphasis in Professional Photography: Traditional Film & Digital Photography

The Professional Photography: Traditional Film & Digital Photography AAS degree prepares you for a career as a professional photographer, blending both film and digital skills. You will learn techniques in both film and digital photography, such as camera techniques, print production, lighting, equipment, and business management. History and photographic theory are covered as well. You will need both a traditional film SLR camera and a digital SLR camera or a digital camera with manual settings.

**PHO Advisor: Michael Fulks, michael.fulks@rcc.edu**

Required Courses	Credits
*ART 113 History of Photography	3
*ART 138 Film Photography I	3
ART 139 Film Photography II	3
ART 143 Perception and Photography	3
ART 143 Digital Photography I	3
ART 243 Digital Photography II	3
MGD 111 Adobe Photoshop I	3
ART 248 Digital Darkroom I	3
ART 251 Portrait Photography	3
ART 158 Figure Photography I	3
or PHO 260 Event & Wedding Photo	
PHO 204 Commercial Studio Lighting	3
MGD xxx Business for Creatives	3
MGD 121 Corel Painter for Digital Media	3
or PHO 266 Professional Digital Workflow Adobe Lightroom	
MGD/PHO Advisor Approved Electives	6
<b>PHO Recommended Electives:</b>	
*ART 143 Digital Photography I	
*MUS105 Intro to Computer/Electronic Music	
*ART 121 Drawing I	
*ART 131 Visual Concepts: 2D Design	
<b>Required General Education Courses</b>	<b>15</b>
ART 113 and ART 138 or *ART 121 and/or ART 131 or ART 143 and/or MUS 105 may be used to fulfill one Humanities and the General Education Elective. Students may substitute ART/PHO/MGD classes if the ART 113 and ART 138 are counted toward the Humanities and General Education Course Requirements.	
<b>Total Credits</b>	<b>60</b>

## AGS Specialist Degree-MSCD

The articulation agreement with Metropolitan State College of Denver allows students to transfer up to 60 RRCC semester hours of the Associate of General Studies toward MSCD's Bachelor's Degree in Technical Communication through the department of Technical Communication. These degrees do not allow for the substitution of classes, either in the Core Curriculum Requirements, or in the Program Specific Requirements. If the student does not follow the degree plan exactly as presented in the Degree and Certificate Planning Guide, Metropolitan State College of Denver reserves the right to accept RRCC credit as general elective credit, not program specific credit. The AGS is the only degree plan that MSCD accepts for full transfer into the Technical Communications Program.

## AGS Degree-MSCD

### Graphic Design & Print Production

The Graphic Design/Print Production emphasis within the Multimedia Graphic Design Department prepares you for work in the traditional graphic design and printing industries. You will use the computer to design for electronic production output. In addition, you will learn design techniques for packaging and point of sale and other forms of print media. Printing technology is also addressed.

**You must contact an MGD faculty advisor during your first semester for degree advising.**

**AGS Advisor: Christine Shock, christine.shock@rrcc.edu**

Required Courses	Credits
MGD 101 Introduction to Computer Graphics	3
MGD 103 Introduction to Production Design	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 114 Adobe InDesign	3
MGD 202 Point of Purchase Package Design	3
MGD 213 Electronic Prepress	3
MGD xxx Business for Creatives	3
<b>MGD/MSCD Faculty Advisor Approved Electives from MGD</b>	<b>3</b>
<b>Required Core Curriculum Classes</b>	<b>34-40</b>
<b>Minimum Required Credits</b>	<b>60</b>

## AGS Degree-MSCD

### Video Production

The video production emphasis within the Multimedia Graphic Design Department prepares you for work in video and DVD production. You are exposed to many exciting aspects of video production, such as sound and digital editing, as well as motion graphics.

**You must contact an MGD faculty advisor during your first semester for degree advising.**

**AGS Advisor: Christine Shock, christine.shock@rrcc.edu**

Required Courses	Credits
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 104 Videography I	3
MGD 143 Motion Graphic Design I: Adobe Flash	3
MGD 163 Sound Design I: Apple Logic Pro	3
MGD 164 Digital Video Editing I: Final Cut Pro	3
MGD 165 Adobe AfterEffects I	3
MGD xxx Business for Creatives	3
<b>MGD/MSCD Faculty Advisor Approved Electives from MGD</b>	<b>3</b>
<b>Required Core Curriculum Classes</b>	<b>34-40</b>
<b>Minimum Required Credits</b>	<b>60</b>

## AGS Degree-MSCD

### Motion Graphics Animation

The motion graphics animation emphasis within the Multimedia Graphic Design Department prepares you to work in digital 3D animation modeling environments. You will combine traditional artistic skills of drawing, design, and sculpture with video, lighting, and special effects training. You will blend these skills with your expertise in object modeling and computer-generated animation techniques to produce complex 3D animation projects.

**You must contact an MGD faculty advisor during your first semester for degree advising.**

**AGS Advisor: Christine Shock, christine.shock@rrcc.edu**

Required Courses	Credits
ART 132 3D Design	3
ART 156 Figure Drawing	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 153 3D Animation I: Maxon Cinema 4D	3
MGD 253 3D Animation II: Maxon Cinema 4D	3
MGD 164 Digital Video Editing I: Final Cut Pro	3
MGD xxx Business for Creatives	3
<b>MGD/MSCD Faculty Advisor Approved Electives from MGD</b>	<b>3</b>
<b>Required Core Curriculum Classes</b>	<b>34-40</b>
<b>Minimum Required Credits</b>	<b>60</b>

## AGS Specialist Degree-RMCAD

The articulation agreement with Rocky Mountain College of Art and Design allows students to transfer up to 60 RRCC semester hours of the Associate of General Studies toward RMCAD's Bachelors of Fine Arts in Graphic Design. These degrees do not allow for the substitution of classes, either in the Core Curriculum Requirements, or in the Program Specific Requirements. If the student does not follow the degree plan exactly as in the Degree and Certificate Planning Guide, Rocky Mountain College of Art and Design reserves the right to accept RRCC credit as general elective credit, not program specific credit. The AGS is the only degree plan that RMCAD accepts for full transfer into the BFA in Graphic Design.

**You must contact an MGD faculty advisor during your first semester for degree advising.**

**AGS Advisor: Christine Shock, christine.shock@rrcc.edu**

## AGS Degree-RMCAD

### Graphic Design

Required Courses	Credits
MGD 101 Introduction to Computer Graphics	3
ART 121 Drawing I	3
ART 131 Visual Concepts 2D Design	3
ART 132 Visual Concepts 3D Design	3
MGD 112 Adobe Illustrator	3
MGD 116 Typography I	3
MGD 103 Intro to Production Design	3
<b>MGD/RMCAD Faculty Advisor Approved</b>	
<b>MGD Electives</b>	<b>9</b>
<b>Required Core Curriculum Classes</b>	<b>34-40</b>
<b>Minimum Required Credits</b>	<b>60</b>

## Certificate

### Graphic Design/Print Production

The graphic design/print production emphasis prepares you for careers in printing, graphic design, and prepress production. An established industry, the printing/graphics industry has many job opportunities and exciting projects to work on in the Denver Metro area. The Graphic Design and Print Production certificate, when combined with the Motion Graphics Animation AAS degree, the Interactive Training and Simulation AAS degree, Video Production AAS Degree, 3D Design and Animation AAS or the Web Design and Development AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses	Credits
MGD 101 Introduction to Computer Graphics	3
or	
MGD 102 Introduction to Multimedia	3
MGD 103 Introduction to Production Design	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3

MGD 114 Adobe InDesign	3
MGD 118 Digital Color Theory	3
MGD 121 Corel Painter for Digital Media	3
or	
MGD 216 Adobe Acrobat Professional	3
MGD 202 Point of Purchase Packaging Design	3
MGD 211 Adobe Photoshop II	3
or	
MGD 212 Adobe Illustrator II	3
MGD 213 Electronic Prepress	3
<b>Total Credits</b>	<b>30</b>

## Certificate

### Video Production

The video production emphasis within the Multimedia Graphic Design Department prepares you for work in video and DVD production. You will be exposed to many exciting aspects of video production, such as sound and digital editing, as well as motion graphics. The Video Production certificate, when combined with the Graphic Design and Print Production AAS degree, Motion Graphics Animation AAS degree, 3D Design and Animation AAS degree, Game Design and Development AAS degree or the Interactive Training and Simulation AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses	Credits
MGD 101 Introduction to Computer Graphics	3
or	
MGD 102 Introduction to Multimedia	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 104 Videography	3
MGD 163 Sound Design I: Apple Logic Pro	3
MGD 164 Digital Video Editing I: Final Cut Pro	3
MGD 165 Adobe AfterEffects I	3
MGD 264 Digital Video Editing II: Final Cut Pro	3
MGD 204 Videography II	3
<b>Total Credits</b>	<b>30</b>



## Certificate

### Motion Graphics Animation

The motion graphics animation emphasis prepares you for 3D animation production work. You will develop skills for entry-level jobs in the fields of TV and movie production as well as presentation design and multimedia design. The Motion Graphics Animation certificate, when combined with the Graphics Design and Print Production AAS degree, the Interactive Training and Simulation AAS degree, 3D Design and Animation AAS degree, Game Design and Development AAS degree, Video Production AAS degree, or the Web Design and Development AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses	Credits
ART 149 Animation Drawing/Design or ART 121 Drawing I	3
MGD 102 Introduction to Multimedia	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 152 Digital Animatics	3
MGD 143 Motion Graphic Design I: Adobe Flash	3
MGD 165 Adobe AfterEffects I	3
MGD 243 Motion Graphic Design II: Adobe Flash	3
MGD 212 Adobe Illustrator II	3
MGD 265 Adobe AfterEffects II	3
<b>Total Credits</b>	<b>30</b>

## Certificate

### Game Art

The game design certificate prepares you for entry-level art positions in the gaming industry. Common projects are the creation of character models and textures from concept art, storyboarding, and animating in 2D or 3D. You will also have the opportunity to work with an industry-standard gaming engine. Course electives allow you to gain basic experience with game engines, sound design and digital storyboarding. The Game Art Certificate, when combined with the Motion Graphics Animation AAS degree, the Interactive Training and Simulation AAS degree, 3D Design and Animation AAS degree or the Web Design and Development AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses	Credits
MGD 111 Adobe Photoshop I or	3
CWB 162 Introduction to Image Editing	3
MGD 112 Adobe Illustrator or	
MGD 125 3D Modeling for Gaming: 3D Studio Max	3
MGD 167 Game Design I or	3
CSC 126 Game Design and Development	3
MGD 152 Digital Animatics	3

MGD 143 Motion Graphics Design I: Adobe Flash or	3
CWB 245 Complete Web Animation: Adobe Flash	3
MGD 153 3D Animation I: Maxon Cinema 4D	3
MGD 163 Sound Design I	3
MGD 119 Autodesk Maya I	3
MGD 267 Game Design II	3
MGD 253 3D Animation II or	3
MGD 219 Autodesk Maya II	3
<b>MGD/CSC Advisor Approved Electives</b>	<b>6</b>
<b>Total Credits</b>	<b>30</b>

## Certificate

### Web Design

The Web design express certificate within the Multimedia Graphic Design Department prepares you for entry-level work in Web page production. You will learn the importance of page layout, user interface, and design, as well as site design. The Web Design certificate and/or the Advanced Web Design certificate, when combined with the Graphic Design and Print Production AAS degree, Motion Graphic Animation AAS degree, or Video Production AAS degree adds additional marketable skills to the traditional AAS degree.

It is highly recommended that students also take CWB 110 Complete Web Authoring or have basic HTML coding skills before taking MGD 141.

Required Courses	Credits
CWB 110 Complete Web Authoring: HTML	3
MGD 111 Adobe Photoshop I	3
MGD 112 Adobe Illustrator I	3
MGD 141 Web Design I: Adobe Dreamweaver	3
MGD 143 Web Motion Graphic Design I: Adobe Flash	3
MGD 241 Web Design II: Adobe Dreamweaver	3
<b>Total Credits</b>	<b>18</b>

## Certificate

### Advanced Web Design

You will evaluate the look and feel of Web sites, learn HTML and HTML editors, and learn advanced Web production techniques, such as adding sound, video, or animation to a Web site. You are exposed to pre-production, production, and post-production concepts. Motion graphic techniques, video-editing, and sound design used in Web development will be addressed. You must complete or be concurrently enrolled in the Web Design Certificate program.

Required Courses	Credits
MGD 104 Videography I	3
MGD 163 Sound Design I: Apple Logic Pro	3
MGD 164 Digital Video Editing I: Final Cut Pro	3
CWB 205 Complete Web Scripting	3

MGD 243	Web Motion Graphic Design II: Adobe Flash	3
JOU 225	Internet Media	3
<b>Total Credits</b>		<b>18</b>

## Certificate

### 3D Design and Animation

(PENDING APPROVAL)

The 3D Design and Animation emphasis prepares you for 3D design, modeling and animation production work. You will develop basic skills for entry-level jobs in the fields of TV and movie production as well as 3D modeling, presentation design and multimedia design. The certificate in 3D Design and Animation, when combined with the Motion Graphics Animation AAS Degree, Game Design and Development AAS degree, Web Design and Development AAS degree or Video Production AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses		Credits
ART 149	Animation Drawing/Design or	
ART 121	Drawing I	3
ART 132	Visual Concepts: 3D Design	3
MGD 111	Adobe Photoshop I	3
MGD 125	3D Modeling for Gaming I: 3DS Max	3
MGD 152	Digital Animatics	3
MGD 153	3D Animation I: Maxon Cinema 4D	3
MGD 165	Adobe AfterEffects I	3
MGD 119	Autodesk Maya I	3
MGD 253	3D Animation II: Maxon Cinema 4D or	3
MGD 219	Autodesk Maya II	3
MGD 257	Animation Production	3
<b>Total Credits</b>		<b>30</b>

## Certificate

### Interactive Training and Simulation

(PENDING APPROVAL)

The Interactive Training and Simulation certificate prepares students to create basic interactive training multimedia and simulation scenarios used for corporate training, educational training and professional development. You will combine design and multimedia skills to create training videos, training quizzes, and training multimedia which combine basic animation, video, and sound to create rich media training applications for both business and education for use online or via CD or DVD. The certificate in Interactive Training and Simulation, when combined with the Motion Graphics Animation AAS Degree, Game Design and Development AAS degree, Web Design and Development AAS degree or Video Production AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses		Credits
MGD 104	Videography I	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 114	Adobe InDesign	3
MGD 115	Multimedia Team Development	3
MGD 141	Web Design I: Dreamweaver	3
MGD 143	Motion Graphic Design: Adobe Flash I	3
MGD 254	Multimedia Design and Production I	3
MGD 216	Adobe Acrobat Professional	3
MGD 269	Multimedia Design and Production II	3
<b>Total Credits</b>		<b>30</b>

## Certificate

### Digital Media Journalism

(PENDING APPROVAL)

The Digital Media Journalism certificate prepares students for work with blogs, microblogs, and social networking applications for delivering mass media using the internet as the primary means of media distribution. Students will combine traditional journalism skills in writing and editing with digital skills in video, page layout and production to produce, e-zines, blogs, podcasts and other relevant internet publications. The certificate in Digital Journalism, when combined with the Motion Graphics Animation AAS Degree, Web Design and Development AAS degree or Video Production AAS degree adds additional marketable skills to the traditional AAS degree.

Required Courses		Credits
JOU 102	Intro to Editing	3
JOU 105	Introduction to Mass Media	3
JOU 106	Fundamentals of Reporting	3
MGD 104	Videography I	3
MGD 111	Adobe Photoshop I	3
MGD 114	Adobe InDesign	3
JOU 241	Magazine Article Writing	3
MGD 216	Adobe Acrobat Professional	3
JOU 225	Internet Media	3
JOU 215	Publications Production and Design	3
<b>Total Credits</b>		<b>30</b>

## Certificate

### Professional Photography – Traditional Film

You will learn traditional film photography techniques in photographic darkroom production, lighting, equipment, and business management. History and photographic film theory are covered as well. You will need a 35mm SLR film camera with Manual Controls.

Required Courses		Credits
ART 113	History of Photography	3
ART 138	Film Photography I	3
ART 139	Film Photography II	3
PHO 143	Perception and Photography	3

ART 158	Figure Photography I or ART 252 Landscape Photography (2) and PHO 240 Field Techniques and Exploration (1)	3
PHO 260	Event and Wedding Photography	3
ART 251	Portrait Photography	3
PHO 204	Commercial Studio Lighting	3
MGD xxx	Business for Creatives	3
JOU 121	Photojournalism	3
<b>Total Credits</b>		<b>30</b>

## Certificate

### Professional Photography – Digital Photography

Students learn techniques in digital photography such as camera techniques, digital printing production, lighting, equipment, and business management. History and digital photography theory are covered as well. Students need a digital SLR camera or a digital camera with manual settings.

Required Courses	Credits
ART 113 History of Photography	3
ART 143 Digital Photography I	3
ART 243 Digital Photography II	3
PHO 143 Perception and Photography	3
MGD 111 Photoshop I	3
PHO 260 Event and Wedding Photography or	3
ART 251 Portrait Photography	3
ART 248 Digital Darkroom I	3
ART 251 Portrait Photography	3
PHO 204 Commercial Studio Lighting	3
MGD xxx Business for Creatives	3
PHO 266 Professional Digital Workflow: Adobe Lightroom or	3
ART 158 Figure Photography I or	3
MGD 121 Painter for Digital Media	3
<b>Total Credits</b>	<b>30</b>

## Certificate

### Professional Photography – Traditional Film and Digital Photography

You will learn techniques in both film and digital photography such as camera techniques, print production, lighting, equipment, and business management. History and photographic theory are covered as well. You will need both a traditional film SLR camera and a digital SLR camera or a digital camera with manual settings.

Required Courses	Credits
ART 113 History of Photography	3
ART 138 Film Photography I	3

ART 143	Digital Photography I	3
MGD 111	Adobe Photoshop I	3
ART 248	Digital Darkroom I	3
PHO 143	Perception and Photography	3
ART 251	Portrait Photography or	3
PHO 260	Event and Wedding Photography	3
PHO 204	Commercial Studio Lighting	3
MGD xxx	Business for Creatives	3
PHO 266	Professional Digital Workflow: Adobe Lightroom or	3
ART 158	Figure Photography I or	3
MGD 121	Painter for Digital Media	3
<b>Total Credits</b>		<b>30</b>

## Outdoor Recreation

### Degree: Associate of General Studies – Specialist Outdoor Recreation

#### Certificates:

**Outdoor Recreation Leadership with Emphases in:**  
**Winter Skills Specialist**  
**Water-based Skills Specialist**  
**Mountaineering Skills Specialist**  
**Outdoor Recreation Generalist**

#### AGS Degree Outdoor Recreation

The completion of the following recommended course of study is appropriate if you intend to transfer to the University of Northern Colorado, Western State College, and/or Metropolitan State College in order to complete a bachelor's degree in recreation. Meet with the Outdoor Recreation faculty advisor before beginning this program.

The associate of general studies degree with an emphasis in outdoor recreation is also designed as a stand-alone program to allow you to enter a career as an outdoor educator, recreation specialist, or in one of many careers in the outdoor industry.

**Information: 303.914.6238 or email bill.haas@rrcc.edu**

Required Major Courses	Credits
PER 128 Intro to Recreation	2
PER 252 Principles of Outdoor Recreation	3
PER 253 Outdoor Leadership	2
PED 165 Wilderness Survival Skills	3

PED 237	Paddle Sports	2
CIS 118	Intro to PC Applications	3
HWE 129	Wilderness First Responder or	
HPR 125	Outdoor Emergency	4
<b>Additional General Education Courses</b>		<b>35</b>
See page 10.		
<b>Approved Electives</b>		<b>6</b>
See page 11.		
<b>Total Credits</b>		<b>60</b>

## Certificate

### Outdoor Recreation Leadership

By completing the Outdoor Recreation Leadership Certificate Program, you will have a well rounded outdoor education experience and a high degree of training specific to employment within the outdoor industry. Types of organizations that may employ graduates include alpine/cross country ski areas, flyfishing guide services, summer adventure camps, community nature centers and outdoor programs, whitewater river outfitters, outdoor equipment purveyors, and companies employing wilderness guides. In addition to field-based experiential learning of basic technical skills, you will be prepared to be a future outdoor trip leader by examining and developing the interpersonal skills needed for positions in outdoor leadership.

**In order to complete the Outdoor Recreation Leadership Certificate, you must complete the following required courses and at least one (1) area of emphasis.**

Required courses	Credits
PER 160 Wilderness Ethics	3
PED 162 Map and Compass (GPS)	3
PED 165 Wilderness Survival Skill	3
PER 128 Introduction to Recreation	2
PER 252 Principles of Outdoor Recreation	3
PER 253 Outdoor Leadership	2
HPR 125 Outdoor Emergency Care and CPR or	
HWE 129 Wilderness First Responder	4
<b>Total Required Credits</b>	<b>20</b>

### Area of Emphasis:

#### Winter Skills Specialist

**Outdoor Recreation Leadership Certificate 20**

And select 7 credits from the following courses:

Courses	Credits
PED 157 Basic Mountaineering	3
PER 152 Avalanche Safety Level I	1
PED 166 Winter Wilderness Survival Skills	1
PER 168 Outdoor Equipment and Facilities	2

PED 132	Snowshoeing	1
PED 131	Nordic Skiing	2
PED 138	Introduction to Winter Sports	1
PED 156	Snow and Glacier Climbing	3
PED 280	Internship	3
<b>Total Required Credits</b>		<b>27</b>

### Emphasis in:

#### Water-based Skills Specialist

**Outdoor Recreation Leadership Certificate 20**

And select 7 credits from the following courses:

Required courses	Credits
PED 127 Flyfishing	1
PER 150 Water Safety Instructor	3
PED 128 Basic Sailing	1
PED 129 Scuba Diving	1
PER 151 Lifeguard Training	2
PER 153 Whitewater Rafting/Guide	2
PED 207 Intermediate Whitewater Canoeing	1
PED 237 Paddle Sports	2
PED 280 Internship	3
<b>Total Required Credits</b>	<b>27</b>

### Emphasis in:

#### Mountaineering Skills Specialist

**Outdoor Recreation Leadership Certificate 20**

And select 10 credits from the following courses:

Required courses	Credits
PED 150 Rock Climbing	2
PED 151 Rock Climbing II	2
PED 154 Backpacking	2
PED 155 Outdoor Expedition	3
PED 156 Snow and Glacier Climbing	3
PED 157 Basic Mountaineering	3
PED 159 Colorado's Fourteeners	2
PED 166 Winter Wilderness Survival Skills	2
PER 256 Mountaineering Teaching Concepts	3
PED 280 Internship	3
<b>Total Required Credits</b>	<b>30</b>

### Emphasis in:

#### Outdoor Recreation Generalist

**Outdoor Recreation Leadership Certificate 20**

You can design your own course of study by choosing at least four credits from each of the three programs of emphasis above, in addition to the required **Outdoor Recreation Leadership Certificate** courses. Students completing this program emphasis can expect a well-rounded outdoor recreation experience and training in various aspects of outdoor recreation and leadership competencies.

**Total Required Credits 32**

**Park Ranger Technology**

The Park Ranger Technology Program provides training for those seeking careers in natural resource protection, interpretation, and management. Law enforcement, natural resource interpretation, public safety services and outdoor recreation/education are the major areas of concentration, reflecting the needs of the industry and potential employment in all levels of government as well as private companies. To become a full-time professional Park Ranger, most hiring agencies have three basic requirements: 1) a bachelor's degree from an accredited institution of higher learning; 2) basic park ranger knowledge and skills; 3) seasonal park ranger employment experience. The Park Ranger Technology (PRT) certificate programs are designed around all agency requirements and allow students to design a program around specific interests, career goals, and previous training or education. The PRT Certificate Program is appropriate for the following individuals:

- Students with a high school diploma, or some college, wishing to begin a program of study to prepare them for employment as a professional Park Ranger. In addition to the PRT Certificate of Concentration, the PRT program advisor will help you design an appropriate 2-year associates degree that can be transferred to a four-year institution.
- Students seeking part-time or full-time seasonal employment as a Park Ranger with an agency (local, state, or federal) which may not require a four-year degree. Students must first consult with the PRT program advisor before beginning any program of study.
- Students who already have a four-year degree in an unrelated field and who wish to make a career change.

Information: 303.914.6238 or email [bill.haas@rrcc.edu](mailto:bill.haas@rrcc.edu)

**Certificates:**

- Law Enforcement**
- Public Safety**
- Outdoor Recreation**
- Resource Interpretation**

**Certificate**

**Law Enforcement**

The Law Enforcement Certificate is for those students wishing to increase their job opportunities by becoming qualified for full law enforcement responsibilities in the field.

<b>Required Courses</b>	<b>Credits</b>
CRJ xxx Post Law Enforcement Academy	37
PRA 102 Introduction to Park Ranger Technology	3
PRA 203 Natural Resource Management	3
PRA 280 Park Ranger Internship	3
<b>Total Credits</b>	<b>46</b>

**Certificate**

**Public Safety**

The Public Safety Certificate provides necessary training for those students wanting to work for agencies providing fire, EMS, rescue, hazardous materials, or other response/mitigation services.

<b>Required Courses</b>	<b>Credits</b>
PRA 102 Introduction to Park Ranger Technology	3
PRA 203 Natural Resource Management	3
PRA 280 Park Ranger Internship	3
EMS 125 Emergency Medical Technician – Basic	9
EMS 170 Emergency Medical Technician – Basic Clinical	1
FST 121 Technical Rope Rescue	4
FST 152 Intro to Wildland Firefighting	3
FST 236 Fire Operations in the Urban Interface	2
<b>Total Credits</b>	<b>28</b>

**Certificate**

**Outdoor Recreation**

The Outdoor Recreation Certificate provides a wide choice for those wishing to become employed as guides, outdoor instructors, safety personnel, or rangers with both governmental and private agencies.

<b>Required Courses</b>	<b>Credits</b>
PRA 102 Introduction to Park Ranger Technology	3
PRA 203 Natural Resource Management	3
PRA 205 Resource Interpretation	3
PRA 218 Outdoor Recreation Leadership	3
PER 128 Introduction to Recreation	2
PER 252 Principles of Outdoor Recreation	3
PRA 280 Park Ranger Internship	3

**Required Course credits 17**

**Elective Courses**

**Choose 13 credits from the following courses:**

HPR 125 Outdoor Emergency Care, or	4
HWE 129 Wilderness First Responder	4
GIS 101 Geographic Information Systems	3
PED 124 Mountain Biking	1
PED 129 Scuba Diving	1
PED 131 Nordic Skiing	2
PED 132 Snowshoeing	1
PED 150 Rock Climbing I	2
PED 151 Rock Climbing II	2
PER 152 Avalanche Safety Level I	1
PED 153 Hiking	1
PED 154 Backpacking	3
PED 155 Outdoor Expedition	3
PED 157 Basic Mountaineering	3
PED 159 Colorado Fourteeners	2
PER 160 Wilderness Ethics	3
PER 161 Backcountry Cooking	1
PED 163 Orienteering/Routefinding	3
PED 162 Map and Compass for the Outdoors	3
PED 165 Wilderness Survival Skills	2
PED 166 Winter Survival Skills	2
PER 168 Outdoor Equipment and Facilities	3

PED 207 Intermediate Whitewater Canoeing	1
PED 237 Paddle Sports	2
PER 153 Whitewater Rafting Guide	2
<b>Total Required and Elective Credits</b>	<b>33</b>

## Certificate

### Resource Interpretation

The Resource Interpretation Certificate is for those working with resource interpretation, naturalists, and/or other nature center work with the public.

Required Courses	Credits
PRA 102 Introduction to Park Ranger Technology	3
PRA 203 Natural Resource Management	3
PRA 205 Resource Interpretation	3
PRA 218 Outdoor Recreation Leadership	3
PRA 280 Park Ranger Internship	3
<b>Total Credits</b>	<b>15</b>

## Physical Education/Outdoor Education

### Degree: Associate of General Studies – Specialist

The completion of the following recommended course of study is appropriate if you intend to transfer to the University of Northern Colorado in order to complete a bachelor's degree with a minor in Outdoor/Adventure Education. This degree also will transfer to Western State College. Please meet with the Outdoor Physical Education faculty advisor before beginning this program.

The associate of general studies degree in outdoor physical education is also designed as a stand-alone program to allow you to enter a career as an outdoor educator, wilderness guide, or one of many careers in the outdoor industry.

**Information: 303.914.6238 or email bill.haas@rrcc.edu**

Required Courses	Credits
PED 150 Rock Climbing I	2
PED 151 Rock Climbing II	2
or	
PER 252 Principles of Outdoor Recreation	3
PED 162 Map and Compass	3
PED 165 Wilderness Survival Skills	3
PED 166 Winter Wilderness Survival Skills	2
PED 237 Paddle Sports	2
PER 253 Outdoor Leadership	2
<b>Additional General Education Courses</b>	<b>38</b>
See page 10.	
<b>Approved Electives</b>	<b>6</b>
See page 11.	
<b>Total Credits</b>	<b>60</b>

## Physician Assistant

### Certificates:

#### Physician Assistant Master's Degree Option

Physician Assistants (PAs) are healthcare providers who are authorized to practice medicine with the supervision of a licensed physician. The primary mission of the RRCC PA Program is to prepare PAs to become competent and compassionate health care providers who work in communities and with patient populations in primary care deemed to be medically underserved.

## Philosophy

### Degree: Associate of Arts

The completion of the following courses is appropriate if you are planning to transfer to a four-year college or university to complete a major in philosophy. Meet with a philosophy faculty advisor before beginning any program of study.

Required Courses	Credits
PHI 111 Introduction to Philosophy	3
PHI 112 Ethics	3
PHI 113 Logic	3
PHI 114 Comparative Religions	3
<b>Additional General Education Courses</b>	<b>32</b>
See page 10.	
<b>Approved Electives</b>	<b>16</b>
See page 11.	
<b>Total Credits</b>	<b>60</b>

## Phlebotomy

(See Health Professions)

## Photography

(See Multimedia Graphic Design)

The rigorous, year-round, full-time, 24-month curriculum leads to a certificate that qualifies graduates to sit for the Physician Assistant National Certifying Examination (PANCE). The first 12 months of the program is devoted to classroom, laboratory, and small-group work, most of which is on campus. The second 12 months is devoted to off-campus clinical rotations, many of which may be scheduled at sites outside of the Denver metropolitan area. Qualified students may seek to co-register at an affiliate institution to obtain a master's degree to be completed at the same time as the certificate.

Please note that admissions requirements, program curriculum, and graduation requirements are subject to change. The RRCC PA program Web site is the most current source for program information. ([www.rrcc.edu/pa](http://www.rrcc.edu/pa))

**Program Application and Prerequisites:**

Candidates must submit an application to the program through the Central Application Service for Physician Assistants (CASPA). Application information with a link to CASPA is found on the RRCC PA program website. At the time of application, candidates must have completed a Bachelors degree from a regionally accredited institution of higher education. At the time of application, the following courses must have been completed with a grade of C or better:

<b>Minimum Prerequisite Course Credits:</b>	
College algebra or higher math	4
English electives	6
Human Anatomy and Physiology (200 level or higher)	6
Microbiology (200 level or higher)	3
Statistics	3
Chemistry (including 200 level or higher organic or biochemistry)	10
Psychology or social science electives	6
General College Biology with lab	4

International transcripts must be evaluated by an agency acceptable to RRCC. A TOEFL test with a computer-based score of at least 100 or paper equivalent is required of international candidates whose primary language is not English or whose transcripts reflect course work not taught in English.

At the time of application, candidates must have completed at least 2,000 hours of direct human patient care in a formal health care setting. There are many professions that meet this requirement. Please refer to the program website for a list. A personal interview is required prior to matriculation.

If selected for the program, students will be required to undergo a background check. Tuition is approximately \$310.00/credit hour for Colorado residents and \$420.00/credit hour for nonresidents. Student fees average \$400.00 per semester for PA students. Tuition and fees are subject to change. Advanced placement and credit for prior learning are not available.

If selected for the Physician Assistant program, students must undergo a health screening and produce evidence of current immunizations and negative TB status. These must be kept current during the entire two years the student is in the program. Students must produce and maintain a current BLS (CPR) provider card while in the program.

<b>Required First Year Courses</b>		<b>Credits</b>
PAP 200	Biochemistry and Cell Biology	3
PAP 203	Role of the PA and Health Care Issues	1
PAP 205	Human Anatomy and Development	3
PAP 207	Health Promotion	1
PAP 210	Human Physiology	3
PAP 212	Introduction to Emergency Medicine	1
PAP 217	Introduction to Clinical Medicine	1
PAP 218	Evaluation of Medical Literature	1
PAP 219	History and Physical Examination I	2
PAP 220	History and Physical Examination II	2
PAP 221	Clinical Medicine I	3
PAP 222	Clinical Medicine II	3
PAP 223	Pediatrics	2
PAP 224	Introduction to Surgery	1
PAP 225	Women's Health Care	1
PAP 226	Clinical Procedures	1
PAP 227	Problem-Based Learning I	1
PAP 228	Problem-Based Learning II	1
PAP 229	Problem-Based Learning III	1
PAP 230	Pharmacology I	1
PAP 231	Pharmacology II	3
PAP 235	Pathophysiology of Disease	2
PAP 240	Behavioral Science in Primary Care	3
HPR 120	ACLS	1
HPR 130	PALS	1
<b>Total First Year Credits</b>		<b>43</b>

**Required Second Year Courses:**

PAP 261 - 272 (4 credits each)

48 weeks of fulltime clinical rotations in family medicine, internal medicine, pediatrics, emergency medicine, surgery, women's health, long term care, selectives, and electives.

<b>Total Second Year Credits</b>	<b>36</b>
<b>Total Program Credits</b>	<b>79</b>

## Physics

The completion of the following courses is appropriate for you if you plan to transfer to a four-year college or university to complete a major in physics. Consult with a physics faculty advisor before beginning any program of study.

These courses provide the basic preparation leading to physics-related careers. Some courses might not be offered each semester.

### Degree: Associate of Science

Required Courses	Credits
CSC 160 Computer Science I	5
MAT 201 Calculus I *	5
MAT 202 Calculus II	5
MAT 204 Calculus III with special topics	5
PHY 211 Physics: Calculus-based I *	5
PHY 212 Physics: Calculus-based II *	5
*Fulfills General Education requirements	
<b>Additional General Education Courses</b>	<b>27</b>
See page 12.	
<b>Approved electives</b>	<b>3</b>
See page 13.	
<b>Total Credits</b>	<b>60</b>

## Plumbing

This program provides basic entry level and job upgrade skills. It is also intended to assist in the preparation of plumbers for successful completion of state plumbing exams. Completion of plumbing related coursework at Red Rocks Community College can replace the field experience (work under a master plumber) required to qualify to take the exams as follows: one hour of classroom training equals one hour of on the job training up to a maximum of one year.

**Bachelor of Science transfer program:** All Construction Technology Associate of Applied Science graduates are eligible to participate in the Colorado Community College Pathways program, a strategic partnership between DeVry University – Colorado and Red Rocks Community College. Students may transfer 80+ credit hours from Red Rocks Community College to DeVry University and complete a Bachelor of Science in Technical Management in as few as two semesters.

The plumbing career pathway curriculum is under revision. Beginning in Spring 2009, the sequence of basic skills courses will align with the Plumbing, Heating, Cooling Contractors (PHCC) national four-year apprentice-training curriculum. Slight changes will be made to reflect Colorado Codes and regulations. Consult with a Construction Technology advisor at 303.914.6367 for additional details.

Specialized and job upgrade courses (for example, PLU 207 International Plumbing Code, PLU 205 Backflow Prevention Certification Training, PLU 247 Hot Water Heating Systems) will continue to be taught as stand alone courses.

### Degrees: Associate of Applied Science

**Plumbing**  
Plumber/Pipe fitter

### Certificates:

**Colorado Plumbing Code Test Preparation**  
**International Plumbing and Mechanical**  
**Codes**

(see Construction Technology)

**RRCC / PHCC Plumbing Apprenticeship**

First Year  
Second Year  
Third Year  
Fourth Year

### AAS Degree

#### Plumbing

Required Courses	Credits
Plumbing Apprenticeship Certificates (Years 1- 4)	59
Construction Technology Core Requirements	5
See page 65.	
<b>General Education Requirements - Addition Courses</b>	<b>12</b>
See page 17.	
<b>Total Credits</b>	<b>76</b>

### AAS Degree

#### Plumber/Pipefitter

Through a partnership with the United Association of Plumbing and Pipefitters, Construction Technology offers an associate of applied science degree to those who have completed their apprenticeships.

Required Courses	Credits
Credits from Articulated Apprenticeship Program	43
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
Computer Skills	2
<b>Total Credits</b>	<b>60</b>



## Certificate

### Colorado Plumbing Code Test Preparation

Contact your Construction Technology advisor to plan course sequencing.

Required Courses	Credits
PLU 150 Code and Piping Calculations	2
PLU 202 International Residential Code Plumbing	2
PLU 207 International Plumbing Code	4
PLU 208 International Fuel Gas Code	4
<b>Total Credits</b>	<b>12</b>

## Certificate

### Residential Plumbing and Heating

Required Courses	Credits
Residential Plumbing Certificate	31
PLU 247 Hot Water Heating Systems	4
HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 140 Basic Sheet Metal	4
HVA 162 Heating Controls	4
HVA 206 International Mechanical Code	4
PLU 208 International Fuel Gas Code	4
HVA 240 Servicing Forced Air Systems	4
<b>Total Credits</b>	<b>63</b>

## Certificates:

### RRCC / PHCC Plumbing Apprenticeship

#### First Year Apprenticeship Certificate

Required Courses	Credits
PLU 111 Plumbing Apprentice Yr1 Sem1	5
OSH 127 10-HR Construction Industry Standards	1
PLU 112 Plumbing Apprentice Yr1 Sem2	5
MAT 107 Career Math	3
<b>Total Credits</b>	<b>14</b>

#### Second Year Apprenticeship Certificate

Required Courses	Credits
PLU 121 Plumbing Apprenticeship Yr 2 Sem 1	5
CON 230 Blueprint Reading	4
PLU 122 Plumbing Apprenticeship Yr 2 Sem 2	5
PLU 104 Plumbing Service	4
<b>Total Credits</b>	<b>18</b>

#### Third Year Apprenticeship Certificate

Required Courses	Credits
PLU 231 Plumbing Apprenticeship Yr 3 Sem 1	5
PLU 208 International Fuel Gas Code	4
PLU 232 Plumbing Apprenticeship Yr 3 Sem 2	5
PLU 247 Hot Water Heating Systems	4
<b>Total Credits</b>	<b>18</b>

## Fourth Year Apprenticeship Certificate

Required Courses	Credits
PLU 207 International Plumbing Code	4
PLU 242 Plumbing Apprenticeship Yr 4	5
<b>Total Credits</b>	<b>9</b>

## Political Science

### Degree: Associate of Arts

If you plan to transfer to a four-year college or university to complete a major in political science, you should complete the following courses. Consult with a faculty or academic advisor before beginning this program of study. These courses provide the basic preparation leading to political science-related careers.

Required Courses	Credits
POS 105 Introduction to Political Science*	3
POS 111 American Government*	3
POS 205 International Relations*	3
POS 225 Comparative Government*	3
ECO 201 Principles of Macroeconomics*	3
HIS 201 U.S. History I*	
or	
HIS 202 U.S. History II*	3
HIS 247 Contemporary World History*	3

\*Fulfills General Education requirement

#### Additional General Education Courses 29

See page 10.

#### Approved Electives 10

See page 11.

#### Total Credits 60

## Pre-Nursing

Admission and course requirements vary among nursing programs. Please work closely with an advisor from the college or university you plan to attend to earn your RN degree.

Recommended Courses	Credits
ANT 101 Cultural Anthropology	3
BIO 201 Human Anatomy and Physiology I	4
BIO 202 Human Anatomy and Physiology II	4
BIO 204 Microbiology	4
CHE 101 Introduction to Chemistry I	5
ENG 121 English Composition I	3
ENG 122 English Composition II	3
MAT 135 Introduction to Statistics	3
NUA 101 Nurse Aide Theory/Lab	4
NUA 170 Nurse Aide Clinical	1
HWE 100 Human Nutrition	3
PSY 101 General Psychology I	3

PSY 235	Human Growth and Development	3
SOC 101	Introduction to Sociology I	3

Note: Completion of course work at RRCC does not guarantee acceptance into a nursing program.

Information: 303.894.2430 or  
www.dora.state.co.us/nursing

## Precision Machining Technology

(In cooperation with and taught at Warren Tech)

This program is designed to develop the skills necessary for entry-level employment in the machining industry. Entry-level skills in fabrication and plastic parts that meet industrial standards will be taught.

## Degree: Associate of Applied Science

### Precision Machining

### Certificates:

- Lathe Operator**
- Mill Operator**
- CNC Lathe Operator**
- CNC Mill Operator**

## AAS Degree

### Precision Machining

Required Courses	Credits
MAC 101 Introduction to Machine Shop	3
MAC 102 Blueprint Reading	3
MAC 110 Introduction to Engine Lathe	3
MAC 111 Intermediate Engine Lathe	3
MAC 120 Introduction to Milling Machine	3
MAC 121 Intermediate Milling Machine	3
MAC 201 Introduction to CNC Turning Operations	3
MAC 205 Introduction to CNC Milling Operations	3
MAC 250 Advanced Inspection Techniques	3
MAC 252 Practical Metallurgy	3
<b>Choose 15 credits from any of the following courses:</b>	
MAC 123 Horizontal Mill Set Up and Operations Description	3
MAC 130 Conventional Lathe Operations	4
MAC 141 Advanced Machining Operations	4
MAC 202 CNC Turning Operations II	3
MAC 206 CNC Milling Operations II	3
MAC 221 Surface Grinder Setups and Operations	3
MAC 223 Tool and Cutter Grinder	3
MAC 240 CAD/CAM 2D	3
MAC 245 CAD/CAM 3D	3
MAC 258 Interpreting Engineering Drawings	3
TEC 205 Geometric Dimensioning and Tolerancing	3

General Education Requirements	
ENG 131 Technical Writing	3
MAT 107 Career Math (or higher)	3
<b>Credit from any two of the following three areas:</b>	<b>9</b>
Arts and Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, COM, SPA, THE)	
Science (AST, BIO, CHE, GEY, PHY)	
Social Science (ANT, ECO, HIS, POS, PSY, SOC)	
<b>Total Credits</b>	<b>60</b>

## Certificate

### Lathe Operator

Required Courses	Credits
MAC 101 Introduction to Machine Shop	3
MAC 102 Blueprint Reading	3
MAC 110 Introduction to Engine Lathe	3
MAC 111 Intermediate Engine Lathe	3
MAC 112 Advanced Engine Lathe	3
<b>Total Credits</b>	<b>15</b>

## Certificate

### Mill Operator

Required Courses	Credits
MAC 101 Introduction to Machine Shop	3
MAC 102 Blueprint Reading	3
MAC 120 Introduction to Milling Machine	3
MAC 121 Intermediate Milling Machine	3
MAC 122 Advanced Milling Machine Operations	3
<b>Total Credits</b>	<b>15</b>

## Certificate

### CNC Lathe Operator

Required Courses	Credits
MAC 201 Introduction to CNC Turning Operations	3
MAC 202 CNC Turning Operations II	3
MAC 240 CAD/CAM 2D	3
<b>Total Credits</b>	<b>9</b>

## Certificate

### CNC Mill Operator

Required Courses	Credits
MAC 205 Introduction to CNC Milling Operations	3
MAC 206 CNC Milling Operations II	3
MAC 240 CAD/CAM 2D	3
<b>Total Credits</b>	<b>9</b>

## Process Technology – Energy Operations

### Degree: Associate of Applied Science

#### Process Technology – Energy Operations

#### Certificates:

- Introduction to Process Equipment
- Introduction to Process Plant Instrumentation
- Introduction to Process Plant Safety
- Introduction to Process Plant Operations
- Introduction to Process Plant Quality Management

### AAS Degree

#### Process Technology – Energy Operations

The Process Technology – Energy Operations Program will prepare students for entry level employment as industrial operations technicians and operators. A process operator/technician is a key member of a team of people responsible for planning, analyzing, and controlling the production of electrical energy, oil and gas energy resources, alternate energy production and food and beverage and consumer products.

This program will provide the student with an understanding of process equipment and its principles of operation and control. The graduate will understand the technical aspects of the work, the responsibilities of the work and the importance of safety in this vitally important, shift oriented position.

The industries interested in the graduates from the program include, but are not limited to energy source production, oil and gas exploration and production, mining and mineral processing, petroleum product manufacturing, pharmaceutical production, food and beverage, electric power generation, drinking water treatment and wastewater treatment.

Information: 303.914.6063, [chuck.beck@rrcc.edu](mailto:chuck.beck@rrcc.edu)  
[www.rrcc.edu/isod/](http://www.rrcc.edu/isod/)

Required Courses	Credits
PRO 100 Introduction to Process Technology	3
PRO 110 Safety, Health, and Environment	3
PRO 120 Process Technology: Equipment I	4
PRO 125 Process Technology: Equipment II	4
PRO 130 Process Instrumentation I	3
PRO 131 Process Instrumentation II	3
PRO 210 Process Technology II: Systems	4

PRO 220 Process Technology III: Operations	4
PRO 230 Quality in Process Technology	3
PRO 240 Process Trouble Shooting	4
PRO 280 Internship	3

#### Required General Education Courses:

CIS 118 Introduction to PC Applications	3
BUS 118 Business Survival Skills	3
ENG 121 English Composition I	3
MAT 107 Career Math	3
CHE 101 Introduction to Chemistry w/lab	5
PHY 105 Conceptual Physics	4
SOC 101 Introduction to Sociology	
or	
PSY 101 General Psychology I	3
<b>Total Credits</b>	<b>62</b>

#### Certificates:

Students completing this program possess the skills and knowledge for entry level positions within the industry in the specific area of interest.

### Certificate

#### Introduction to Process Equipment

Required Courses	Credits
PRO 100 Introduction to Process Technology	3
PRO 110 Safety, Health, and Environment	3
PRO 120 Process Technology: Equipment I	4
PRO 125 Process Technology: Equipment II	4
<b>Total Credits</b>	<b>14</b>

### Certificate

#### Introduction to Process Plant Instrumentation

Required Courses	Credits
PRO 110 Safety, Health, and Environment	3
PRO 130 Process Instrumentation I	3
PRO 131 Process Instrumentation II	3
<b>Total Credits</b>	<b>9</b>

### Certificate

#### Introduction to Process Plant Safety

Required Courses	Credits
PRO 100 Introduction to Process Technology	4
PRO 110 Safety, Health, and Environment	3
<b>Total Credits</b>	<b>7</b>

## Certificate

### Introduction to Process Plant Operations

Required Courses	Credits
PRO 110 Safety, Health, and Environment	3
PRO 120 Process Technology I: Equipment	4
PRO 210 Process Technology II: Systems	4
PRO 220 Process Technology III: Operations	4
<b>Total Credits</b>	<b>15</b>

## Certificate

### Introduction to Process Plant Quality

#### Management

Required Courses	Credits
PRO 110 Safety, Health, and Environment	3
PRO 230 Quality in Process Technology	3
CIS 118 Introduction to PC Applications	3
BUS 118 Business Survival Skills	3
<b>Total Credits</b>	<b>12</b>

## RN Refresher Program

(See Health Professions)

## Radiologic Technology

### Degree: Associate of Applied Science

The Radiologic Technology Program is designed to provide medical diagnostic radiography training for students who wish to establish eligibility to participate in the national certification examination of the American Registry of Radiologic Technologists. Graduates who pass this national certifying examination are qualified to assume diagnostic radiographer positions in thousands of medical facilities across the nation, both in hospitals and private clinics or offices. After gaining on-the-job experience, you may be allowed to participate in advanced level examinations, such as computed tomography, magnetic resonance imaging, or mammography. The radiography program is also an entry-level program for advanced imaging modalities, such as ultrasound, nuclear medicine, and radiation therapy. You must complete 15-17 credits of general education course work, as well as HPR 178 and RTE 101, prior to applying. Please visit the Medical Imaging Education Web site or contact a academic advisor for more information on the application process. Information sessions for the Radiologic Technology Program are held regularly throughout the year.

\*\*Additional fees are charged for RTE 181.

**Information: 303.914.6034, [www.rccc.edu/radiology](http://www.rccc.edu/radiology)**

Prerequisite Courses:	Credits
HPR 178 Medical Terminology	2
RTE 101 Introduction to Radiology	2

Required Courses	Credits
RTE 111 Patient Care	2
RTE 121 Radiologic Procedures I	3
RTE 131 Radiographic Pathology and Image Evaluation I	1.5
RTE 141 Radiographic Equipment and Imaging I	3
RTE 181 Clinical Internship I **	5
RTE 122 Radiologic Procedures II	3
RTE 132 Radiographic Pathology & Image Evaluation II	1.5
RTE 142 Radiographic Equipment and Imaging II	3
RTE 182 Clinical Internship II	5
RTE 183 Clinical Internship III	7
RTE 221 Advanced Medical Imaging	3
RTE 231 Radiation Biology/Protection	2
RTE 281 Clinical Internship IV	8
RTE 282 Clinical Internship V	8
RTE 289 Registry Review (Capstone)	3

## Psychology

### Degree: Associate of Arts

The field of psychology is concerned with the study of normal and abnormal human behavior. Psychologists frequently provide personal counseling in hospitals, clinics, schools, corrections facilities, or in their own private practices. Experimental psychologists work in laboratories and try to develop theories of why and how people behave as they do. Completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in psychology.

Consult with a faculty advisor before beginning any program of study.

Required Courses	Credits
PSY 101 General Psychology I *	3
PSY 102 General Psychology II *	3

#### Choose one of following advanced classes

PSY 215 Psychology of Adjustment	3
PSY 226 Social Psychology	3
PSY 235 Human Growth and Development *	3
PSY 238 Child Development	3
PSY 249 Abnormal Psychology	3

\*Fulfills General Education requirement.

#### Additional General Education Courses 29

See page 10.

#### Approved Electives 22

See page 11.

#### Total Credits 60

<b>General Education Requirements</b>	17
See page 17.	
<b>Recommended General Education Courses</b>	
<b>English Category</b>	
ENG 121 English Composition I	3
<b>Mathematics Category</b>	
MAT 107 Career Math/Technical	3
<b>Social Science Category</b>	
PSY 235 Human Growth and Development	3
<b>Science Category</b>	
BIO 201 Human Anatomy and Physiology I	4
BIO 202 Human Anatomy and Physiology II	4
<b>Total Credits</b>	<b>77</b>

## Real Estate and Small Business Start-Up

(See Business)

## Refrigeration

(See Air Conditioning, Heating, and Refrigeration)

## Renewable Energy Technology

Renewable energy sources are the cutting edge of America's quest for a diversified and secure energy future. Environmentally friendly and regenerating, renewable energy sources have always been the right choice, but with rising fuel costs, renewable energy sources are no longer a choice but a requirement. Careers in renewable energy will be increasing dramatically nationally as well as locally. There is an increasing demand for skilled workers in the local area for solar installers, home energy auditors and many other areas.

For information Larry Snyder, 303.914.6306  
larry.snyder@rrcc.edu

## Degrees: Associate of Applied Science

- Renewable Energy Technology**
- Solar Photovoltaic**
- Solar PV Business Owner**
- Solar Thermal**
- Solar Thermal Business Owner**

## Certificates:

- Grid Tie Entry Level**
- Advanced PV Installation**
- Solar PV Designer**
- Solar Thermal Entry Level**
- Solar Thermal Installer**
- Solar Thermal Designer**
- Energy Efficiency – Energy Auditing**
- Post EIC Degree Solar Photovoltaic**
- Post HVA Degree Solar Thermal**
- Energy Auditing**
- Energy Efficiency**

## AAS Degree

### Renewable Energy Technology

To earn this degree select a Solar Thermal or Solar Photovoltaic Specialty. Degree seeking students will complete the general education and core requirements listed below.

The AAS degree in Renewable Energy may also be customized to meet the needs of the entrepreneur operating a solar business. A renewable energy advisor will work with you to identify courses within the area which complement your career goals.

Information: Larry Snyder 303 914 6306, larry.snyder@rrcc.edu www.rrcc.edu/renewable

### Solar Photovoltaic Specialty AAS

Required Courses			Credits
ENY	101	Intro to Energy Technologies	3
ENY	102	Building Energy Audit Tech	3
OSH	127	10 hour Construction Industry Standards	1
HVA	105	Electricity for HVAC/R	4
CAR	123	Roof Framing	1
CAR	125	Roofing Materials and Methods	1
ENY	130	Photovoltaic Grid Tie	2
EIC	130	National Electrical Code I	4
CON	105	Construction Tech	4
ENY	131	Advanced Solar PV	2
ENY	132	NABCEP Entry Level Prep Class	1
ENY	230	PV Maintenance and Troubleshooting	2
ENY	231	Solar Contracting	4
ENY	240	Estimating for Energy	4
<b>Internship or elective</b>			<b>4</b>
General Education Courses			
ENG	131	Technical Writing	3
MAT	107	Career Math	3
PHY	107	Energy, Science and Technology	4

PHI 118	Philosophy of the Environment	3
BUS 118	Business Survival Skills	3
<b>Total Credits</b>		<b>56</b>

\*Seek advisor approval for elective courses in CON, BUS, ACT, CIS, ENY, MAR, MAN, COM, HVA, EIC, PLU

## Solar PV Business Owner Specialty AAS

Required Courses		Credits
ENY 101	Intro to Energy	3
ENY 102	Building Energy Audit	3
OSH 127	10 hour OSHA	1
HVA 105	Basic Electricity	4
ENY 130	Solar PV Grid Tie	2
CON 105	Construction Tech	4
ENY 231	Contractors Class	4
ENY 240	Estimating	4
<b>Advisor approved electives</b>		<b>16</b>
<b>Internship or elective</b>		<b>4</b>
General Education Courses		
ENG 131	Technical Writing	3
MAT 107	Career Math	3
PHY 107	Physics	4
PHI 118	Philosophy of the Environment	3
BUS 118	Business Survival Skills	3
<b>Total Credits</b>		<b>62</b>

\*Elective list for owner, a mix of advisor approved classes within CON, BUS, MAR, ACT, MAN, COM, CIS, PSY

## Solar Thermal Specialty AAS

Required Courses		Credits
ENY 101	Intro to Energy	3
ENY 102	Building Energy Audit	3
OSH 127	10 hour OSHA	1
HVA 105	Basic Electricity	4
CAR 123	Framing	1
CAR 125	Roofing materials	1
ENY 120	Solar Thermal Install	4
ENY 175	SpTp: Thermal Install II Controls	4
CON 105	Construction Tech	4
PLU 101	Piping skills	4
ENY 132	NABCEP Thermal prep	1
ENY 231	Solar Contracting	4
ENY 240	Estimating for Energy	4
<b>Internship or elective</b>		<b>8</b>
General Education Courses		
ENG 131	Technical Writing	3
MAT 107	Career Math	3
PHY 107	Physics	4
PHI 118	Philosophy of the Environment	3
BUS 118	Business Survival Skills	3
<b>Total Credits</b>		<b>62</b>

\*Seek advisor approval for elective courses in CON, BUS, ACT, CIS, ENY, MAR, MAN, COM, HVA, EIC, PLU

## Solar Thermal Business Owner Specialty AAS

Required Courses		Credits
ENY 101	Intro to Energy	3
ENY 102	Building Energy Audit	3
OSH 127	10 hour Construction Industry Standards	1
HVA 105	Basic Electricity	4
ENY 120	Thermal Install	4
CON 105	Construction Tech	4
ENY 231	Solar Contracting	4
ENY 240	Estimating for Energy	4
<b>Advisor approved electives</b>		<b>15</b>
<b>Internship or elective</b>		<b>4</b>
General Education Courses		
ENG 131	Technical Writing	3
MAT 107	Career Math	3
PHY 107	Physics	4
PHI 118	Philosophy of the Environment	3
BUS 118	Business Survival Skills	3
<b>Total Credits</b>		<b>62</b>

\*Elective list for owner, a mix of advisor approved classes within CON, BUS, ACT, MAR, MAN, COM, CIS, PSY

## Certificate

### Grid Tie Entry level

Required Courses		Credits
ENY 101	Intro to Energy Technologies	3
OSH 127	10 Hour Construction Industry Standards	1
HVA 105	Electricity for HVAC/R	4
EIC 110	Electrical Installations I	4
CAR 123	Roof Framing	1
CAR 125	Roofing Materials and Methods	1
ENY 130	Solar Photovoltaics Grid Tie	2
EIC 130	National Electrical Code I	4
<b>Total credits</b>		<b>20</b>

## Certificate

### Advanced PV Installation

Required Courses		Credits
ENY 101	Intro to Energy Technologies	3
OSH 127	10 Hour Construction Industry Standards	1
HVA 105	Electricity for HVAC/R	4
EIC 110	Electrical Installations I	4
CAR 123	Roof Framing	1
CAR 125	Roofing Materials and Methods	1
ENY 130	Solar Photovoltaics Grid Tie	2
EIC 130	National Electrical Code I	4
ENY 131	Advanced Solar PV	2
ENY 132	NABCEP Entry Level Prep Class	1
ENY 230	PV Maintenance and Troubleshooting	2
ENY 231	Solar Contracting	4
<b>Total credits</b>		<b>29</b>

## Certificate

### Solar PV Designer

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
ENY 102 Building Energy Audit Tech	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
ENY 130 Solar Photovoltaics Grid Tie	2
CON 105 Construction Tech	4
ENY 131 Advanced Solar PV	2
ENY 231 Solar Contracting	4
ENY 240 Estimating	4
ENG 131 Technical Writing	3
<b>Total credits</b>	<b>30</b>

## Certificate

### Solar Thermal Entry Level

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
CAR 123 Roof Framing	1
CAR 125 Roofing Materials and Methods	1
ENY 120 Solar Thermal System Install I	4
PLU 101 Piping skills	4
<b>Total credits</b>	<b>18</b>

## Certificate

### Solar Thermal Installer

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
CAR 123 Roof Framing	1
CAR 125 Roofing Materials and Methods	1
ENY 120 Solar Thermal System Install I	4
ENY 175 SP TP: Thermal Install II Controls	4
PLU 101 Piping skills	4
ENY 231 Contractors Class	4
<b>Total credits</b>	<b>26</b>

## Certificate

### Solar Thermal Designer

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
ENY 102 Building Energy Audit Tech	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
ENY 120 Solar Thermal System Install I	4
CON 105 Construction Tech	4
ENY 231 Solar Contracting	4
ENY 240 Estimating	4
ENG 131 Technical Writing	3
<b>Total credits</b>	<b>30</b>

## Certificate

### Post EIC Degree Solar Photovoltaic

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
CAR 123 Roof Framing	1
CAR 125 Roofing Materials and Methods	1
ENY 130 Solar Photovoltaics Grid-tie	2
ENY 131 Advanced Solar PV	2
ENY 230 PV Maintenance & Troubleshoot	2
ENY 280 Internship or Advisor Approved Electives	4
<b>Total Credits</b>	<b>20</b>

## Certificate

### Post HVA Degree Solar Thermal

Required Courses	Credits
ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
HVA 105 Electricity for HVAC/R	4
CAR 123 Roof Framing	1
CAR 125 Roofing Materials and Methods	1
ENY 120 Solar Thermal System Install I	4
ENY 175 SP TP: Thermal Install II Controls	4
ENY 280 Internship or Advisor Approved Electives	4
<b>Total Credits</b>	<b>22</b>

## Certificate

### Energy Auditing

ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
ENY 102 Building Energy Audit Tech	3
ENY 275 SP TP: Energy Auditing Field Course	3
ENY 280 Internship	3
Advisor Approved Electives*	6
<b>Total Credits</b>	<b>19</b>

\*Seek advisor approval for elective courses in SOC, PSY, PHI, AEC

## Certificate

### Energy Efficiency Weatherization

ENY 101 Intro to Energy Technologies	3
OSH 127 10 Hour Construction Industry Standards	1
ENY 175 SP TP: Green Advantage Technologies	3
CAR 130 Windows and Exterior Doors	1
CAR 135 Thermal/Moisture Methods/Mat	1
CAR 102 Hand and Power Tools	1
<b>Total Credits</b>	<b>10</b>

## Secondary Education

(See Teacher Education)

## Sociology

The field of sociology is the systematic and scientific study of the cultural, institutional, and interactional forces that drive social change, give rise to social institutions, and shape the everyday lives and realities of individuals. The completion of the following courses is appropriate for students who plan to transfer to a four-year college or university to complete a major in Sociology.

Consult with a faculty advisor before beginning any program of study.

### Degree: Associate of Arts

Required Courses	Credits
SOC 101 Introduction to Sociology I *	3
SOC 102 Introduction to Sociology II *	3
<b>Choose one from the following advanced classes</b>	<b>3</b>
SOC 205 Sociology of Family Dynamics	
SOC 215 Contemporary Social Problems	
SOC 218 Sociology of Diversity	
SOC 237 Sociology of Death and Dying	3
*Fulfills General Education requirements.	
<b>Additional General Education Courses</b>	<b>32</b>
See page 10.	
<b>Approved Electives</b>	<b>19</b>
See page 11.	
<b>Total Credits</b>	<b>60</b>

## Speech and Communication

(See Communication)

## Sonography

### Degree: Associate of Applied Science

**Diagnostic Medical Sonography**  
**Vascular Technology**  
**Diagnostic Cardiac Sonography**

### Certificates:

**Diagnostic Medical Sonography**  
**Vascular Technology**  
**Diagnostic Cardiac Sonography**

The Sonography program prepares you for entry-level positions in the field with specialization in general sonography, vascular technology, or cardiac sonography.

Upon completion of the program, you will be eligible to take the American Registry for Diagnostic Medical Sonography (ARDMS) certifying examination. You may choose between the associate of applied science degree option or the certificate of completion option. You must earn a C or better in all DMS courses to graduate.

\*\*Additional fees apply for DMS 280.

**Information: 303.914.6034**

## AAS Degree

### Diagnostic Medical Sonography

[www.rccc.edu/dms](http://www.rccc.edu/dms)

Prerequisite course:	Credits
RTE 255 Multiplanar Sectional Imaging or equivalent	2
Required Courses	Credits
DMS 205 Small Parts Ultrasound	2
DMS 206 Vascular Ultrasound	2
DMS 221 OB/GYN Ultrasound I	2
DMS 222 OB/GYN Ultrasound II	2
DMS 231 Abdominal Ultrasound I	2
DMS 232 Abdominal Ultrasound II	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>74.5</b>

## AAS Degree

### Vascular Technology

Required Courses	Credits
DMS 203 Cerebrovascular Sonography	2
DMS 204 Venous Sonography	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 251 Vascular Anatomy and Physiology	2
DMS 252 Abdominal Vascular Sonography	2
DMS 261 Introduction to Vascular Testing	2
DMS 262 Arterial Sonography	2
DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>74.5</b>



## AAS Degree

### Diagnostic Cardiac Sonography

Required Courses	Credits
DMS 255 Adult Echocardiography I	2
DMS 256 Adult Echocardiography II	2
DMS 265 Echocardiographic Pathology I	2
DMS 266 Echocardiographic Pathology II	2
DMS 235 Pediatric Echocardiography	2
DMS 206 Vascular Sonography	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
<b>Total Credits</b>	<b>74.5</b>

## Certificate

### Diagnostic Medical Sonography

Prerequisite Course	Credits
RTE 255 Multiplanar Sectional Imaging or equivalent	2
Required Courses	Credits
DMS 205 Small Parts Ultrasound	2
DMS 206 Vascular Ultrasound	2
DMS 221 OB/GYN Ultrasound I	2
DMS 222 OB/GYN Ultrasound II	2
DMS 231 Abdominal Ultrasound I	2
DMS 232 Abdominal Ultrasound II	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>Total Credits</b>	<b>59.5</b>

## Certificate

### Vascular Technology

Required Courses	Credits
DMS 203 Cerebrovascular Sonography	2
DMS 204 Venous Sonography	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 251 Vascular Anatomy and Physiology	2
DMS 252 Abdominal Vascular Sonography	2
DMS 261 Introduction to Vascular Testing	2
DMS 262 Arterial Sonography	2

DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>Total Credits</b>	<b>59.5</b>

## Certificate

### Diagnostic Cardiac Sonography

Required Courses	Credits
DMS 255 Adult Echocardiography I	2
DMS 256 Adult Echocardiography II	2
DMS 265 Echocardiographic Pathology I	2
DMS 266 Echocardiographic Pathology II	2
DMS 235 Pediatric Echocardiography	2
DMS 206 Vascular Sonography	2
DMS 241 Ultrasound Physics I	2
DMS 242 Ultrasound Physics II	2
DMS 244 Ultrasound Scan Lab	6
DMS 280 Ultrasound Clinical Observation	2.5
DMS 281 Clinical Internship I	8
DMS 282 Clinical Internship II	10
DMS 283 Clinical Internship III	10
DMS 289 Ultrasound Capstone	3
DMS Elective Courses	4
<b>Total Credits</b>	<b>59.5</b>

## Teacher Education

Contact the teacher education faculty advisor before beginning either of these programs of study.

## Degrees: Associate of Arts

Elementary Education

Secondary Education

## Degree: Associate of Applied Science

Paraeducator

## Certificates:

Paraeducator

Adult Education and Family Literacy (RRCC)

## AA Degree

### Elementary Education

The AA degree requirements comply with the state-wide Elementary Teacher Education Articulation Agreement

between RRCC and Colorado's public four-year colleges and universities. If you plan to transfer to a four-year college or university within Colorado to complete teacher certification, you must complete the 41 credits outlined below with a C or better. The remaining 19 credits needed for the AA degree are specific to individual transfer schools.

Before beginning to take classes, you must meet with RRCC's Teacher Education faculty advisor to plan a course of study and to examine the list of approved credits for each four-year institution in Colorado.

<b>General Education Courses</b>	<b>Credits</b>
<b>Communication</b>	
ENG 121 English Composition I (B or better)	3
ENG 122 English Composition II (B or better)	3
<b>Humanities</b>	
LIT 115, LIT 201, or LIT 202	3
<b>Mathematics</b>	
MAT 155 Integrated Math 1	3
MAT 156 Integrated Math II	3
<b>Social and Behavioral Sciences</b>	
GEO 105 World Regional Geography	3
HIS 201 United States History I or	
HIS 202 United States History II	3
POS 111 American Government	3
<b>Physical and Life Sciences</b>	
SCI 155 Integrated Science	4
SCI 156 Integrated Science	4
<b>Statewide Education Requirements:</b>	
COM 115 Public Speaking	3
PSY 238 Child Development	3
EDU 221 Introduction to Teacher Education	3
EDU 288 Practicum	1
<b>Transfer Institution Approved Credits</b>	<b>19</b>
(Meet with the teacher education faculty advisor for a list of approved credits for each institution.)	
<b>Total Credits</b>	<b>61</b>

## AA Degree

### Secondary Education

If you plan to transfer to a four-year college or university to complete a secondary education certification program, meet with the RRCC Teacher Education faculty advisor to design a course of study. Electives will include RRCC education courses and courses in your area of emphasis.

## AAS Degree

### Paraeducator

The federal No Child Left Behind Act mandates paraeducator requirements. In order to be considered as a highly qualified paraeducator, you must meet one of the following requirements:

- successfully complete two years of post-secondary education
- OR

- demonstrate your knowledge through a formal academic assessment (the Work Keys test) of writing, reading, and mathematics skills.

RRCC has developed a Paraeducator Certificate and an education track to assist paraeducators in meeting these new requirements. If you plan to transfer to a four-year college or university to complete teacher certification, you should consider the Associate of Arts degree, Elementary Education. This AAS degree prepares you to work as a paraeducator in the K-12 classroom.

<b>Required Courses</b>	<b>Credits</b>
EDU 110 Overview of Special Populations	3
EDU 151 Literacy Interventions for Paras	4
EDU 152 Math Interventions for Paras	3
EDU 153 ESL and Cultural Issues	3
EDU 261 Teaching, Learning and Technology	3
EDU 221 Introduction to Teacher Education	3
EDU 288 Practicum	1
PSY 238 Child Development	3
COM 115 Public Speaking	3
<b>Faculty advisor-approved electives</b>	<b>19</b>
<b>General Education Requirements</b>	<b>15</b>
See page 17.	
Select the general education core requirements and electives from the general education courses in the AA in elementary education.	
<b>Total Credits</b>	<b>60</b>

## Certificate

### Paraeducator

<b>Required Courses:</b>	<b>Credits</b>
EDU 151 Literacy Interventions for Paraeducators	4
EDU 152 Math Interventions for Paraeducators	3
EDU 261 Teaching, Learning and Technology	3
<b>Select 11 credits from the following recommended courses:</b> (Upon approval, other classes may be accepted.)	
EDU 110 Overview of Special Populations	3
EDU 153 ESL and Cultural Issues	3
EDU 221 Introduction to Education	3
EDU 288 Practicum	1
PSY 238 Child Psychology	3
EDU 240 Teaching the Exceptional Learner	3
EDU 234 Multicultural Education	3
<b>Total Required Credits</b>	<b>21</b>

## Certificate

### Adult Education and Family Literacy

Completing this program allows adult and family literacy educators to meet the federal No Child Left Behind Act and the Colorado Department of Education requirements. Certification is earned through completion of the first four courses listed below. EDU 135 is optional for Adult

Education and Family Literacy (AEFLA) program staff but is required for Even Start program staff.

<b>Required Courses</b>	<b>Credits</b>
EDU 131 Introduction to Adult Education	3
EDU 132 Planning, Organizing, and Delivering Adult Education Instruction	3
EDU 133 Adult Basic Education (ABE) and Adult Secondary Education (ASE/GED)	3
EDU 134 Teaching English as a Second Language (ESL) to Adult Learners	3
EDU 135 Family Literacy in Adult Education (Required for Even Start Program Staff))	3
<b>Total Credits</b>	<b>15</b>

## Theatre Arts

### Degrees: Associate of Arts

**Emphasis in Theatre Arts**

**Emphasis in Musical Theatre**

### Degree: Associate of Applied Science

**Theatre Technology**

### Certificates:

**Costume Basics**

**Costume and Fashion**

**Stagehand Basics**

**Stagecraft**

### AA Degree

#### Emphasis in Theatre Arts

The completion of the following courses is appropriate for those who plan to transfer to a four-year college or university to complete a major in theatre arts. This program provides basic preparation leading to theatre-related careers, as well as to the teaching of theatre. Consult with a faculty advisor before beginning any program of study.

<b>Recommended Courses</b>	<b>Credits</b>
THE 105 Theatre Appreciation	3
THE 111 Acting I	3
or	
THE 118 Acting Skills for Trades/Business	3
THE 116 Technical Theatre	3
THE 135 Stage Makeup I	2
THE 136 Stage Makeup II	2
THE 211 Development of Theatre I	3
THE 212 Development of Theatre II	3

**Choose one course from the following for a total of 3 credits:**

THE 210 Singing for Actors	3
THE 215 Playwriting	3

In addition to the above, include General Education transfer requirements for A.A. degrees at Red Rocks Community College.

**Total Required Credits 60**

### AA Degree

#### Emphasis in Musical Theatre

The following courses prepare you for musical stage performance and are appropriate if you plan to transfer to a four-year college or university to complete a major in musical theatre performance. Consult with a faculty advisor before beginning any program of study.

<b>Recommended Courses</b>	<b>Credits</b>
THE 105 Theatre Appreciation	3
THE 111 Acting I	3
THE 115 Stage Movement for Actors	3
THE 275 Special Topics: Voice Practicum	3
THE 135 Stage Makeup I	2
THE 136 Stage Makeup II	2
THE 210 Singing for Actors	3

DAN 3 credits of dance classes

In addition to the above, include General Education transfer requirements for A.A. degrees at Red Rocks Community College.

**Total Required Credits 60**

### AAS Degree

#### Theatre Technology

This two-year course of study will prepare you for entry-level employment in technical support positions within the entertainment industry. In addition, it will provide the first two years of necessary course work if you want to pursue advanced degrees at four-year institutions in theatre design and technology. Consult with the Program Chair of Theatre Arts and Dance early in your college career to explore all your educational options. You must earn a C or better in all theatre courses to graduate.

<b>Required Courses</b>	<b>Credits</b>
THE 104 Basic Costume Construction	3
THE 105 Theatre Appreciation	3
THE 116 Technical Theatre	3
THE 109 Basics of Pattern Drafting	3
Or	
THE 200 Paint, Draw, Render, Modeling Techniques	3
THE 135 Stage Makeup I	2
THE 136 Stage Makeup II	2
THE 151 Stagecraft I	3
THE 152 Production Stage Management I	3
THE 216 Theatre Lighting and Design	
or	
THE 245 Basic Costume Design and Construction	3

THE 211	Development of Theatre I	3
THE 212	Development of Theatre II	3
THE 221	Set Design or	
THE 237	History of Costumes and Fashion	3
THE 241	Stage Properties	3
THE 225	Sound Operation and Design	2
THE 260	Employment Skills for Technical Theatre	1
THE 280	Theatre Technology Internship - (Field Education)	1-6

**choose one from the following:**

THE 131	Theatre Production I	3
THE 132	Theatre Production II	3
THE 231	Theatre Production III	3
THE 232	Theatre Production IV	3

**General Education Requirements\*:** 15

\*A.A.S. in Theatre Technology requires THE 118: Acting Skills: Trades/Business in place of COM 115 or COM 125. See page 17.

**Total Credits** 60

## Certificate

### Costume Basics

The Certificate in Costume Basics is appropriate for those who want to prepare for a career in costume and fashion design. Upon completion of the courses, you will be prepared for entry-level employment in costume and fashion careers as stitchers, wardrobe assistants, and costume shop assistants. You should consult with the Program Chair of Theatre Arts and Dance early in your college career to explore all of your educational options. You must earn a C or better in all theatre courses to graduate.

This certificate is intended for a one semester course of study.

Required Courses	Credits
THE 105 Theatre Appreciation	3
THE 104 Basic Costume and Apparel Construction	3
THE 109 Basics of Pattern Drafting	3
THE 135 Stage Makeup I	2
THE 275 SpT: Advanced Sewing Techniques	3
THE 211 Development of Theatre I	3
<b>Total Credits</b>	<b>17</b>

## Certificate

### Costume and Fashion

The Certificate in Costume and Fashion is appropriate for those who want to prepare for a career in costume and fashion design. Upon completion of the courses, you will be prepared for entry-level employment in costume and fashion careers as stitchers, wardrobe assistants, costume shop assistants, working in alterations and tailoring, makeup artists, window dressers, and other fashion and entertainment-related employment

opportunities. This certificate also prepares you for pursuing an advanced degree in costume design and the fashion industry. You should consult with the Program Chair of Theatre Arts and Dance early in your college career to explore all of your educational options. You must earn a C or better in all theatre courses to graduate. This certificate is intended for a one year course of study, divided into two semesters.

Required Courses	Credits
THE 105 Theatre Appreciation	3
THE 104 Basic Costume and Apparel Construction	3
THE 109 Basics of Pattern Drafting	3
THE 135 Stage Makeup I	2
THE 136 Stage Makeup II	2
THE 200 Paint, Draw, Render, Modeling Techniques	3
THE 275 SpT: Advanced Sewing Techniques	3
THE 211 Development of Theatre I	3
THE 212 Development of Theatre II	3
THE 245 Basic Costume Design and Construction	3
THE 260 Employment Skills for Technical Theatre	1
<b>Total Credits</b>	<b>29</b>

## Certificate

### Stagehand Basics

This course of study is designed to train you for entry-level positions as back-stage technicians, running crews, shop assistants and set-building. Related professions are carpentry, cabinet-making, and careers requiring construction skills. You should consult with the Program Chair of Theatre Arts and Dance early in your college career to explore all of your educational options. You must earn a C or better in all theatre courses to graduate. This certificate is intended for a one semester course of study.

Required Courses	Credits
THE 105 Theatre Appreciation	3
THE 104 Basic Costume and Apparel Construction	3
THE 116 Technical Theatre	3
THE 135 Stage Makeup I	2
THE 211 Development of Theatre I	3
<b>Total Credits</b>	<b>14</b>

## Certificate

### Stagecraft

This course of study is designed to train you for entry-level positions as back-stage technicians, running crews, shop assistants, crew leaders, properties assistants, and set-building. Related professions are carpentry, cabinet-making, and careers requiring construction skills. You should consult with the Program Chair of Theatre Arts and Dance early in your college career to explore all of your educational options. You must earn a C or better in all theatre courses to graduate.

This certificate is intended for a one year course of study, divided in two semesters.

<b>Required Courses</b>		<b>Credits</b>
THE 105	Theatre Appreciation	3
THE 104	Basic Costume and Apparel Construction	3
THE 116	Technical Theatre	3
THE 135	Stage Makeup I	2
THE 136	Stage Makeup II	2
THE 211	Development of Theatre I	3
THE 120	Drafting for the Performing Arts	3
	or	
THE 200	Paint, Draw, Render, Modeling Techniques	3
THE 151	Stagecraft I	3
THE 212	Development of Theatre II	3
THE 225	Sound Operation and Design Basics	2
THE 241	Stage Properties	3
<b>Total Credits</b>		<b>30</b>

THE 280	Theatre Technology Internship - (Field Education)	1-6
THE 118	Acting Skills: Trades/Business	3
(This course is required in place of COM 125 under General Education Requirements.)		
<b>Choose one from the following:</b>		
THE 131	Theatre Production I	3
THE 132	Theatre Production II	3
THE 231	Theatre Production III	3
THE 232	Theatre Production IV	3
<b>General Education Requirements:</b>		<b>15</b>
See page 17.		
<b>Total Credits</b>		<b>60</b>

## Theatre Technology

### Degree: Associate of Applied Science

This two-year course of study will prepare you for entry-level employment in technical support positions within the entertainment industry. In addition, it will provide the first two years of necessary course work if you want to pursue advanced degrees at four-year institutions in theatre design and technology. Consult with the Director of Theatre Arts and Dance early in your college career to explore all your educational options. You must earn a C or better in all theatre courses to graduate.

<b>Required Courses</b>		<b>Credits</b>
THE 104	Basic Costume Construction	3
THE 105	Introduction to Theatre Arts	3
THE 116	Technical Theatre	3
THE 120	Drafting for the Performing Arts	
	or	
THE 109	Basics of Pattern Drafting	3
THE 135	Stage Makeup I	2
THE 136	Stage Makeup II	2
THE 151	Stagecraft I	3
THE 152	Production Stage Management I	3
THE 216	Theatre Lighting and Design	
	or	
THE 245	Basic Costume Design and Construction	3
THE 211	Development of Theatre I	3
THE 212	Development of Theatre II	3
THE 221	Set Design	
	or	
THE 237	History of Costumes and Fashion	3
THE 241	Stage Properties	3
THE 225	Sound Operation and Design	2
THE 260	Employment Skills for Technical Theatre	1

## Water Quality Management Technology

The Water Quality Management Technology Program is a comprehensive study of all levels and areas of operations in the water and wastewater industry. You will be introduced to the many functions and career opportunities within the field. You can then establish an educational program that best fits your goals and interests.

If you are working in the industry, you can obtain higher education and skill levels for higher operator certification by attending specific courses offered. A degree in water quality management technology will give you all the instruction necessary to work in supervisory and management positions.

**Information: Mike Smith 303.914.6325**  
[www.rrcc.edu/wqm/](http://www.rrcc.edu/wqm/)

### Degree: Associate of Applied Science

#### Water Quality Management

#### Certificates:

- Introduction to Water Treatment**
- Introduction to Wastewater Treatment**
- Laboratory Analysis**
- Mathematics in Water Quality**
- Education and Experience**
- Distribution and Collection Systems**
- Advanced Water Treatment Certification**
- Advanced Wastewater Treatment Certification**

## AAS Degree

### Water Quality Management

Required Courses	Credits
WQM 100 Introduction to Water Quality Management	3
WQM 105 Specific Calculations for Water Quality Management	4
WQM 119 Basic Water Quality Analysis	4
WQM 120 Water Quality Equipment Maintenance	4
WQM 126 Safety and Security Systems in the Water Quality Industry	3
WQM 200 Hydraulics for Water Quality Management	4
WQM 206 Design Interpretation of Water Quality Systems	4
WQM 216 Biological and Bacteriological Water Quality Analysis	4
WQM 217 Disinfection Techniques in Water Quality Systems	4
<b>General Education Requirements</b>	<b>12</b>
See page 17.	
<b>Faculty advisor-approved WQM electives</b>	<b>12</b>
<b>Required Electives</b>	
CIS 118 Introduction to PC Applications	3
GIS 101 Introduction To Geographic Information Systems	3
<b>Total Credits</b>	<b>64</b>

### Water Quality Certificates:

Students completing this program possess the skills and knowledge for entry level positions within the industry in your specific area of interest.

## Certificate

### Introduction to Water Treatment

Required Courses	Credits
WQM 100 Introduction to Water Quality Management	3
WQM 160 Managing the Global Water Supply	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Introduction to Wastewater Treatment

Required Courses	Credits
WQM 100 Introduction to Water Quality Management	3
WQM 123 Water Reuse Systems	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Laboratory Analysis

Required Courses	Credits
WQM 119 Basic Water Analysis	4
WQM 216 Bacteriological/Biological Water Analysis	4
<b>Total Credits</b>	<b>8</b>

## Certificate

### Mathematics in Water Quality

Required Courses	Credits
WQM 105 Specific Calculations	4
WQM 200 Hydraulics	4
<b>Total Credits</b>	<b>8</b>

## Certificate

### Education and Experience

Required Courses	Credits
WQM 126 Safety and Security Systems in Water Quality Management	3
WQM 280 Internship	3-6
<b>Total Credits</b>	<b>6-9</b>

## Certificate

### Distribution and Collection Systems

Required Courses	Credits
WQM 109 Water Distribution	3
WQM 118 Wastewater Collection Systems	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Advanced Water Treatment Certification

Required Courses	Credits
WQM 124 Water Treatment Review for C and D	3
WQM 224 Water Treatment Review for A and B	3
<b>Total Credits</b>	<b>6</b>

## Certificate

### Advanced Wastewater Treatment Certification

Required Courses	Credits
WQM 125 C and D Review for Wastewater Treatment	3
WQM 225 A and B Review for Wastewater Treatment	3
<b>Total Credits</b>	<b>6</b>

## Welding

(In cooperation with and taught at Warren Tech)

This program is designed to develop the skills necessary for entry-level employment in the welding industry. Entry-level welder certification from the American Welding Society may be earned upon completion of the program.

## Degree: Associate of Applied Science

### Welding

### Certificates:

**OFW and OFC Certificate**

**SMAW Certificate**

**GMAW Certificate**

**FCAW Certificate**

**GTAW Certificate**

## AAS Degree

Required Courses	Credits
WEL 100 Safety for Welders	1
WEL 101 Allied Cutting Process	4
WEL 102 Oxyacetylene Joining Processes	4
WEL 103 Basic Shielded Metal Arc Welding I	4
WEL 110 Advanced Shielded Metal Arc Welding I	4
WEL 124 Introduction to Gas Tungsten Arc Welding	4
WEL 201 Gas Metal Arc Welding I	4
WEL 202 Gas Metal Arc Welding II	4
WEL 203 Flux Cored Arc Welding I	4
WEL 204 Flux Cored Arc Welding II	4
WEL 224 Advanced Gas Tungsten Arc Welding	4
WEL 250 Layout and Fabrication	4
CAD 101 Computer Aided Drafting I	3
<b>General Education Requirements</b>	
ENG 131 Technical Writing	3
MAT 107 Career Math (or higher)	3
COM 115 Public Speaking	3
PHY 105 Conceptual Physics	4
<b>Elective from any of the following areas:</b>	<b>3</b>
Arts and Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, COM, SPA, THE)	
Science (AST, BIO, CHE, GEY, PHY)	
Social Science (ANT, ECO, HIS, POS, PSY, SOC)	
<b>Total Credits</b>	<b>64</b>

## Welding Certificates

For the following certificates, you must complete WEL 100 Safety for Welders as a prerequisite course.

### Certificate

#### Ox-fuel Welding and Cutting (OFW and OFC)

Required Courses	Credits
WEL 100 Safety for Welders	1
WEL 101 Allied Cutting Process	4
WEL 102 Oxyacetylene Joining Processes	4
<b>Total Credits</b>	<b>9</b>

### Certificate

#### Shield Metal Arc Welding (SMAW)

Required Courses	Credits
WEL 103 Basic Shielded Metal Arc Welding I	4
WEL 110 Advanced Shielded Metal Arc Welding I	4
<b>Total Credits</b>	<b>8</b>

### Certificate

#### Gas Metal Arc Welding (GMAW)

Required Courses	Credits
WEL 201 Gas Metal Arc Welding I	4
WEL 202 Gas Metal Arc Welding II	4
<b>Total Credits</b>	<b>8</b>

### Certificate

#### Flux Core Arc Welding (FCAW)

Required Courses	Credits
WEL 203 Flux Cored Arc Welding I	4
WEL 204 Flux Cored Arc Welding II	4
<b>Total Credits</b>	<b>8</b>

### Certificate

#### Gas Tungsten Arc Welding (GTAW)

Required Courses	Credits
WEL 124 Intro. to Gas Tungsten Arc Welding	4
WEL 224 Advanced Gas Tungsten Arc Welding	4
<b>Total Credits</b>	<b>8</b>

## Wind Energy Technology

The Wind Energy Technology Program will prepare students for entry level employment as wind energy equipment technicians, often referred to as Wind Smiths. A wind energy technician is a key member of a team of people responsible for the operation and maintenance of electrical energy generation equipment and control systems for wind turbine generation systems. Individuals interested in the Wind Energy Technology program must be prepared for working in confined spaces and at heights greater than 100 feet. The individuals should be capable of lifting and carrying loads of 75 lbs plus. Individuals will be required to make a vertical climb of 300 feet with only two rest stops. The work will often be in extreme weather conditions at remote locations for extended periods. The Wind Energy Technology program is focused on the maintenance and repair of commercial wind turbines; gear boxes, generators, digital controllers, and other industrial maintenance skills.

The industries interested in the graduates from the program include, but are not limited to Wind Energy Farm owners and operators and firms that specialize in the maintenance and overhaul of wind powered generation equipment.

### Information:

Chuck Beck 303.914.6063, [chuck.beck@rrcc.edu](mailto:chuck.beck@rrcc.edu) or  
Larry Snyder 303 914 6306, [larry.snyder@rrcc.edu](mailto:larry.snyder@rrcc.edu)  
[www.rrcc.edu/wind](http://www.rrcc.edu/wind)

## Degree: Associate of Applied Science

### Wind Energy Technology

### Certificates:

Introduction to Wind Energy Technology  
Wind Energy Safety  
Wind Energy Basic Electro-Mechanical  
Wind Energy Advanced Electrical  
Wind Energy Advanced Mechanical

## AAS Degree

### Wind Energy Technology

Required Courses		Credits
ENY 175	Introduction to Wind Energy Technology	3
IMA 100	Introduction to Industrial Maintenance	3
EIC 124	Electrical Safety Requirements	1
OSH 175	Personal Safety for the Energy Industry	3
HVA 105	Electricity for HVAC/R	4
ENT 106	Print Reading	3
IMA 120	Pumps, Seals and Rotating Equipment	3
IMA 250	Industrial Machine Lubrication	3
MIL 107	Installing Belts Chains and Bearings	4
ENT 238	Fluid Power and Controls	3
EIC 160	Electrical Instruments and Measurement	4
EIC 220	Industrial Electrical Controls I	4
<b>Total Credits</b>		<b>38</b>
Required General Education Courses		Credits
CIS 118	Introduction to PC Applications	3
BUS 118	Business Survival Skills	3
ENG 121	English Composition I	3
MAT 107	Career Math	3
PHY 107	Energy Science and Technology	4
SOC 101	Introduction to Sociology	3
OR		
PSY 101	General Psychology I	3
Electives from HVA, and/or IMA prefixes		3
<b>Total General Education and Electives Courses</b>		<b>22</b>
<b>Total Degree Credits</b>		<b>60</b>

## Certificate

### Introduction to Wind Energy Technology

Required Courses		Credits
ENY 175	Introduction to Wind Energy Technology	3
IMA 100	Introduction to Industrial Maintenance	3
EIC 124	Electrical Safety Requirements	1
HVA 105	Electricity for HVAC/R	4
OSH 175	Personal Safety for the Energy Industry	3
<b>Total Credits:</b>		<b>14</b>

## Certificate

### Wind Energy Safety

Required Courses		Credits
EIC 124	Electrical Safety Requirements	1
OSH 175	Personal Safety for the Energy Industry	3
<b>Total Credits</b>		<b>4</b>



## Certificate

### Wind Energy Basic Electro-Mechanical

Required Courses	Credits
ENT 106 Print Reading	3
IMA 250 Industrial Machine Lubrication	3
MIL 107 Installing Belts, Chain Drives and Bearings	4
IMA 120 Pumps, Seals and Rotating Equipment	3
ENT 238 Fluid Power and Controls	3
EIC 160 Electrical Instruments and Measurement	4
EIC 220 Industrial Electrical Controls I	4
<b>Total Credits</b>	<b>24</b>

## Certificate

### Wind Energy Advanced Electrical

PPT 215 Power Generation Technology	3
IMA 150 Effective Problem Solving	2
EIC 230 Industrial Instrumentation and Controls	4
EIC 225 Programmable Controllers	4
<b>Total credits</b>	<b>13</b>

## Certificate

### Wind Energy Advanced Mechanical

Required Courses	Credits
IMA 150 Effective Problem Solving	2
MAC 105 Intro to Machining Technology	3
WEL 131 Intro to Industrial Welding	4
IMA 210 Vibration Analysis	3
<b>Total Credits</b>	<b>12</b>

## Woodworking

(See Fine Woodworking)

# NOTES

# COURSE DESCRIPTIONS

Here you will find descriptions of the courses offered in each of our programs. These course descriptions and course numbers are used by all Colorado Community Colleges to make it easier for you to select courses and transfer among state colleges. (A course numbered XXX means that the course is pending approval by the RRCC Curriculum Committee and CCCS.)



(A course numbered XXX means that the course is pending approval by the RRCC Curriculum Committee and CCCS.)

## **AAA – Academic Achievement**

### **AAA 050 SEMESTER SURVIVAL 2 CREDITS**

AAA 050 emphasizes basic study skills in order to bolster your chances of completing the current semester successfully.

### **AAA 101 THE STUDENT EXPERIENCE 1 CREDIT**

AAA 101 introduces you to college culture and prepares you for the challenges you will face in higher education. Through a series of interactive seminars, you will discover learning in a multicultural environment and use college and community resources to attain educational and career goals.

## **ACC – Accounting**

[WWW.RRCC.EDU/BUSINESS](http://WWW.RRCC.EDU/BUSINESS)

### **ACC 101 FUNDAMENTALS OF ACCOUNTING 3 CREDITS**

To apply toward graduation, this course must be taken prior to successfully competing ACC 121. ACC 101 presents the basic elements and concepts of accounting, with emphasis on the procedures used for maintaining journals, ledgers, and other related records, and for the completion of end-of-period reports for small service and merchandising businesses.

### **ACC 116 COMPUTERIZED BILLING 3 CREDITS**

ACC 116 introduces the concepts and operations of a computerized billing system. Topics include searches, queries, entries and posting account charges and payments, corrections and audits of journals, and preparation and printing of reports.

### **ACC 121 ACCOUNTING PRINCIPLES I 4 CREDITS**

Prerequisites: Accuplacer scores of 80 or better for reading and 45 or better for elementary algebra or equivalent SAT scores ACT scores or course work.

ACC 121 introduces the study of accounting principles for understanding of the theory and logic that underlie procedures and practices. Major topics include the accounting cycle for service and merchandising companies, special journals and subsidiary ledgers, internal control principles and practices, notes and interest, inventory systems and costing, plant assets and intangible asset accounting, and depreciation methods and practices.

### **ACC 122 ACCOUNTING PRINCIPLES II 4 CREDITS**

Prerequisite: ACC 121 or equivalent. ACC 122 continues the study of accounting principles as they apply to partnerships and corporations. Major topics include stocks and bonds, investments, cash flow statements, financial analysis, budgeting, and cost and managerial accounting.

### **ACC 123 ACCOUNTING PRINCIPLES I RECITATION 1 CREDIT**

Corequisite: ACC 121. ACC 123 offers an accompanying recitation for ACC 121, Accounting Principles I. The course exposes you to a broader accounting experience in the foundational studies of accounting. You will be introduced to additional problems, case studies, and applications of accounting in real-world business situations, using individual and team problem solving.

### **ACC 124 ACCOUNTING PRINCIPLES II RECITATION 1 CREDIT**

Corequisite: ACC 122. ACC 124 offers an accompanying recitation for ACC 122, Accounting Principles II. The course exposes you to a broader accounting experience in financial and managerial accounting. You will be introduced to additional problems, case studies, and applications of accounting in real-world business situations, using individual and team problem solving.

### **ACC 131 INCOME TAX 3 CREDITS**

Prerequisite: ACC 121 strongly recommended. ACC 131 presents basic concepts of federal income taxation, including gross income, deductions, accounting periods and methods, and property transactions, with emphasis on taxation of individuals and sole proprietorships.

### **ACC 135 SPREADSHEET APPLICATIONS FOR ACCOUNTING 3 CREDITS**

Prerequisite: ACC 121. ACC 135 introduces spreadsheets as an accounting tool. Using an accounting perspective, you will apply fundamental spreadsheet concepts. The spreadsheets are used as a problem solving and decision making tool.

### **ACC 138 PAYROLL AND SALES TAX 3 CREDITS**

Corequisite or prerequisite: ACC 101, ACC 121 or equivalent knowledge. ACC 138 acquaints you with laws pertaining to payroll and sales taxes including record keeping rules. You will prepare various federal, state, and local forms for reporting payroll taxes and sales taxes. A computerized payroll simulation is included in the course.

### **ACC 211 INTERMEDIATE ACCOUNTING I 4 CREDITS**

Prerequisite: ACC 122.

ACC 211 focuses on comprehensive analysis of generally accepted accounting principles (GAAP), accounting theory, concepts, and financial reporting principles for public corporations. It is the first of a two-course sequence in financial accounting and is designed primarily for accounting and finance majors. It focuses on the preparation and analysis of business information relevant and useful to external users of financial reports; explores the theories, principles, and practices surveyed in Accounting Principles; and critically examines real-world financial analysis and reporting issues.

### **ACC 212 INTERMEDIATE ACCOUNTING II 4 CREDITS**

Prerequisite: ACC 211.

ACC 212 focuses on the theoretical and practical aspects of accounting for long-term liabilities, stockholders equity, investments, pensions, and leases. It includes income tax allocation, financial statement analysis, cash flow statements, and accounting methods changes.

### **ACC 216 GOVERNMENTAL AND NOT-FOR-PROFIT ACCOUNTING 3 CREDITS**

Prerequisite: ACC 122.

ACC 216 addresses concepts of budgetary control as a matter of law and public administration theory. Accounting principles and procedures necessary to implement budgetary controls for governmental units and other not-for-profit institutions and organizations are presented.

### **ACC 226 COST ACCOUNTING 3 CREDITS**

Prerequisite: ACC 122.

ACC 226 presents cost accumulation methods and reports. It focuses on the concepts and procedures of job order, process, standard, and direct cost systems, budgeting, planning, and control of costs.

### **ACC 227 COST ACCOUNTING II 3 CREDITS**

Prerequisite: ACC 226.

ACC 227 is a continuation of ACC 226 and focuses on the decision-making aspects of managerial accounting using electronic spreadsheet applications for assigned problems. Topics include product pricing strategy, capital budgeting, the statement of cash flows, and application of linear programming.

### **ACC 245 COMPUTERIZED ACCOUNTING WITH A PROFESSIONAL PACKAGE 3 CREDITS**

Prerequisite: ACC 121 or ACC 101

ACC 245 integrates accounting principles and practices with a computerized accounting package such as Peachtree, DacEasy, or other professional package. This course emphasizes computerized functions of the general ledger and integrated accounts payable, accounts receivable, invoicing, and payroll systems.

### **ACC 275 SPECIAL TOPICS IN ACCOUNTING 1-3 CREDITS**

ACC 275 provides you with a vehicle to pursue in depth exploration of special topics of interest.

### **ACC 280 INTERNSHIP 1-3 CREDITS**

Prerequisite: Permission of instructor.

ACC 280 provides you with the opportunity to supplement coursework with practical work experience related to their

educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **ACC 285 INDEPENDENT STUDY 1-3 CREDITS**

Prerequisite: Permission of instructor.

ACC 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **ACE – Architectural**

### **ACE 221 BUILDING ELECTRICAL/MECHANICAL SYSTEMS 3 CREDITS**

ACE 221 acquaints you with electrical and mechanical equipment and systems in buildings. Lectures cover the basic principles of electrical distribution, artificial lighting, fire protection, plumbing systems, and heating, ventilating, and air conditioning (HVAC) systems.

## **ACT – Automotive Collision Technology**

[WWW.RRCC.EDU/AUTOTECH](http://WWW.RRCC.EDU/AUTOTECH)

### **ACT 101 INTRODUCTION TO AUTOMOTIVE COLLISION TECHNOLOGY 4 CREDITS**

ACT 101 is designed as an orientation to the automotive collision repair industry. You will receive an overview of job possibilities as well as learn various types of automobile construction. Names, uses, and maintenance procedures for a variety of tools and equipment are covered. The course focuses on general collision repair and refinishing shop safety

procedures with an emphasis on personal and environmental safety issues. You will also learn the proper handling and disposal of hazardous materials. of parts. Safety procedures and equipment use are included.

### **ACT 110 SAFETY IN COLLISION REPAIR**

#### **2 CREDITS**

ACT 110 introduces the student to safety techniques and operation as it relates to shop safety and industry standards. The student is exposed to regulations and collision shop operations. In addition, the student becomes involved with VICA, developing writing and speaking skills.

### **ACT 111 METAL WELDING AND CUTTING I**

#### **3 CREDITS**

ACT 111 covers sheet metal oxygen-acetylene welding and MIG welding techniques including safety, materials, equipment and setups. Personal and vehicle protective measures prior to welding procedures is presented.

### **ACT 121 NON-STRUCTURAL REPAIR PREPARATION**

#### **3 CREDITS**

ACT 121 covers the basic characteristics of preparation for automotive repair. Students familiarize themselves with damage analysis, extent of damage and the sequence of repair. Focuses on removal of vehicle components and protection of panels along with storage and labeling of parts. Safety procedures and equipment use are included.

### **ACT 122 PANEL REPAIR AND REPLACEMENTS**

#### **3 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent

ACT 122 covers straightening options prior to replacement decisions, and emphasizes the identification,

handling, and replacement of parts such as adjustment and alignment of bolt-on parts, fixed parts, and accessories.

### **ACT 123 METAL FINISHING AND BODY FILLING**

#### **3 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 123 covers metal finishing, metal shrinking, and the use of cosmetic fillers. Emphasis is placed on the use of proper tools required to perform these tasks, including use, selection, and safety procedures for tools and equipment selected.

### **ACT 124 EXTERIOR PANEL REPLACEMENT (WELD-ON)**

#### **3 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 124 covers the replacement of welded on panels such as quarters, roofs, cab panels, side panels, etc. Emphasis is placed on the use of proper tools required to perform these tasks, including use, selection, and safety procedures for tools and equipment selected.

### **ACT 131 STRUCTURAL DAMAGE DIAGNOSIS**

#### **3 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 131 focuses on methods of frame measurement using dimension charts and service manuals. It includes the use of self centering gauges and mechanical and electronic measuring. Appropriate terms and definitions of vehicle structures and vehicle diagnosis is covered including identification and analysis of damage. This course includes the techniques for basic hook ups and safety procedures used in making corrective pulls.

### **ACT 132 STRUCTURAL DAMAGE REPAIR**

#### **3 CREDITS**

Prerequisite: ACT 101, ACT 110, ACT 131, or Faculty Consent.

ACT 132 continues the study and application of frame measurement and repair. You will apply methods found in dimension charts and service manuals for vehicle diagnosis and straightening. Training includes the replacement of a structural panel with the identification of damaged suspension components replaced according to manufacturer's recommendations.

### **ACT 141 REFINISHING SAFETY**

#### **1 CREDIT**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 141 covers correct use of safety procedures used in refinishing. Proper fit and use of various types of protective equipment is emphasized. The identification of tools and equipment, with use and maintenance is covered including national guidelines for proper disposal and handling of hazardous materials.

### **ACT 142 SURFACE PREPARATION I**

#### **2 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 142 covers surface preparation for refinishing including cleaning, sanding, feather edging, chemical treatment of bare materials, and priming. The application of primers, including rationale and use is covered. In addition you will learn skills for proper removal and storage of exterior trim and protection of adjacent panels.

### **ACT 143 SPRAY EQUIPMENT OPERATION**

#### **2 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 143 covers the inspection, cleaning, and determination of the

condition of spray guns and related equipment. You will learn skills for adjusting spray guns by setting-up and testing spray gun operations.

### **ACT 144 REFINISHING I 2 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 144 provides the knowledge needed for application and use of automotive paint systems. This course includes locating color codes, mixing formulas, matching, and selections of materials. Proper paint gun use and adjustments is taught for the product being applied. In addition, you will practice correct masking and detailing techniques.

### **ACT 151 PLASTICS AND ADHESIVES I 1 CREDIT**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 151 is designed to teach the state-of-the-art repair for both rigid and flexible plastic components and choosing adhesives using the latest manufacturer's repair techniques.

### **ACT 170 AUTOMOTIVE COLLISION TECHNOLOGY LAB EXPERIENCES I 1-9 CREDITS**

Prerequisite: Completion of all courses in ACT specialization area.

ACT 170 is designed to prepare you to perform basic tasks for a specialized area in a controlled instructional lab.

### **ACT 171 AUTOMOTIVE COLLISION TECHNOLOGY LAB EXPERIENCES II 1-9 CREDITS**

Prerequisite: Completion of all courses in ACT specialization area. ACT 171 is a continuation of lab experience designed to prepare the individual to perform basic tasks for a specialized area in a controlled instructional lab.

### **ACT 172 AUTOMOTIVE COLLISION TECHNOLOGY LAB EXPERIENCES III 1-9 CREDITS**

Prerequisite: Completion of all courses in ACT specialization area. ACT 172 is a continuation of Lab experience designed to prepare the individual to perform basic tasks for a specialized area in a controlled instructional lab.

### **ACT 175 SPECIAL TOPICS 0.5-9 CREDITS**

ACT 175 assists those who are interested in individual topics within the normal curriculum. You will identify and select objectives that you need for industry upgrades or special training to enter the workforce. The student may explore current topics, issues or activities related to one or more aspects of the automotive collision industry.

### **ACT 180 AUTOMOTIVE COLLISION REPAIR INTERNSHIP 1-9 CREDITS**

Prerequisite: Completion of coursework in specialized area. ACT 180 is designed to meet the needs of the student in selected specialized area in a work-based environment. Individualized instruction at the job site is coordinated based on student's interest and instructor approval.

### **ACT 181 AUTOMOTIVE COLLISION REPAIR LEVEL II INTERNSHIP 1-9 CREDITS**

ACT 181 course is a continuation of Level I Internship. Student uses the knowledge and skills acquired throughout the ACT program in a job site placement.

### **ACT 205 ESTIMATING AND SHOP MANAGEMENT 3 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 205 initiates written estimates on damaged vehicles. You will learn shop management including work orders, ordering supplies, operating costs, time cards, shop liabilities, employee's safety, and insurance management issues.

### **ACT 211 METAL WELDING AND CUTTING II 2 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

Corequisite: ACT 111, 124 ACT 211 covers mig welding procedures of seam weld, stitch welds, and destructive testing. Resistance spot welding, which includes two-sided spot weld, plasma cutting, safety, materials, and equipment and operating procedures, with emphasis on shop safety are also presented.

### **ACT 220 STRUCTURAL REPAIR II 4 CREDITS**

Prerequisite: ACT 101, ACT 110, and all other lower level Structural Repair courses or Faculty Consent.

ACT 220 allows you to continue practice in structural damage analysis and measuring procedures on both, unitized and body-over-frame type vehicles. Proper methods for straightening, as well as replacing structural, mechanical, and electronic components are covered.

### **ACT 226 PRODUCTION 4 CREDITS**

Prerequisite: ACT 101, ACT 110, ACT 205, or Faculty Consent.

ACT 226 simulates the actual working procedures of an auto collision repair technician. The student performs a variety of structural and non-structural repairs, as well as refinishing operations in accordance with industry procedures, and in compliance with

estimates and flat-rate times from collision estimating guides. You will also develop leadership abilities and time management skills.

### **ACT 231 ADVANCED STRUCTURAL DAMAGE DIAGNOSIS AND REPAIR 3 CREDITS**

Prerequisite: ACT 101, ACT 110, and all other lower level Structural Repair courses or Faculty Consent

ACT 231 covers major automotive body repair in vehicles with major damage on conventional structures and unibody structures. Student learns the operation of equipment and techniques used to straighten and align damaged frames. Identification and analysis of frames, hot and cold stress relieving, servicing and sectioning of structural frames is also included. Liability issues and the importance of making these corrections according to the manufacturer's recommendations and industry standards are emphasized.

### **ACT 232 FIXED GLASS REPAIR 2 CREDITS**

Prerequisite: ACT 101, ACT 110, or Faculty Consent.

ACT 232 covers the removal and replacement of fixed glass using manufacturer's specifications, proper tools, and recommended materials. Application of skills is demonstrated and used for the removal and replacement of modular glass using manufacturer's specifications and procedures.

### **ACT 241 PAINT DEFECTS 3 CREDITS**

Prerequisites: ACT 101, ACT 110, and all other lower level Refinishing courses or Faculty Consent.

ACT 241 covers paint defects and emphasizes the causes of paint defects with methods to cure problems during and after refinishing procedures. You will learn to identify the proper surface preparations to

apply prior to refinishing. Training includes using paint equipment and determining paint film thickness with proper temperatures for refinishing.

### **ACT 242 SURFACE PREPARATION II 2 CREDITS**

Prerequisite: ACT 101, ACT 110, and all other lower level Refinishing courses or Faculty Consent  
ACT 242 emphasizes surface preparation for refinishing including cleaning, sanding, feather edging, chemical treatment of bare metals, and priming. The application of primers, including why and where to use them is covered.

### **ACT 243 REFINISHING II 2 CREDITS**

Prerequisite: ACT 101, ACT 110, and all other lower level Refinishing courses or Faculty Consent.

ACT 243 is an advanced course in which you will learn the necessary skills used to tint and blend panels working with the latest finishes and paints. Special coatings and procedures are covered in this course.

### **ACT 244 FINAL DETAIL 2 CREDITS**

Prerequisites: ACT 101, ACT 110, or Faculty Consent.

ACT 244 focuses on the detailing procedures in paint refinishing of vehicles. Methods and techniques are specialized to enhance painting skills. Transfers and tapes methods with decals etc. are demonstrated.

### **ACT 251 PLASTICS AND ADHESIVES II 1 CREDIT**

Prerequisites: ACT 101, ACT 110, ACT 151, or Faculty Consent.

ACT 251 emphasizes advanced plastic and adhesives. The current state-of-the-art repair for both rigid and flexible plastic components using the latest manufacturer's repair techniques are presented.

Sheet Molded Compound procedures and the use of proper adhesives are covered.

### **ACT 266 RESTRAINT SYSTEMS 1 CREDIT**

You will learn to inspect, remove, and replace active restraint systems, passive restraint systems, and supplemental restraint systems. Procedures are demonstrated for disarming and diagnosing restraint systems using electronic equipment and trouble codes. Instruction for passive restraint replacement is also covered in this course.

## **ANT – Anthropology**

**WWW.RRCC.EDU/  
ANTHROPOLOGY**

### **ANT 101 CULTURAL ANTHROPOLOGY 3 CREDITS**

ANT 101 studies human cultural patterns and learned behavior. It includes linguistics, social and political organization, religion, culture and personality, culture change, and applied anthropology.

### **ANT 107 INTRODUCTION TO ARCHAEOLOGY 3 CREDITS**

ANT 107 introduces the science of recovering the human prehistoric and historic past through excavation, analysis and interpretation of material remains. The course includes a survey of the archaeology of different areas of the Old and New Worlds and also includes the works of selected archaeologists and discussions of major archaeological theories.

### **ANT 111 PHYSICAL ANTHROPOLOGY 3 CREDITS**

ANT 111 studies human biology and its effects on behavior. It includes principles of genetics and evolution,



vertebrates and primates, human origins, human variation, and ecology.

**ANT 215 INDIANS OF NORTH AMERICA  
3 CREDITS**

ANT 215 studies the Indians of North America from the origins of native peoples in the New World, through the development of geographic culture areas, to European contact and subsequent contemporary Native American issues.

**ARA – Arabic**

**WWW.RRCC.EDU/LANGUAGES**

**ARA 101 CONVERSATIONAL ARABIC I  
3 CREDITS**

ARA 101 introduces beginning students to conversational Arabic and focuses on understanding and speaking Arabic. Covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

**ARA 102 CONVERSATIONAL ARABIC II  
3 CREDITS**

ARA 102 continues the sequence for students who wish to understand and speak Arabic. Covers basic conversational patterns, expressions, and grammar.

**ARM – Military Science  
(U.S. Army ROTC)**

**ARM 111 ADVENTURES IN LEADERSHIP I  
2 CREDITS  
FALL SEMESTER**

ARM 111 introduces you to fundamentals of leadership and the United States Army. It includes Army leadership doctrine, team-building concepts, time and stress

management, an introduction to cartography and land navigation, marksmanship, briefing techniques, and basic military tactics. The course includes lecture and laboratory. (Lab Fee).

**ARM 112 ADVENTURES IN LEADERSHIP II  
2 CREDITS  
SPRING SEMESTER**

ARM 112 investigates leadership in small organizations. The course covers basic troop leading procedures, military first aid and casualty evacuation concepts, creating ethical work climates, an introduction to Army organizations and installations, and basic military tactics. The course introduces you to effective military writing styles and includes lecture and laboratory. (Lab Fee).

**ARM 211 METHODS OF LEADERSHIP AND MANAGEMENT I  
3 CREDITS  
FALL SEMESTER**

ARM 211 reviews leadership and management concepts including motivation, attitudes, communication skills, problem solving, human needs and behavior, and leadership self-development. You will refine written and oral communications skills and explore the basic branches of the Army, and officer and NCO duties. You will conduct practical exercises in small unit light infantry tactics and perform as midlevel leaders in the cadet organization. The course includes lecture and laboratory. (Lab Fee).

**ARM 212 METHODS OF LEADERSHIP AND MANAGEMENT II  
3 CREDITS  
SPRING SEMESTER**

ARM 212 focuses on leadership and management functions in military and corporate environments. You

will study various components of Army leadership doctrine to include the four elements of leadership, leadership principles, risk management, and planning theory, the be-know-do framework, and the Army leadership evaluation program. The course continues to refine communication skills and includes lecture and laboratory. (Lab Fee).

**ART – Art**

**WWW.RRCC.EDU/ARTS**

**ART 110 ART APPRECIATION  
3 CREDITS**

ART 110 introduces the cultural significance of the visual arts, including media, processes, techniques, traditions, and terminology.

**ART 111 ART HISTORY ANCIENT TO MEDIEVAL  
3 CREDITS**

ART 111 provides the knowledge base to understand the visual arts, especially as related to Western culture. The course surveys the visual arts from the Ancient through the Medieval periods.

**ART 112 ART HISTORY RENAISSANCE TO MODERN  
3 CREDITS**

ART 112 provides the knowledge base to understand the visual arts, especially as related to Western culture. The course surveys the visual arts from the Renaissance through the Modern periods.

**ART 113 HISTORY OF PHOTOGRAPHY  
3 CREDITS**

Prerequisite: basic computer skills. ART 113 surveys the history of photography from its beginning to the present. Course emphasis is on individual photographers who have made significant contributions in the

field. You will attain an overview of technical, artistic, commercial, and social development of photography as a form of visual communication. You are required to have a basic knowledge of computers prior to taking this class. You should be able to upload and download files from the Internet, external devices, and flash drives; use the Internet for basic research; be able to send email and attachments; save information to CD/DVD, flash drive, and/or other external devices. Students without these skills are required to take MGD 101 Introduction to Computer Graphics either concurrently or prior to taking courses in digital photography.

### **ART 121 DRAWING I 3 CREDITS**

ART 121 investigates the various approaches and media that you need in order to develop drawing skills and visual perception.

### **ART 122 DRAWING II 3 CREDITS**

Prerequisite: ART 121 or permission of instructor.

ART 122 explores expressive drawing techniques with an emphasis on formal composition, color media, and content or thematic development.

### **ART 123 WATERCOLOR I 3 CREDITS**

Prerequisite: ART 121, ART 131, or permission of instructor.

ART 123 introduces the basic techniques and unique aspects of materials involved in the use of either transparent or opaque water media or both. Color theory is included.

### **ART 124 WATERCOLOR II 3 CREDITS**

Prerequisite: ART 123, or permission of instructor.

ART 124 continues the study of watercolor techniques, emphasizing

original compositions and experimentation with materials. Color theory is included.

### **ART 131 2-D DESIGN 3 CREDITS**

ART 131 examines the basic elements of design, visual perception, and artistic form and composition as they relate to two-dimensional media.

### **ART 132 3D DESIGN 3 CREDITS**

ART 132 focuses on learning to apply the elements and principles of design to three-dimensional problems.

### **ART 138 FILM PHOTOGRAPHY I 3 CREDITS**

ART 138 introduces you to black and white photography as a fine art medium and develops skills necessary for basic camera and darkroom operations. You will learn to create sharp, properly exposed photographs using black and white film. You will also gain a working knowledge of a camera's controls, use of basic filters, and processing and printing black and white photographs. A 35mm SLR film camera is required for this class.

### **ART 139 PHOTOGRAPHY II 3 CREDITS**

Prerequisite: ART138 Photography I or permission of instructor.

ART 139 expands on skills learned in Photography I in the areas of camera and lab operations and emphasizes individual creativity. Photography II includes the development of a comprehensive photographic portfolio. A35mm SLR film camera is required for this class.

### **ART 140 COLOR PHOTOGRAPHY I 3 CREDITS**

Recommended Prerequisites: ART 138 or ART 143 and basic computer skills or permission of instructor.

ART 140 covers the fundamentals of color photography such as color theory and light, production, processing and printing color negatives.

### **ART 141 JEWELRY AND METAL WORK I 3 CREDITS**

ART 141 introduces the construction of jewelry designs in metals and small casting techniques.

### **ART 142 JEWELRY AND METAL WORK II 3 CREDITS**

Prerequisite: ART 141, or permission of instructor.

ART 142 emphasizes conceptual design development, using casting and specialized techniques.

### **ART 143 DIGITAL PHOTOGRAPHY I 3 CREDITS**

Recommended Prerequisite: basic computer skills or MGD 101.

ART 143 analyzes acquisition and manipulation of digital images. You will study traditional photography methods of weaving contrast, sharpness, color, and composition together within the limitations of computer technology. The practical aspects of setting up a shoot, equipment needs, and camera controls are discussed.

You will examine color correction, restoration, colorizing, and archiving digital images. A digital SLR camera with manual settings is required for this class. You are required to have a basic knowledge of computers prior to taking this class. You should be able to upload and download files from the Internet, external devices, and flash drives; use the Internet for basic research; be able to send email and attachments; save information to CD/DVD, flash drive, or other external devices. Students without these skills are required to take MGD 101 Introduction to Computer Graphics

either concurrently or prior to taking courses in digital photography.

### **ART 146 STAINED GLASS I 3 CREDITS**

ART 146 develops a basic understanding of and approach to stained glass. You will gain an understanding of and appreciation for the properties of glass and the nature of finished stained glass construction.

### **ART 147 STAINED GLASS II 3 CREDITS**

Prerequisite: ART 146 or permission of instructor.

ART 147 is a continuation of Stained Glass I. You will advance to a clearer but still basic understanding and approach to stained glass. You will gain a greater understanding of and appreciation for the properties of glass and the nature of finished stained glass construction

### **ART 149 ANIMATION DRAWING/DESIGN 3 CREDITS**

ART 149 introduces the foundational skills necessary to create characters for use in computer based animation courses. Students learn to draw human and animal forms using pencil and paper. Character development, anatomy, dynamic movement and action, and scenery are emphasized.

### **ART 154 SCULPTURE I 3 CREDITS**

Prerequisite: ART 131, ART 132, or permission of instructor.

ART 154 introduces the fundamentals of sculpture such as modeling, casting, carving, and the processes of assemblage.

### **ART 155 SCULPTURE II 3 CREDITS**

ART 155 develops an understanding and focus on manipulation of three-dimensional form, with greater concentration on individual creativity and style.

### **ART 156 FIGURE DRAWING I 3 CREDITS**

ART 156 introduces the basic techniques of drawing the human figure.

### **ART 157 FIGURE PAINTING I 3 CREDITS**

ART 157 focuses on painting the human figure and includes a brief survey of figure painting and instruction in the fundamental methods of composition and expressions.

### **ART 158 FIGURE PHOTOGRAPHY I 3 CREDITS**

ART 158 introduces students to the social, artistic and photographic aspects of fine art figure studies in photography, as the human figure is one of the most studied and practiced subjects in the field of creative visual expression. Students have the opportunity to photograph the figure using professional lighting equipment and professional models. Students are expected to push the limits of their artistic and creative abilities, as well as develop technical skills used in figure and other areas of fine art photography. Professional ethics, concerns as well as group critiques are used throughout the course. Choice of camera, either digital or film, is left up to the student.

### **ART 161 CERAMICS I 3 CREDITS**

ART 161 introduces traditional and contemporary ceramic forms and processes, including handbuilding and throwing on the potter's wheel.

### **ART 162 CERAMICS II 3 CREDITS**

Prerequisite: ART 161.

ART 162 is a continuation of ART 161. This course emphasizes skill, technique and form.

### **ART 175-177 SPECIAL TOPICS 1-6 CREDITS**

Prerequisite: Permission of instructor.

ART 175-177 cover specific topics in art. These courses are offered as needed for credit appropriate to the topic. Each offering includes a description of the topic(s).

### **ART 207 ART HISTORY – 1900 TO PRESENT 3 CREDITS**

ART 207 provides you with the knowledge base to understand the visual arts as related to Modern and Contemporary visual art. This course surveys world art of the twentieth century, including Modernism to Post-Modernism.

### **ART 209 STUDIO ART 3 CREDITS**

Prerequisite: Permission of instructor.

ART 209 is designed for advanced students interested in further exploring an art discipline to develop a more comprehensive portfolio.

### **ART 211 PAINTING I 3 CREDITS**

Prerequisite: ART 121, ART 131, or permission of instructor.

ART 211 explores basic techniques, materials, and concepts used in opaque painting processes in oil or acrylic painting to depict form and space on a two-dimensional surface.

### **ART 212 PAINTING II 3 CREDITS**

Prerequisite: ART 211 or permission of instructor.

ART 212 further explores techniques, materials, and concepts used in opaque painting processes in oil or acrylic painting, with emphasis on composition and content development.

### **ART 213 PAINTING III**

#### **3 CREDITS**

Prerequisite: ART 212 or permission of instructor.

ART 213 provides continued exploration of techniques, materials, and concepts used in opaque painting processes in oil or acrylic painting, with emphasis on composition and content development.

### **ART 214 PAINTING IV**

#### **3 CREDITS**

Prerequisite: ART 213 or permission of instructor.

ART 214 explores advanced techniques, materials, and concepts used in opaque painting processes, with emphasis on the development of themes and a cohesive body of work.

### **ART 221 DRAWING III**

#### **3 CREDITS**

Prerequisite: ART 122 or permission of instructor.

ART 221 offers a continued study of expressive drawing techniques and development of individual style, with an emphasis on composition and technique variation.

### **ART 222 DRAWING IV**

#### **3 CREDITS**

Prerequisite: ART 221 or permission of instructor.

ART 222 explores advanced drawing problems with an emphasis on conceptual development and portfolio and/or exhibition quality presentation.

### **ART 223 WATERCOLOR III**

#### **3 CREDITS**

Prerequisite: ART 124 or permission of instructor.

ART 223 concentrates on the advanced study of subject development, form, color, and theme in watercolor.

### **ART 224 WATERCOLOR IV**

#### **3 CREDITS**

Prerequisite: ART 223 or permission of instructor.

ART 224 concentrates on the advanced study of techniques, individual style of expression, and consistency of compositional problem-solving in watercolor.

### **ART 225 PRINTMAKING I**

#### **3 CREDITS**

Prerequisites: ART 121 and ART 131, or permission of instructor.

ART 225 introduces the basic techniques and skills of printmaking as a fine art medium. Instruction includes an understanding of visual concepts as they relate to prints. The course may include introduction to relief, intaglio, lithography and screen printing techniques.

### **ART 226 PRINTMAKING II**

#### **3 CREDITS**

Prerequisite: ART 225 or permission of instructor.

ART 226 introduces more advanced techniques and skills of printmaking as a fine art medium. Instruction includes an understanding of visual concepts as they relate to prints. The course may include introduction to relief, intaglio, lithography and screen printing techniques.

### **ART 231 ADVANCED 2D**

#### **DESIGN**

#### **3 CREDITS**

Prerequisite: ART 131.

ART 231 provides continued study of the principles and elements of two-dimensional design with an emphasis on visual communication for further application in fine art, commercial art, and/or applied arts.

### **ART 232 ADVANCED 3D**

#### **DESIGN**

#### **3 CREDITS**

Prerequisite: ART 132.

ART 232 provides continued study of the principles and elements of three-dimensional design with an

emphasis on visual communication for further application in fine art, commercial art, and/or applied arts.

### **ART 238 FILM PHOTOGRAPHY II**

#### **3 CREDITS**

Recommended Prerequisite: ART 138.

ART 238 explores in depth, in film camera and lab operations with an emphasis on individual creativity. It includes the development of a comprehensive portfolio.

### **ART 239 COLOR**

#### **PHOTOGRAPHY II**

#### **3 CREDIT**

Recommended Prerequisite: ART 143 and basic computer skills or permission of instructor.

ART 239 is designed for students who are approaching a personal style and aesthetic in the medium of color photography. It is an extension of Color Photography I. Personal expression is stressed through individual critiques.

### **ART 240 LARGE FORMAT**

#### **PHOTOGRAPHY**

#### **3 CREDITS**

Recommended Prerequisite ART 138, ART 139 or 238 or permission of instructor.

ART 240 introduces the visual aesthetics and techniques of view camera photography. Students receive hands-on photographic experience with the 4x5 view camera, process film, and produce prints.

### **ART 241 JEWELRY AND METAL**

#### **WORK III**

#### **3 CREDITS**

Prerequisite: ART 142 or permission of instructor.

ART 241 focuses upon advanced work and emphasizes experimentation with materials and techniques, individual designs, and superior craftsmanship.

### **ART 242 JEWELRY AND METAL WORK IV 3 CREDITS**

Prerequisite: ART 241 or permission of instructor.

ART 242 provides continued study of the properties of metal and stone in creating decorative work. You will employ advanced design and techniques to explore original, personal expression. A variety of materials and approaches are used in discovering new and independently creative finished pieces.

### **ART 243 DIGITAL PHOTOGRAPHY II 3 CREDITS**

Prerequisite: ART 143 Digital Photography I or permission of instructor and basic computer skills. ART 243 is a continuation of the beginning digital photography class. This class looks at digital photography in terms of design and communication factors, including color, visual design, lighting, graphics, and aesthetics. A digital SLR camera with manual settings is required for this class. You are required to have basic computer skills or to have taken MGD 101 Intro to Computer Graphics.

### **ART 244 DIGITAL PHOTO STUDIO 3 CREDITS**

Prerequisite: ART 143 Digital Photography I or permission of instructor and basic computer skills. Introduces digital photography as a fine art medium, and develops skills necessary for basic operation of a digital camera and production of digital imagery.

### **ART 246 STAINED GLASS III 3 CREDITS**

Prerequisite: ART 147. ART 246 provides continued instruction in which you advance to a clearer and more advanced understanding and approach to stained glass. You will gain a greater understanding of and

appreciation for the properties of glass and the nature of finished stained glass construction. This course emphasizes original, personal expression.

### **ART 247 STAINED GLASS IV 3 CREDITS**

Prerequisite: ART 246. ART 247 continues instruction in stained glass with students advancing to a clearer understanding and approach. You will gain greater appreciation for the properties of glass and the nature of finished stained glass construction. This course focuses on original, personal expression. Student independence is emphasized with regard to use of material and tools and a wide variety of glass.

### **ART 248 DIGITAL DARKROOM: ADOBE PHOTOSHOP 3 CREDITS**

Recommended Prerequisites: ART 143 Digital Photography I or permission of instructor and basic computer skills. ART 248 is essentially Photoshop for Photographers. You will learn computer-aided photography and darkroom techniques. The emphasis of this course is image-editing software, which is used to color correct, retouch, and composite photographic images. Other topics include image acquisition, storage, file management, special effects, hard copy, and Web-based image output. A digital SLR camera with manual settings is required for this class. You are required to have basic computer skills or to have taken MGD 101 Intro to Computer Graphics.

### **ART 250 ART OF ANIMATION 3 CREDITS**

Recommended Prerequisite: ART 149 or permission of instructor. ART 250 introduces character development and transitions from one media to another. Students learn the foundational skills necessary to create the illusion

of life for sketched characters. Focuses on the traditional medium of paper and pencil to turn ideas into visual treatment for creating animatics by use of a light box and computer. Character development and storyboarding by script are emphasized.

### **ART 251 PORTRAIT PHOTOGRAPHY 3 CREDITS**

Recommended Prerequisites: ART 138 Photography I or ART 143 Digital Photography I. ART 251 teaches the technical and aesthetic aspects of studio and location portrait photography. This course explores the personal style of portraiture, the history of the field, and portraiture as a visual language and creative expression and also includes lighting, composition, posing, and equipment selection. Both film and/or digital SLR cameras with manual settings may be used for this class.

### **ART 252 LANDSCAPE PHOTOGRAPHY 2 CREDITS**

Co-requisite: PHO 240 Field Techniques and Exploration (1 credit). Recommended Prerequisites: ART 138 Photography I or ART143 Digital Photography I. ART 252 is designed for the advanced photography student interested in perfecting skills in shooting landscape or scenic photographs. Emphasis is placed on careful attention to detail and lighting conditions and use of medium and large format equipment in both color and black-and-white images. Both film and/or digital SLR cameras with manual settings may be used for this class.

**ART 253 STUDIO  
PHOTOGRAPHY  
3 CREDITS**

Recommended Prerequisite: PHO 204 Commercial Studio Lighting. ART 253 explores the creative uses of studio lighting from the perspective of fine art photography with an emphasis on portraiture, three dimensional object photography, and two dimensional collage photography.

**ART 254 SCULPTING THE  
FIGURE  
3 CREDITS**

ART 254 focuses on sculpting the human figure using modeling techniques in clay.

**ART 256 ADVANCED FIGURE  
DRAWING  
3 CREDITS**

Prerequisite: ART 156. ART 256 provides continuing study of the various methods of drawing the human figure, with emphasis on the description of form and individual style.

**ART 257 ADVANCED FIGURE  
PAINTING  
3 CREDITS**

Prerequisite: ART 157. ART 257 offers continued study of painting the human figure with advanced problem-solving in composition and experimentation with materials and techniques.

**ART 261 CERAMICS III  
3 CREDITS**

Prerequisite: ART 162. ART 261 encourages you to develop an individual style of wheel-thrown and hand-built ceramic forms with continuing involvement in surface treatment.

**ART 262 CERAMICS IV  
3 CREDITS**

Prerequisite: ART 261. ART 262 continues advanced work with emphasis on various clay

bodies, unique glazes and engobes, combining different textures and shapes, and development of personal forms.

**ART 264 MARKETING FOR THE  
VISUAL ARTIST  
3 CREDITS**

Prerequisite: 12 credits of any combination of ART courses. ART 264 provides you with the framework, tools, and professional materials necessary for the practicing visual artist. Guidelines for writing proposals, artist's statements, and resumes are discussed and practiced. The course explores theoretical and practical considerations related to portfolio presentation and exhibiting artwork through hands-on activities, readings, and discussion.

**ART 268 SCULPTURE III  
3 CREDITS**

Prerequisite: ART 155 or permission of instructor. ART 268 focuses on advanced individual sculpture projects, emphasizing experimentation with materials, accomplished technique and conceptual significance.

**ART 275-277 SPECIAL TOPICS  
1-6 CREDITS**

Prerequisite: Permission of instructor. ART 275-277 cover specific topics in art. These courses are offered as needed for credit appropriate to the topic. Each offering includes a description of the topic(s).

**ART 280 INTERNSHIP  
1-6 CREDITS**

Prerequisite: Permission of instructor. ART 280 provides the opportunity for you to gain supervised occupational experience in any of the disciplines involving the visual arts, including, but not limited to, gallery or museum administration and graphic design. Instruction is coordinated by the

on-site supervisor and instructor and is totally based on your occupational experience plan.

**ASE – Automotive  
Service Technology**

[WWW.RRCC.EDU/AUTOTECH](http://WWW.RRCC.EDU/AUTOTECH)

**ASE 101 AUTO SHOP  
ORIENTATION  
2 CREDITS**

ASE 101 provides you with safety instruction in the shop and on the automobile. Emphasis is placed on the proper use and care of test equipment, precision measuring and machining equipment, gaskets, adhesives, tubing, wiring, jacks, presses, and cleaning equipment and techniques.

**ASE 102 INTRODUCTION TO  
THE AUTOMOTIVE SHOP  
2 CREDITS**

ASE 102 prepares the incoming automotive student to work in the shop safely and gain familiarity with the shop and common equipment.

**ASE 110 BRAKES I  
3 CREDITS**

ASE 110 covers basic operation of automotive braking systems. The course includes operation, diagnosis, and basic repair of disc brakes, drum brakes, and basic hydraulic systems.

**ASE 120 BASIC AUTO  
ELECTRICITY  
2 CREDITS**

ASE 120 introduces automotive electricity and includes basic electrical theory, circuit designs, and wiring methods. Focuses on multi-meter usage and wiring diagrams.

**ASE 123 BATTERY STARTING  
AND CHARGING  
2 CREDITS**

ASE 123 covers the operation, testing, and servicing of automotive

battery, starting, and charging systems. Includes voltage and amperage testing of starter and generator, load testing and maintenance of a battery, and starter and generator overhaul.

### **ASE 130 GENERAL ENGINE DIAGNOSIS** **2 CREDITS**

ASE 130 focuses on lecture and related laboratory experiences in the diagnosis and necessary corrective actions of automotive engine performance factors.

### **ASE 132 IGNITION SYSTEM DIAGNOSIS AND REPAIR** **2 CREDITS**

Prerequisite: ASE 130.

ASE 132 focuses on theory and related laboratory experiences in the diagnosis, service, adjustments and repair of various automotive ignition systems.

### **ASE 134 AUTOMOTIVE EMISSIONS** **2 CREDITS**

Prerequisite: ASE 132.

ASE 134 focuses on theory and laboratory experiences in the diagnosis and repair of automotive emission control systems.

### **ASE 140 SUSPENSION AND STEERING I** **3 CREDITS**

ASE 140 focuses on theory and related experiences in the diagnosis and service of suspensions and steering systems and their components.

### **ASE 150 AUTOMOTIVE U-JOINT AND AXLE SHAFT SERVICE** **2 CREDITS**

ASE 150 studies the operating principles and repair procedures relating to axle-shafts, drive shafts, and universal joints.

### **ASE 151 AUTOMOTIVE MANUAL TRANSMISSION/ TRANSAXLES AND CLUTCHES** **2 CREDITS**

ASE 151 focuses on theory and related laboratory experiences in the diagnosis and repair of automotive manual transmissions, transaxles, clutches, and related components.

### **ASE 152 DIFFERENTIALS AND 4WD/AWD SERVICE** **2 CREDITS**

ASE 152 focuses on theory and related laboratory experiences in the diagnosis and repair of automotive differentials, transfer cases, four wheel and all wheel drive units.

### **ASE 160 AUTOMOTIVE ENGINE REMOVAL AND INSTALLATION** **1 CREDITS**

ASE 160 focuses on theory and laboratory experiences in the removal and installation procedures of the automotive engine as they relate to front -wheel and rear-wheel drive vehicles.

### **ASE 161 ENGINE, DISASSEMBLY DIAGNOSIS AND ASSEMBLY** **5 CREDITS**

ASE 161 focuses on theory and laboratory experiences in the disassembly, diagnosis, and reassembly of the automotive engine. Topics include the diagnostic and repair procedures for the engine block and head assemblies.

### **ASE 201 AUTOMOTIVE PARTS MANAGEMENT** **1 CREDITS**

ASE 201 covers instruction as to the proper methods in completing parts invoices, repair orders, sales receipts, and tickets. Also included are handling and pricing procedures used in parts areas: warehouse distributor, jobber, retail, and wholesale prices.

### **ASE 210 BRAKES II** **3 CREDITS**

Prerequisite: ASE 110.

ASE 210 covers the operation and theory of the modern automotive braking systems. This course includes operation, diagnosis, service, and repair of anti-lock braking systems, power assist units, and machining operations on brake systems.

### **ASE 221 AUTOMOTIVE BODY ELECTRICAL** **4 CREDITS**

Prerequisite: ASE 120.

ASE 221 provides a comprehensive study of the theory, operation, diagnosis, and repair of electrical/ electronic vehicle accessories such as lights, wipers, horns.

### **ASE 231 AUTOMOTIVE COMPUTERS** **2 CREDITS**

Prerequisites: ASE 120, ASE 134, ASE 220.

ASE 231 focuses on theory and laboratory experiences in the inspection and testing of typical computerized engine control systems.

### **ASE 233 FUEL INJECTION AND EXHAUST SYSTEMS** **4 CREDITS**

Prerequisites: ASE 120, ASE 134, ASE 231.

ASE 233 focuses on theory and related laboratory experiences in the diagnosis and repair of electronic fuel injection systems and modern exhaust systems.

### **ASE 235 DRIVEABILITY DIAGNOSIS** **1 CREDIT**

Prerequisite: ASE 233.

ASE 235 emphasizes theory and related laboratory experience in diagnostic techniques and the use of diagnostic scan tools, oscilloscopes, lab scopes, multi-meters, and gas

analyzers. You will diagnose live vehicle driveability problems.

**ASE 240 SUSPENSION AND STEERING II  
3 CREDITS**

Prerequisite: ASE 140.

ASE 240 emphasizes theory and related experiences in the diagnosis and service of active suspensions and steering systems and wheel alignment.

**ASE 250 AUTOMATIC TRANSMISSION/TRANSAXLE SERVICE  
1 CREDIT**

ASE 250 focuses on practical methods of maintaining, servicing, and performing minor in car adjustments on an automatic transmission and transaxle.

**ASE 251 AUTOMATIC TRANSMISSION/ TRANSAXLE DIAGNOSIS AND ASSEMBLIES  
5 CREDITS**

Prerequisite: ASE 250.

ASE 251 covers diagnosis, principles of hydraulics, principles of electronic components, power flow, theory of operation, removal of transmission/transaxle, tear down, replacement of components, measurement and subsequent adjustment of components, and replacement of transmission/ transaxle.

**ASE 265 AUTOMOTIVE HEATING AND AIR CONDITIONING  
5 CREDITS**

ASE 265 emphasizes theory and related laboratory experiences in the diagnosis and service of automotive heating and air conditioning systems and their components.

**ASE 280 INTERNSHIP: ELECTRICAL AND ENGINE PERFORMANCE  
0.5-6 CREDITS**

Prerequisites: ASE 120, ASE 130.

ASE 280 focuses on practical on-the-

job, work related experience that corresponds to the area of study.

**ASE 281 INTERNSHIP: HEAVY DUTY AND POWER TRAIN  
0.5-6 CREDIT**

Prerequisite: ASE 130.

ASE 281 focuses on practical on-the-job, work related experience that corresponds to the area of study.

**ASE 282 INTERNSHIP: GENERAL (SUMMER)  
0.5-6 CREDITS**

Prerequisite: Permission of instructor.

ASE 282 emphasizes practical on-the-job, work related experience that corresponds to the area of study. In this semester, the student takes all related sponsor requirements in (STS) Service Training Standards (General Motors) or ("F.A.S.T.") Fundamental Automotive Systems Training (Chrysler) or others as required by the program track.

**ASE 285 INDEPENDENT STUDY  
0.5-6 CREDITS**

Prerequisite: Permission of instructor.

ASE 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**ASE 287 COOPERATIVE EDUCATION  
0.5-6 CREDITS**

Prerequisite: 24 credit hours of automotive classes.

ASE 287 develops practical objectives assigned by an automotive employer providing an on-the-job learning experience at an approved automotive repair facility.

## ASL – American Sign Language

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

**ASL 121 AMERICAN SIGN LANGUAGE I  
5 CREDITS**

ASL 121 exposes you to American Sign Language. Readiness activities are conducted focusing on visual/receptive skills and basic communication. The course uses the direct experience method. You must complete this course with a B or higher or pass the ASL proficiency test with a score of at least 80 percent or better prior to registering for ASL 122, if planning to enroll in the Interpreter Preparation Program.

**ASL 122 AMERICAN SIGN LANGUAGE II  
5 CREDITS**

Prerequisite: Successful completion of ASL 121 or passing the ASL 121 proficiency exam.  
Corequisite: Permission of instructor.  
ASL 122 develops a basic syntactic knowledge of American Sign Language (ASL), basic vocabulary, and basic conversational skills. It incorporates vital aspects of deaf culture and community. The direct experience method is used to enhance the learning process. You must complete this course with a B or higher or pass the ASL 121 proficiency test at 80% or better prior to acceptance into the Interpreting and Transliterating Preparation program.

## AST – Astronomy

**AST 101 ASTRONOMY I  
4 CREDITS**

AST 101 focuses on the night sky, the history of astronomy, the tools of the astronomer, and the contents of the solar system, including the planets, moons, and small bodies.



## **AST 102 ASTRONOMY II 4 CREDITS**

AST 102 emphasizes the structure and life cycle of the stars, the sun, galaxies, and the universe as a whole, including cosmology and relativity.

## **BIO – Biology**

**WWW.RRCC.EDU/BIOLOGY**

### **BIO 105 SCIENCE OF BIOLOGY 4 CREDITS**

BIO 105 examines the basis of biology in the modern world and surveys the current knowledge and conceptual framework of the discipline. BIO 105 explores biology as a science - a process of gaining new knowledge - and the impact of biological science on society. This course includes laboratory experiences and is designed for non-science majors.

### **BIO 106 BASIC ANATOMY AND PHYSIOLOGY 4 CREDITS**

BIO 106 focuses on basic knowledge of body structures and function, and provides a foundation for understanding deviations from normal and disease conditions. This course is designed for individuals interested in health care and is directly applicable to the Medical Office Technology Program.

### **BIO 111 GENERAL COLLEGE BIOLOGY 5 CREDITS**

BIO 111 examines the fundamental molecular, cellular, and genetic principles characterizing plants and animals. This course includes cell structure and function and the latest information about metabolic processes of respiration, photosynthesis, cell reproduction, and basic concepts of heredity.

### **BIO 112 GENERAL COLLEGE BIOLOGY II 5 CREDITS**

Prerequisite: BIO 111.  
BIO 112 is a continuation of Biology I. This course includes ecology, evolution, classification, structure, and function in plants and animals.

### **BIO 201 HUMAN ANATOMY AND PHYSIOLOGY I 4 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of lead instructor.  
BIO 201 focuses on an integrated study of the human body, including the histology, anatomy, and physiology of each system. This course examines molecular, cellular, and tissue levels of organization plus integumentary, skeletal, articular, muscular, nervous, and endocrine systems.

### **BIO 202 HUMAN ANATOMY AND PHYSIOLOGY II 4 CREDITS**

Prerequisite: BIO 201 or equivalent, or permission of lead instructor.  
BIO 202 is a continuation of BIO 201. BIO 202 focuses on the integrated study of the human body and the histology, anatomy, and physiology of the following systems and topics: cardiovascular, hematology, lymphatic and immune, urinary, fluid and electrolyte control, digestive, nutrition, respiratory, reproductive, and development.

### **BIO 204 MICROBIOLOGY LAB 4 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of lead instructor.  
BIO 204 is designed for health science majors. Examines microorganisms with an emphasis on their structure, development, physiology, classification, and identification. The laboratory experience includes culturing, identifying, and controlling microorganisms with an emphasis on their role in infectious disease.

### **BIO 208 GENERAL COLLEGE MICROBIOLOGY 5 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of lead instructor.  
BIO 208 is designed for biology and health science majors. Surveys microorganisms with an emphasis on their structure, development, physiology, classification, and identification. Includes microbial diversity, functional anatomy, biochemistry, genetics, ecology, and disease. Mandatory hands-on laboratory experience covers sterile technique, microscopy, culture procedures, and biochemical and genetic analysis.

### **BIO 220 GENERAL ZOOLOGY 5 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of department chair.  
BIO 220 focuses on the study of invertebrate and vertebrate animals and examines structure, evolutionary development, ecology, classification, physiology, reproduction, and zoogeography. A survey of zoological diversity emphasizes the characteristics, zoological contributions, and classification of animal phyla and major classes.

### **BIO 221 BOTANY 5 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of lead instructor.  
BIO 221 is designed for biology majors. It is a study of nonvascular and vascular plants. It emphasizes photosynthetic pathways, form and function, reproduction, physiology, genetics, diversity, evolution, and ecology. This course requires mandatory hands-on laboratory and field experience.

### **BIO 228 FIELD BIOLOGY 4 CREDITS**

Prerequisite: BIO 111 or equivalent, or permission of department chair.  
BIO 228 involves in-depth field study of natural environments within and outside of the United States. This

course varies from seven to twenty-one days in length, focuses on the identification of organisms, as well as an examination of ecological concepts and principles. This course requires hands-on laboratory and field experience, including extensive hiking.

## **BTE – Business Technology**

[WWW.RRCC.EDU/CIS](http://WWW.RRCC.EDU/CIS)

### **BTE 100 COMPUTER KEYBOARDING 1 CREDIT**

BTE 100 is designed for students who have minimal or no keyboarding skills. This course introduces the touch method of keyboarding, as well as the basic operation and functions of the equipment. It emphasizes learning the alphanumeric keyboard, proper technique, and speed control.

### **BTE 102 KEYBOARDING APPLICATIONS 2 CREDITS**

Prerequisite: BTE 100 or minimum typing speed of 20 wpm. BTE 102 is designed for students with minimal keyboarding skills. Letters, tables, memos and manuscripts are introduced. Speed and accuracy are also emphasized.

### **BTE 108 TEN-KEY BY TOUCH 1 CREDIT**

BTE 108 introduces touch control of the PC ten-key pad. This class emphasizes the development of speed and accuracy using proper techniques.

### **BTE 111 KEYBOARDING SPEEDBUILDING I 2 CREDITS**

Prerequisite: BTE 102 or minimum typing speed of 20 wpm. BTE 111 is designed to increase

speed and improve accuracy in keyboarding on the PC through the use of correct techniques and concentrated effort.

### **BTE 112 KEYBOARDING SPEEDBUILDING II 2 CREDITS**

Prerequisite: BTE 111. BTE 112 is designed to increase speed and improve accuracy in keyboarding on the PC through the use of correct techniques and concentrated effort.

### **BTE 125 RECORDS MANAGEMENT 3 CREDITS**

Prerequisite: Acceptable keyboarding proficiency. BTE 125 offers instruction on how records are created, stored, and retrieved. It covers the basic filing rules—classifying, indexing, coding, storing, and retrieving as applied to the basic methods—alphabetic, chronological, subject, numeric, and geographic. The student does “hands-on” records management through the use of simulations, which include manual and/or computer software.

### **BTE 166 BUSINESS EDITING SKILLS 3 CREDITS**

Co-requisite: BTE 102. BTE 166 provides proofreading techniques and reviews spelling, punctuation, grammar and formatting of various business documents and worksheets.

### **BTE 202 OFFICE SIMULATION I 3 CREDITS**

Prerequisite: CIS 118 or permission of instructor. BTE 202 provides experience in the atmosphere of reality using in-basket exercises typical of those occurring in an office operation. It focuses on procedures and computer skills needed for successful performance in the workplace.

### **BTE 203 OFFICE SIMULATION II 3 CREDITS**

Prerequisite: BTE 202 or experience with advanced word processing and electronic spreadsheet applications; minimum keyboarding skill 35 wpm; or permission of instructor. BTE 203 provides the student the opportunity to demonstrate and perfect the computer, organizational, and communication skills required to secure employment and/or advancement in the workplace.

### **BTE 225 ADMINISTRATIVE OFFICE MANAGEMENT 3 CREDITS**

BTE 225 presents new developments, technology, procedures, organization, and contemporary terminology used in effective office management. The course emphasizes decision-making and application of administrative skills.

### **BTE 280 INTERNSHIP 3 CREDITS**

Prerequisite: Permission of instructor. BTE 280 provides the student with the opportunity to supplement coursework with practical work experience related to his/her educational program. The student will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

## **BUS – Business**

[WWW.RRCC.EDU/BUSINESS](http://WWW.RRCC.EDU/BUSINESS)

### **BUS 102 ENTREPRENEURIAL OPERATIONS 3 CREDITS**

BUS 102 covers the major aspects of small business management to enable the entrepreneur to successfully begin his own business. This course provides the basic

concepts of marketing, principles of management, and finance needed to manage a small business. Further, students develop a business plan and explore methods of obtaining the financing required to launch the business.

### **BUS 115 INTRODUCTION TO BUSINESS 3 CREDITS**

BUS 115 focuses on the operation of the American business system. The course covers fundamentals of the economy, careers and opportunities, marketing, management, production, governmental regulations, tools of business, and social responsibilities.

### **BUS 116 PERSONAL FINANCE 3 CREDITS**

BUS 116 surveys the basic personal financial needs of most individuals. The course emphasizes the basics of budgeting and buying, saving and borrowing money, the intricacies of home ownership, income tax and investments, and the wise use of insurance, wills and trusts.

### **BUS 120 INTRODUCTION TO E-COMMERCE 3 CREDITS**

Prerequisite: BUS 115 suggested  
BUS 120 provides an introduction to electronic commerce—the business trend of the future. It covers definition of e-commerce, technology and software requirements, security issues, electronic payment and marketing strategies. It focuses on what to expect when creating a dot com as well as the business-to-business use of e-commerce.

### **BUS 215 GLOBAL E-COMMERCE 3 CREDITS**

Prerequisite: BUS 115 suggested.  
The World Wide Web levels the business playing field and eliminates geographic barriers. The Internet provides global business potential

for even the smallest business. BUS 215 teaches how to approach and maximize this business opportunity. This course includes global e-marketing and promotion, import and export management, legal issues, and language and cultural issues.

### **BUS 216 LEGAL ENVIRONMENT OF BUSINESS 3 CREDITS**

Prerequisite: A grade of C or higher in Reading 090 or appropriate SAT, ACT Or Accuplacer score that indicates college reading ability, or permission of instructor.

BUS 216 Emphasizes public law, regulation of business, ethical considerations, and various relationships existing within society, government, and business. Specific attention is devoted to economic regulation, social regulation, regulation and laws impacting labor-management issues, and environmental concerns. You will develop an understanding of the role of law in social, political, and, economic change.

### **BUS 217 BUSINESS COMMUNICATION AND REPORT WRITING 3 CREDITS**

Prerequisite: ENG 121 suggested  
BUS 217 emphasizes effective business writing, and covers letters, memoranda, reports, application letters, and resumes. The course includes the fundamentals of business communication and an introduction to international communication.

### **BUS 226 BUSINESS STATISTICS 3 CREDITS**

Prerequisite: MAT 099 (Intermediate Algebra) or equivalent.  
BUS 226 focuses on statistical study, descriptive statistics, probability, the binomial distribution, index numbers, time series, decision

theory, confidence intervals, linear regression, and correlation. It is intended for business majors.

### **BUS 275 SPECIAL TOPICS 1-3 CREDITS**

BUS 275 provides you with a vehicle to pursue special topics of interest in business. The content of this course is designed on an as needed basis to provide current, up-to-date information.

### **BUS 281 INTERNSHIP 1-3 CREDITS**

Prerequisite: Permission of instructor.

BUS 281 provides continued instruction and the opportunity for you to supplement coursework with practical work experience related to their educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **BUS 285 INDEPENDENT STUDY 1-3 CREDITS**

Prerequisite: Permission of instructor.

BUS 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **CAD – Computer-Aided Design**

[WWW.RRCC.EDU/EGT](http://WWW.RRCC.EDU/EGT)

### **CAD 101 COMPUTER AIDED DRAFTING I 3 CREDITS**

CAD 101 focuses on basic computer-aided drafting skills using the latest release of CAD software. The course includes file management, Cartesian coordinate system, drawing set-ups, drawing aids, layer usage, drawing

geometric shapes, editing objects, array, text applications, basic dimensioning, and Help access.

**CAD 102 COMPUTER AIDED DRAFTING II**  
**3 CREDITS**

Pre-requisite: CAD 101.

CAD 102 focuses on advanced computer aided drafting skills using the latest release of CAD software. Includes blocks and wblocks, polylines, multilines, polyline editing, advanced editing, editing with grips, hatching, isometric drawings, dimensions and dimension variables, paper space and viewports, templates, external references, and printing/plotting.

**CAD 202 COMPUTER-AIDED DRAFTING/3D**  
**3 CREDITS**

Prerequisite: CAD 101 or equivalent.

CAD 202 focuses on construction of three-dimensional objects using the latest release of CAD software. It includes wireframe construction, surface modeling, solid modeling, extrusions, Boolean operations, 3-D editing, 3-D views, rendering, and 3-D to 2-D construction relative to the certificate or degree program.

**CAD 219 3DS/MAX**  
**3 CREDITS**

Prerequisite: CAD 101, 102, or equivalent.

CAD 219 introduces 3D rendering and animation using AUTODESK 3D Studio software. The course emphasizes 3D geometry, texture mapping, lighting, camera placement, shading, photo-realistic rendering, animation techniques, and walk-through animations.

**CAD 224 REVIT**  
**3 CREDITS**

Prerequisite: EGT 230 or permission of instructor.

CAD 224 provides you with the software application training in AutoDesk Revit necessary to

produce 3D architectural models and 2D drawings using AIA standards.

**CAD 225 ARCHITECTURAL DESKTOP/AUTODESK**  
**3 CREDITS**

Prerequisite: CAD 101 and CAD102.

CAD 225 provides you with the software application training in Architectural desktop necessary to produce 3D Architectural drawings utilizing 2D drafting skills.

**CAD 227 REVIT ADVANCED**  
**3 CREDITS**

Prerequisite: CAD 224

CAD 277 focuses on the advanced applications of the Revit software. Includes Family Editing, Topographic Site Plans, Worksharing, Phases, Advanced Scheduling, Custom Annotation, and Presentation Techniques.

**CAD 231 LAND DESKTOP / AUTODESK**  
**3 CREDITS**

Prerequisite: CAD 101 or equivalent.

CAD 231 focuses on the basic command structure and applications of civil mapping concepts using civil software to include data collection files, symbols libraries, setting attributes, COGO, layer control, surface modules, road calc, and site design. All course work is completed on a CAD system.

**CAD 233 CIVIL 3D (SOFTWARE)**  
**3 CREDITS**

Prerequisite: CAD 231 or equivalent.

CAD 233 provides you with the basics of advanced software application necessary to produce 3D Civil models and 2D drawings using the latest release of the Civil 3D software. This course will cover topics including components and program interface, linework, geometry, and 2D to 3D civil CAD applications.

**CAD 256 SOLIDWORKS BASICS**  
**6 CREDITS**

Prerequisite: 2-D/3-D CAD applications, permission of instructor.

CAD 256 examines the basics of SolidWorks software to produce parametric models.

**CAD 257 SOLIDWORKS INTERMEDIATE**  
**6 CREDITS**

Prerequisite: CAD 256.

CAD 257 teaches you to apply intermediate SolidWorks applications to produce parametric models of parts and assemblies.

**CAD 258 SOLIDWORKS ADVANCED**  
**6 CREDITS**

Prerequisite CAD 257.

CAD 258 demonstrates the advanced applications of SolidWorks software.

**CAD 260 C.A.D. PROJECT**  
**2 CREDITS**

Prerequisite: Permission of instructor.

CAD 260 focuses on a final computer-aided drafting project in your area of special interest.

**CAD 280 INTERNSHIP**  
**1-6 CREDITS**

Prerequisite: Permission of instructor.

CAD 280 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

**CAD 285 INDEPENDENT STUDY**  
**1-6 CREDITS**

Prerequisite: Permission of instructor.

CAD 285 meets individual needs. You will engage in intensive study or research under the direction of a qualified instructor.

**CAD 289 CAPSTONE**  
**1-6 CREDITS**

Prerequisite: Permission of instructor.

CAD 289 is a demonstrated culmination of learning within a given program of study.

**CAR – Carpentry**

[WWW.RRCC.EDU/CARPENTRY](http://WWW.RRCC.EDU/CARPENTRY)

**CAR 123 ROOF FRAMING**  
**1 CREDIT**

CAR 123 describes the various kinds of roofs and contains instructions for laying out rafters for gable roofs, hip roofs and valley intersections. Coverage includes both stick-built and truss-built roofs.

**CAR 125 ROOFING MATERIALS & METHODS**  
**1 CREDIT**

CAR 125 covers application techniques and estimation of asphalt and wood roofing products and accessories including gutters and flashing.

**CAR 133 CONSTRUCTION FRAMING & SAFETY**  
**4 CREDITS**

CAR 133 uses hands-on techniques to illustrate basic framing methods and materials. Floor/wall and roof framing will be discussed, demonstrated, and taught. There will be extensive utilization of modern and western residential framing methods. The course will also include 10 hours of OSHA approved

safety instruction which will qualify you for a 10-hour safety card.

**CAR 134 EXTERIOR FINISHES AND TRIM**  
**4 CREDITS**

CAR 134 uses hands-on techniques to illustrate exterior moisture, trim, and exterior doors and window installation. Student will explore various residential materials and methods. Estimation of time and material will be discussed as well as general business practices.

**CAR 136 REMODELING, RENOVATION, AND ADDITIONS**  
**4 CREDITS**

CAR 136 covers conversions of attic and basement spaces to usable living spaces and additions for renovation to existing residential structures, including kitchens and baths. The course examines materials scheduling, estimation, and construction methods.

**CAR 144 INTERIOR TRIM & FINISH METHODS**  
**4 CREDITS**

CAR 144 uses hands-on techniques to illustrate basic interior finishing methods. This class guides you through the techniques used in sheetrock, tape and texture, interior doors, and trim, and basic cabinet installation

**CAR 155 INTERIOR TRIM-BUILT-INS**  
**4 CREDITS**

CAR 155 covers design and build processes for custom built-in cabinetry. Taken in conjunction with CAR156, this course explores the variety of materials and methods of work to create anything from closet storage shelves to a built-in entertainment center.

**CAR 156 SHOP TOOLS: STATIONARY, HAND, AND PORTABLE**  
**4 CREDITS**

CAR 156 covers the safe use and care of stationary, hand, and portable tools. This course is designed to help you develop skills through tool utilization to pass competency and safety tests for each tool. You will study standard practices for bench carpentry through the actual construction of a project.

**CAR 165 SHOP CARPENTRY**  
**4 CREDITS**

Prerequisite: Permission of instructor.

CAR 165 focuses on the non-site, shop carpenter and includes jig and pattern making, stationary power tool maintenance and adjustment, machining of woods, and techniques unique to shops, cabinetmakers and mill-workers.

**CAR 166 STAIR DESIGN & CONSTRUCTION**  
**4 CREDITS**

Prerequisite: CAR 156 or permission of Instructor.

CAR 166 focuses on both site and off-site stair lay-out and construction. You will have a chance to explore various techniques for building the stairs and millwork involved in the construction and installation of handrail assemblies.

**CAR 253 ADVANCED INTERIOR TRIM - CABINET/ COUNTERTOPS**  
**4 CREDITS**

Prerequisite: CAR 156, or permission of instructor.

CAR 253 emphasizes an in-depth/ hands-on look at all components of cabinet-making, installation and countertops. It includes construction of traditional (face-frame) and European cabinets. It covers hardware applications and installation, and countertop construction, ranging from laminates to solid surface.

### **CAR 275 SPECIAL TOPICS**

#### **1-6 CREDITS**

Prerequisite: CAR 156 or permission of Instructor.

CAR 275 provides you with a vehicle to pursue in depth exploration of special topics of interest

### **CAR 280 TECHNICAL PROJECT**

#### **4-12 CREDITS**

Prerequisite: Permission of the instructor.

CAR 280 enables you to participate in individual study on a special project which is related to the plumbing program. This technical project consists of a written and approved proposal and scheduled progress reports.

### **CAR 282 INTERNSHIP**

#### **0.5-12 CREDITS**

Prerequisite: Permission of the instructor.

CAR 282 provides students with prior course work an opportunity to apply their course studies.

### **CAR 285 INDEPENDENT STUDY**

#### **0.5-12 CREDITS**

Prerequisite: Permission of the instructor.

CAR 285 provides you the opportunity to work with the instructor on a specific area with specific objectives and a predetermined project completion date.

## **CHE – Chemistry**

[WWW.RRCC.EDU/CHEMISTRY](http://WWW.RRCC.EDU/CHEMISTRY)

### **CHE 101 INTRODUCTION TO CHEMISTRY I**

#### **5 CREDITS**

Prerequisite: MAT 099.

CHE 101 includes the study of measurements, atomic theory, chemical bonding, nomenclature, stoichiometry, solutions, acid and base, gas laws, and condensed

states. This course is designed for non-science majors, students in occupational and health programs, or students with no chemistry background.

### **CHE 102 INTRODUCTION TO CHEMISTRY II**

#### **5 CREDITS**

CHE 102 focuses on introductory organic and biochemistry (sequel to Introduction to Chemistry I). This course includes the study of hybridization of atomic orbitals for carbon, nomenclature of both organic and biochemical compounds, physical and chemical properties of various functional groups of organic chemistry, and physical and chemical properties of biochemical compounds along with their biochemical pathways. Laboratory experiments are included.

### **CHE 111 GENERAL COLLEGE CHEMISTRY I**

#### **5 CREDITS**

Prerequisite: One year of high school chemistry or equivalent.

Corequisite: MAT 121.

CHE 111 focuses on basic chemistry and measurement, matter, chemical formulas, reactions and equations, stoichiometry and thermochemistry. This course covers the development of atomic theory culminating in the use of quantum numbers to determine electron configurations of atoms, and the relationship of electron configuration to chemical bond theory and molecular orbital theory. It includes gases, liquids, and solids. Problem solving skills are emphasized.

### **CHE 112 GENERAL COLLEGE CHEMISTRY II**

#### **5 CREDITS**

Prerequisites: CHE 111, MAT 121.

CHE 112 presents concepts in the areas of solution properties, chemical kinetics, chemical equilibrium, acid-base and ionic

equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and organic chemistry. This course emphasizes problem solving skills and descriptive contents for these topics.

### **CHE 208 INTRODUCTION TO ORGANIC AND BIOCHEMISTRY**

#### **5 CREDITS**

Prerequisites: CHE 111 and CHE 112.

CHE 208 introduces some of the major topics in modern organic chemistry and biochemistry, focusing on relating structure and behavior of molecules to their functions. The chemistry of organic molecules based on their functional groups, proteins, carbohydrates and lipids are studied.

### **CHE 211 ORGANIC CHEMISTRY I**

#### **5 CREDITS**

Prerequisite: CHE 112.

CHE 211 focuses on compounds associated with the element carbon. This course includes structure and reactions of aliphatic hydrocarbons and selected functional group families. This course covers nomenclature of organic compounds, stereochemistry, and reaction mechanisms such as SN1, SN2, E1 and E2.

### **CHE 212 ORGANIC CHEMISTRY II**

#### **5 CREDITS**

Prerequisite: CHE 211.

CHE 212 continues the investigation into the chemistry of carbon-based compounds, their reactions and synthesis. This course includes the structure, physical properties, reactivities, and synthesis of organic functional groups not covered in the first semester. CHE 212 explores functional groups including alcohols, ethers, aromatics, aldehydes, ketones, amines, amides, esters, and carboxylic acids. CHE 212 includes reactions and reaction mechanisms of aromatic compounds. An introduction to biochemical topics may be included if time permits.

## **CIS – Computer Information Systems**

**WWW.RRCC.EDU/CIS**

### **CIS 103 LEARNING WINDOWS 1 CREDIT**

CIS 103 provides foundational skills in Windows operating system for personal use. This course is designed for the more mature learner and/or those students who wish to advance at a slower pace. Credit does not apply toward a certificate or degree.

### **CIS 105 LEARNING E-MAIL AND INTERNET 1 CREDIT**

CIS 105 provides foundational skills in email and internet applications for personal use. This course is designed for the more mature learner and/or the student who wishes to advance at a slower pace. Credit does not apply toward a certificate or degree.

### **CIS 106 LEARNING WORD 1 CREDIT**

CIS 106 provides foundational skills in Microsoft Word for personal use. This course is designed for the more mature learner and/or the student who wishes to advance at a slower pace. Credit does not apply toward a certificate or degree.

### **CIS 108 LEARNING EXCEL 1 CREDIT**

CIS 108 provides foundational skills in Microsoft Excel for employment/personal development. This course is designed for the more mature learner and/or the student who wishes to advance at a slower pace. Credit does not apply toward a certificate or degree.

### **CIS 118 INTRODUCTION TO PC APPLICATIONS: MS OFFICE 3 CREDITS**

CIS 118 introduces computer concepts and components as well

as coverage of application suite software and the Internet. Included are descriptions of and hands-on experiences with word processors, spreadsheets, databases, operating environments and other common PC applications packages. This course is equivalent to taking CIS 131, CIS 141 and CIS 151.

### **CIS 128 WINDOWS COMPLETE 3 CREDITS**

CIS 128 introduces you to concepts, terminology and hands-on skills in the use of the operating system and Windows. It emphasizes navigation, file manipulation, file creation and troubleshooting.

### **CIS 130 INTRODUCTION TO THE INTERNET 1 CREDIT**

Prerequisite: A working knowledge of Windows.  
CIS 130 enhances your knowledge of the Internet and its resources. Individuals learn terminology in dealing with the Internet. It includes privacy and copyright issues with information retrieved from the Internet. You will experience the use of e-commerce, multimedia and e-mail. It explores searching the Internet and credibility of information obtained with searches.

### **CIS 131 WORD PROCESSING I: MS WORD 1 CREDIT**

Prerequisite: CIS 128 or a working knowledge of Windows.  
CIS 131 gives you an introductory working knowledge of word processing. You will create, edit, format, save, and print documents as well as use spell check, grammar check, and thesaurus features. You will format text, paragraphs, and pages, change margins and use the find and replace feature as well as create envelopes and labels.

### **CIS 132 WORD PROCESSING II: MS WORD 1 CREDIT**

Prerequisite: CIS 131.  
CIS 132 increases your working knowledge of word processing. In this module, you will learn to use the merge function, create multiple page reports using headers, footers, footnotes, endnotes, and page numbers as well as create and format documents using columns and tables.

### **CIS 133 WORD PROCESSING III: MS WORD 1 CREDIT**

Prerequisite: CIS 132.  
CIS 133 increases your working knowledge of word processing. In this module, you will learn to use borders, drawing, word art, and graphics. You will create macros, charts, outlines, styles, and fill-in forms.

### **CIS 135 COMPLETE PC WORD PROCESSING: MS WORD 3 CREDITS**

Prerequisite: CIS 118 or CIS 128 or a working knowledge of Windows.  
CIS 135 uses state-of-the-art software to explore a complete array of word processing skills. The skills needed to create, edit, format, and print documents are covered. Other topics include character, paragraph, and page formats, the use of spelling checkers and thesaurus, hyphenation, tables, mail merge, document design, and graphics. This course is the equivalent of CIS 131, 132, and 133 taken separately.

### **CIS 140 MICROSOFT OUTLOOK 1 CREDIT**

CIS 140 introduces the functions used in Microsoft Outlook including email messages, calendaring, contacts, tasks, journals, and notes.

**CIS 141 PC DATABASES I: MS ACCESS  
1 CREDIT**

Prerequisite: CIS 128 or a working knowledge of Windows.  
CIS 141 introduces the functions of a database. It includes skills such as file creation, searches, sorts, simple editing and indexing.

**CIS 142 PC DATABASES II: MS ACCESS  
1 CREDIT**

Prerequisite: CIS 141.  
CIS 142 continues to build on database application skills learned in CIS 141. You will practice through hands on exercise skills such as report writing and the creation of custom forms.

**CIS 143 PC DATABASES III: MS ACCESS  
1 CREDIT**

Prerequisite: CIS 142.  
CIS 143 continues to build on database application skills learned in CIS 142. Course topics include creating a user interface, database, problem solving, and programming using macros to create automated used interfaces. Visual Basic for Applications is not covered.

**CIS 145 COMPLETE PC DATABASE: MS ACCESS  
3 CREDITS**

Prerequisite: CIS 118 or CIS 128 or a working knowledge of Windows.  
CIS 145 introduces the operations of a PC database management system. Topics may include database design, table operations, searches, sorts, edits, queries, forms, and reports. Interfacing with other packages and creating a user interface are covered. Visual Basic for Applications is not covered. This course is the equivalent of CIS 141, 142, and 143 taken separately.

**CIS 151 PC SPREADSHEETS I: MS EXCEL  
1 CREDIT**

Prerequisite: CIS 118 or CIS 128 or a working knowledge of Windows.  
CIS 151 introduces you to concepts and applications of an electronic spreadsheet. Topics include creating a worksheet, developing a professional looking worksheet and creating charts.

**CIS 152 PC SPREADSHEETS II: MS EXCEL  
1 CREDIT**

Prerequisite: CIS 151.  
CIS 152 continues to build on spreadsheet skills learned in CIS 151. You will practice through hands-on exercises such as design and report writing. Database features of filters, sorts and special calculations are also covered. Other topics include working with lists, integrating with other Windows programs and working with multiple worksheets and workbooks.

**CIS 153 ADVANCED SPREADSHEETS: MS EXCEL  
1 CREDIT**

Prerequisite: CIS 152.  
CIS 153 presents the development and execution of macros to automate the spreadsheet, development of menu driven macros, "what if" tables, advanced functions/ commands for using a statistical database, and formatting are covered.

**CIS 155 PC SPREADSHEET CONCEPTS: MS EXCEL  
3 CREDITS**

Prerequisite: CIS 118 or CIS 128 or a working knowledge of Windows.  
CIS 155 exposes you to a wide range of uses of the electronic spreadsheet with special emphasis on using it as a business tool. It includes fundamentals and terms, creating and saving workbooks, entering and using formulas, formatting, printing, multiple-page workbooks, creating

charts, entering and using functions, managing lists, and simple macros. This course is the equivalent of CIS 151, 152, and 153 taken separately.

**CIS 165 COMPLETE PRESENTATION GRAPHICS: MS POWERPOINT  
3 CREDITS**

Prerequisite: CIS 118 or CIS 128 or a working knowledge of Windows.  
CIS 165 focuses on the development of presentation graphics material including graphs, charts, illustrations and diagrams. Emphasis is on effective communication. Automated presentation with sound, video, and animation will also be covered.

**CIS 167 DESKTOP PUBLISHING: MS PUBLISHER  
3 CREDITS**

Prerequisite: CIS 128 or a working knowledge of Windows.  
CIS 167 is designed to be a hands on course introducing you to the concepts and techniques of desktop publishing. You will then work with more complex documents and publications to use the advanced features and capabilities of today's page layout software.

**CIS 220 FUNDAMENTALS OF UNIX  
3 CREDITS**

Prerequisite: CSC 119 equivalent experience or permission of instructor.  
CIS 220 covers the structure and fundamentals of the UNIX operating system. Topics covered will include the files system and file processing, various utility programs, and shell, multi-user operation, text processing, and communications.

**CIS 221 UNIX SHELLSCRIPTING  
3 CREDITS**

Prerequisite: CIS 220.  
CIS 221 continues building upon the skills and commands covered in CIS 220. An emphasis is made on more



advanced shell scripting utilizing pipelines, filters, grep, awk, and file processing.

### **CIS 240 DATABASE DESIGN AND DEVELOPMENT 3 CREDITS**

CIS 240 introduces the basic concepts of relational databases, data storage, and retrieval. It covers database design, data modeling, transaction processing, and introduces the Structured Query Language for databases.

### **CIS 251 INTRODUCTION TO STRUCTURED QUERY LANGUAGE (SQL) 3 CREDITS**

Prerequisite: CIS 240.

CIS 251 introduces students to ANSI SQL which is the basis for most other Structured Query Languages. Students learn to query and update data, create table and views, use indexes, secure data, develop stored procedures and triggers learn object relational concepts and develop applications with embedded SQL and ODBC.

### **CIS 252 IMPLEMENT AND MAINTAIN SQL SERVER DATABASE 3 CREDITS**

Prerequisite: CIS 251 or equivalent knowledge.

CIS 252 provides you with the skills necessary to install and configure SQL Server, implement database mirroring, manage database snapshots, work with XML and flat files, manage replication, back up and restore a database, monitor and troubleshoot, and create and implement database objects.

### **CIS 253 PROGRAMMING WITH A MS SQL SERVER DATABASE 3 CREDITS**

Prerequisite: CIS 252 or equivalent knowledge and experience.

CIS 253 provides you with the basics of programming custom database

applications with Microsoft SQL Server. It includes integration with the Microsoft .NET Framework, SQL Server Management Studio, SQL Service Broker, Notification Services, Integration Services, Reporting Services, OLAP, and Data Mining.

### **CIS 268 SYSTEMS ANALYSIS AND DESIGN I 3 CREDITS SPRING ONLY EXCEPT ONLINE**

Prerequisite: This course should be taken during the last semester of your certificate/degree program.

CIS 268 introduces you to the materials, techniques, procedures and human interrelations involved in developing computer information systems. Topics include the systems approach, fact gathering techniques, forms design, input/output, file design, file organization, various charting techniques, system audits and controls, project management, implementation and evaluation.

### **CIS 289 CAPSTONE 3 CREDITS SPRING ONLY**

Prerequisite: Last semester of your certificate/ degree program.

CIS 289 allows you to complete computerized projects demonstrating their software and programming skills. Projects will be provided by industry and vary widely as to the time and skill required to successfully complete. Each student's specific outcomes will depend on the skills that they bring to the course, the type of project that they participate in, and the role they play on the project team.

## **CMD – Communication Disorders**

**WWW.RRCC.EDU/SPEECH**

### **CMD 160 INTRODUCTION TO HUMAN COMMUNICATION DISORDERS 3 CREDITS**

CMD 160 surveys identifying characteristics, causes, diagnosis and treatment of hearing disorders and speech-language problems, including stuttering, voice disorders, articulation/phonological disorders, child language disorders, and neurogenic disorders.

### **CMD 260 INTRODUCTION TO PHONETICS 2 CREDITS**

CMD 260 introduces characteristics of American English speech sounds and the International Phonetic Alphabet symbols used to represent them. Normal phonological development is also covered.

### **CMD 265 PHYSIOLOGICAL AND BIOLOGICAL ACOUSTICS 2 CREDITS**

Prerequisite: College-level reading and math skills.

CMD 265 introduces the physics of sound as it relates to speech and hearing including the acoustic and physiologic information underlying the chain of events between speakers and listeners. This course includes linguistic organization, the physics of sound, speech production, sound measurement, acoustic characteristics of speech, and speech perception.

### **CMD 266 NORMAL LANGUAGE DEVELOPMENT 3 CREDITS**

CMD 266 discusses the study of normal speech and language development and its relationship to other aspects of child development and childhood disabilities.

### **CMD 267 ANATOMY AND PHYSIOLOGY OF THE SPEECH AND HEARING MECHANISM 3 CREDITS**

Prerequisite: CMD 160.

CMD 267 is designed to introduce you to the systems, anatomical and functional, that enable us to speak and hear. This includes the respiration, phonation, resonance, articulation, and hearing systems. Within each functional system, the nervous, muscular (including ligament and cartilage) and skeletal involvement are discussed.

## **CNG – Computer Networking**

[WWW.RRCC.EDU/CIS](http://WWW.RRCC.EDU/CIS)

### **CNG 101 INTRO TO NETWORKING 3 CREDITS**

CNG 101 focuses on underlying concepts of data communications, telecommunications and networking. It emphasizes the terminology and technologies in current networking environments and provides a general overview of the field of networking as a basis for continued study in the field.

### **CNG 121 COMPUTER TECHNICIAN I: A+ 4 CREDITS**

CNG 121 introduces personal computer hardware to gain the skills and knowledge for a successful entry-level computer service technician. This course provides extensive hands-on work with computer systems. It includes PC setup and configuration, floppy and hard drive installation and basic maintenance and troubleshooting. Successful completion prepares you for the core hardware service technician portion of the CompTIAA+ Certification Exam.

### **CNG 122 COMPUTER TECHNICIAN II: A+ 4 CREDITS**

Prerequisite: CNG 121.

CNG 122 focuses on operating systems as well as installation of modems, tape backups, CD-ROM drives, and SCSI subsystems. This course covers operating systems, Windows 9x, Windows NT and Windows 2000 installation, configuration and upgrading. It includes laser printers and backup power systems. This course prepares you for the CompTIAA+ OS Technologies Exam.

### **CNG 124 NETWORKING I: NETWORK+ 3 CREDITS**

Prerequisite: CNG 122 or comparable knowledge or experience.

CNG 124 provides you with the knowledge necessary to understand, identify and perform necessary tasks involved in supporting a network. This course covers the vendor-independent networking skills and concepts that affect all aspects of networking, such as installing and configuring the TCP/IP. This course also prepares you for the Networking II: Network + course.

### **CNG 125 NETWORKING II: NETWORK+ 3 CREDITS**

Prerequisite: CNG 124.

CNG 125 continues to provide you with the knowledge necessary to implement and support a network. This course focuses on the vendor-independent networking skills and concepts that affect all aspects of networking. The Networking I and II: Network + courses prepare you for the Network + certification.

### **CNG 131 NETWORK SECURITY FUNDAMENTALS 3 CREDITS**

Prerequisite: Instructor Approval. CNG 131 delivers a comprehensive overview of network security,

including general security concepts. Communication Security is studied, including remote access, e-mail, the Web, directory and file transfer, and wireless data. Common network attacks are introduced. Cryptography basics are incorporated, and operational/organizational security is discussed as it relates to physical security, disaster recovery, and business continuity. Computer forensics is introduced.

### **CNG 209 MS WINDOWS SERVER ACTIVE DIRECTORY CONFIGURATION 4 CREDITS**

Prerequisite: CNG 125 or comparable knowledge or experience.

CNG 209 provides students with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues.

### **CNG 210 MS WINDOWS SERVER NETWORK INFRASTRUCTURE CONFIGURATION 4 CREDITS**

Prerequisite: CNG 125 or comparable knowledge or experience.

CNG 210 provides students with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues.

### **CNG 211 WINDOWS CONFIGURATION: VISTA 3 CREDITS**

CNG 211 provides you with the knowledge and skills necessary to address the implementation and desktop support needs of customers who are planning to deploy and

support Microsoft Windows client operating system in a variety of network operating system environments.

### **CNG 212 MANAGE MS WINDOWS SERVER ENVIRONMENT**

#### **4 CREDITS**

CNG 212 provides you with the knowledge and skills that are required to manage accounts and resources, maintain server resources, monitor server performance, and safeguard data in a Microsoft Windows Server environment.

### **CNG 214 MS SERVER APPLICATIONS INFRASTRUCTURE CONFIGURATION**

#### **4 CREDITS**

Prerequisite: CNG 212.

CNG 214 provides students with the knowledge and skills to configure Active Directory Domain Services in a distributed environment, implement Group Policies, perform backup and restore, and monitor and troubleshoot Active Directory related issues.

### **CNG 217 IMPLEMENT SECURITY IN A MS WINDOWS ENVIRONMENT**

#### **3 CREDITS**

#### **SPRING ONLY**

Prerequisite: CNG 212.

CNG 217 provides you with the knowledge to implement, manage, maintain, and troubleshoot security in a Microsoft Windows Server network infrastructure and also plan and configure a Windows Server PKI.

### **CNG 226 IMPLEMENTING AND MANAGING MICROSOFT EXCHANGE**

#### **3 CREDITS**

#### **SPRING ONLY**

Prerequisite: CNG 212.

CNG 226 is designed to teach you the knowledge and skills necessary to install, configure, and administer

Microsoft Exchange. You will learn to use Exchange in medium to very large computing environments that typically have multiple physical locations, mixed client connection protocols, and internet messaging connectivity.

### **CNG 260 CISCO NETWORK ASSOCIATE I**

#### **5 CREDITS**

CNG 260 (CCNA1: Networking Basics) is the first of the four courses leading to the Cisco Certified Network Associate (CCNA) certification. CCNA 1 introduces Cisco Networking Academy Program students to the networking field. The course focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router programming, Ethernet, Internet Protocol (IP) addressing, and network standards.

### **CNG 261 CISCO NETWORK ASSOCIATE II**

#### **5 CREDITS**

Prerequisite: CNG 260.

CNG 261 (CCNA2: Routers and Routing Basics) is the second of four CCNA courses leading to the Cisco Certified Network Associate (CCNA) certification. CCNA 2 focuses on initial router configuration, Cisco IOS software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). You will develop skills on how to configure a router, manage Cisco IOS Software, configure routing protocols, and create access lists controlling access to the router.

### **CNG 262 CISCO NETWORK ASSOCIATE III**

#### **5 CREDITS**

Prerequisite: CNG 261.

CNG 262 (CCNA3: Switching Basics and Intermediate Routing) is the third of four courses leading to the Cisco Certified Network Associate (CCNA) certification. The course focuses on

advanced IP addressing techniques including Variable Length Subnet Masking (VLSM), Intermediate routing protocols (RIPv2), single-area OSPF, EIGRP, command-line interface configuration of switches, Ethernet switching, Virtual LANs (VLANs), Spanning Tree Protocol (STP), and VLAN Trunking Protocol (VTP).

### **CNG 263 CISCO NETWORK ASSOCIATE IV**

#### **5 CREDITS**

Prerequisite: CNG 262.

CNG 263 (CCNA4: WAN

Technologies) is the last of four courses leading to the Cisco Certified Network Associate (CCNA) certification. The course focuses on advanced IP addressing techniques (Network Address Translation (NAT), Port Address Translation (PAT), and DHCP), WAN technology and terminology, PPP, ISDN, DDR, Frame Relay, Network Management, and introduction to optical networking. In addition, you will prepare for taking the CCNA exam.

## **COM – Communication Studies**

[WWW.RRCC.EDU/SPEECH](http://WWW.RRCC.EDU/SPEECH)

### **COM 105 CAREER COMMUNICATION**

#### **3 CREDITS**

COM 105 develops skills needed in obtaining and keeping a job. It includes job searching, applications, resumes, interviews, and the dynamics of customer, peer, and managerial relationships. It emphasizes speaking, writing, listening, critical reading skills, and vocabulary development essential to the employment world.

### **COM 115 PUBLIC SPEAKING**

#### **3 CREDITS**

COM 115 combines the basic theory of speech communication with

public speech performance skills. Emphasis is on speech delivery, preparation, organization, support, and audience analysis.

### **COM 125 INTERPERSONAL COMMUNICATION 3 CREDITS**

COM 125 examines the communication involved in interpersonal relationships occurring in family, social and career situations. Relevant concepts include self-concept, perception, listening, nonverbal communication, self-disclosure and conflict.

### **COM 126 COMMUNICATION IN HEALTHCARE 3 CREDITS**

COM 126 familiarizes you with interactive concerns in settings related to patient-client care. The course includes discussions of diverse cultures, client interaction and family/caregiver issues. You will also address the concerns of attitude, office politics, teamwork, self-initiative, and conflict management as specifically experienced in the patient and client setting.

### **COM 205 VOICE AND DICTION 3 CREDITS**

COM 205 studies the physiological production of the speaking voice and methods for improving the quality of the spoken word in general American speech.

### **COM 216 PRINCIPLES OF SPEECH COMMUNICATION II 3 CREDITS**

Prerequisite: COM 115.  
SPE 216 emphasizes the intensification of ideas and styles with a focus on persuasive speaking. The course includes additional studies in rhetorical analysis and oral delivery methods.

### **COM 217 GROUP COMMUNICATION 3 CREDITS**

COM 217 enables you to improve your abilities to analyze, evaluate and impact group discussions, group processes, leadership responsibilities, group dynamics, group decision making and other elements of group communication.

### **COM 220 INTERCULTURAL COMMUNICATION 3 CREDITS**

Prerequisite: COM 115 or permission of instructor.

COM 220 explores the link between culture and communication. The course will develop and/or enhance communication skills and the abilities appropriate to a multicultural society. Emphasis will be on understanding diversity within and across cultures. Relevant concepts include perception, worldview context, ethics, language, and nonverbal communication.

### **COM 225 ORGANIZATIONAL COMMUNICATION 3 CREDITS**

COM 225 studies human communication systems and patterns in business and organizational settings. Topics include exploration of leadership strategies; effective managerial communication skills with peers, superiors and subordinates; and organizational communication environments, networks and goals.

### **COM 230 ARGUMENTATION AND DEBATE 3 CREDITS**

Prerequisite: COM 115 or permission of the instructor.

COM 230 acquaints you with the theory of argumentation, including reasoning, evidence, refutation, critical thinking, and extemporaneous speaking. The course includes practice in preparation and oral analysis of

selected arguments and styles of debating.

### **COM 263 CONFLICT RESOLUTION 1 CREDIT**

COM 263 focuses on handling conflict productively. The course enables the student to understand the roots of conflict and how to mediate interpersonal conflict in a variety of settings. The course includes conflict prevention techniques.

### **COM 275 SPECIAL TOPICS 0.5-6 CREDITS**

COM 275 provides you with a vehicle to pursue in-depth exploration of special topics of interest.

### **COM 285 INDEPENDENT STUDY 0.5-6 CREDITS**

COM 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **CON – Construction Technology**

**WWW.RRCC.EDU/  
CONSTRUCTION**

### **CON 105 CONSTRUCTION TECHNOLOGY 4 CREDITS**

CON 105 explores a variety of software applications available for the construction trade. The course introduces computer applications such as Word, Excel, PowerPoint, scheduling, estimating, and accounting programs.

### **CON 110 INTRODUCTION TO CONSTRUCTION, PART I 4 CREDITS**

CON 110 explores the expanding array of careers within the construction industry. Students

will be exposed to the construction industry through job site tours, hands-on experience, and classroom activities. Math and science applications will be established through the academic integration of the job-site experience and the classroom theory.

**CON 140 INTRODUCTION TO BUILDING CODES AND ENFORCEMENT  
3 CREDITS**

CON 140 introduces the basic concepts of code enforcement.

**CON 142 INTERNATIONAL RESIDENTIAL CODE  
4 CREDITS**

CON 142 primarily covers the first 11 chapters of the current code book, as well as briefly discussing the information located within the other chapters of the book. This course is designed as an introduction to the IRC for contractors, building officials, architects, and others within the building industry who desire to gain knowledge of the IRC.

**CON 143 INTERNATIONAL BUILDING CODE  
4 CREDITS**

CON 143 primarily covers the first 11 chapters of the current code book, as well as briefly discussing the information located within the other chapters of the book. It will also introduce other documents which relate to the IBC, such as various I-codes, addendums, and specifications. This course is designed as an introduction to the IBC for contractors, building officials, architects, and others within the building industry who desire to gain knowledge of the IBC.

**CON 228 ESTIMATING  
4 CREDITS**

CON 228 covers the estimation process, the role of the estimator, types of estimating, CSI Divisions, bid/contract documents, change order pricing, value engineering,

design build projects, and estimate compilation.

**CON 230 BLUEPRINT READING  
4 CREDITS**

CON 230 introduces students to reading and interpreting blueprints for residential, commercial and industrial construction.

**CON 240 CODE COMPLIANCE II  
3 CREDITS**

CON 240 prepares students to successfully complete the building inspector exam. This course studies building codes and enforcement practices.

**CON 241 OVERVIEW OF INTERNATIONAL CODES  
4 CREDITS**

CON 241 provides a general overview of the 11 codes promulgated by the International Code Council for the purpose of providing regulations for the building industry.

**CON 242 RESIDENTIAL AND NON-RESIDENTIAL PLAN REVIEW  
3 CREDITS**

CON 242 provides a step-by-step procedure for reviewing construction documents for compliance with the nonstructural and structural requirements of the 2000 International Building Code. The course covers the procedure for reviewing residential plans and specifications based on the 2003 International Residential Code

**CON 245 PROJECT MANAGEMENT  
4 CREDITS**

CON 245 covers the principles of project planning, scheduling, estimating and management. It emphasizes the basic skills required to supervise personnel. and includes case studies.

**CON 261 LEADERSHIP AND MOTIVATION FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 261 introduces basic management ideas, principles and skills that will enable the student to immediately function more effectively in everyday management of a crew on a construction project. This course includes the role of the construction supervisor, motivational strategies, positive discipline, leadership styles, and team building. (Unit 1 of AGC Supervisory Training Program)

**CON 262 ORAL AND WRITTEN COMMUNICATIONS FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 262 presents the fundamental principles of communication, with emphasis on sorting, facilitating and managing the flow of information that construction supervisors encounter in their daily work. The course includes nonverbal communication, listening, negotiating, giving effective directions, building consensus, writing and fundamentals of electronic communication. (Unit 2 of AGC Supervisory Training Program)

**CON 263 PROBLEM SOLVING AND DECISION MAKING FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 263 will teach you to identify common problems and how they occur in the construction industry. The course includes defining the role of the construction supervisor in problem identification, problem solving, and decision making to prevent problems. (Unit 3 of AGC Supervisory Training Program)

**CON 264 CONTRACT DOCUMENTS AND CONSTRUCTION LAW FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 264 will help you to develop a basic understanding of contract documents and construction law as they impact the construction supervisor. Learn how to use them to solve problems, resolve issues and remedy conflicts. Understand the rights and responsibilities of the construction supervisor as defined by this information. (Unit 4 of AGC Supervisory Training Program)

**CON 265 PLANNING AND SCHEDULING FOR THE CONSTRUCTION SUPERVISOR  
2 CREDITS**

CON 265 will teach you to plan the sequence, duration and relationship of activities for a construction process and understand how to communicate the plan to contractual parties and to use the plan as a reference point for examining project changes. The course includes planning for safety, organization, manpower and site layout. (Unit 5 of AGC Supervisory Training Program)

**CON 266 UNDERSTANDING AND MANAGING PROJECT COSTS FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 266 will teach you to become familiar with how construction project estimates are compiled, how to compare actual project costs with those estimated, methods to control the costs to meet the estimate, and how to apply lessons learned to future projects. (Unit 6 of AGC Supervisory Training Program)

**CON 267 ACCIDENT PREVENTION AND LOSS CONTROL FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 267 will teach you to understand how basic safety and health principles increase productivity, competitive position and profitability. Learn how the construction supervisor can directly impact the bottom line by understanding and applying basic principles of accident prevention and loss control. This course includes moral and personal obligations toward safety, basics of insurance, cost considerations of safety and methods to create a safe working environment. (Unit 7 of AGC Supervisory Training Program)

**CON 268 MANAGING THE PROJECT, THE CONSTRUCTION SUPERVISOR'S ROLE  
2 CREDITS**

CON 268 will teach you to develop an understanding of the supervisor's role in the application of business management functions to a construction project. Topics include preplanning, staffing, production, cost and risk control, subcontractor coordination, purchasing and project closeout. (Unit 8 of AGC Supervisory Training Program)

**CON 269 PRODUCTIVITY IMPROVEMENT FOR CONSTRUCTION SUPERVISORS  
2 CREDITS**

CON 269 will teach you to organize a construction project with productivity improvement as a goal is the focus of this course. Topics include calculating and measuring work productivity, work improvement analysis, understanding work worker ability and the impact of environmental factors, implementing and

monitoring improvement programs. (Unit 9 of AGC Supervisory Training Program)

**CON 280 INTERNSHIP  
1-6 CREDITS**

Prerequisite: Permission of instructor.

CON 280 provides you with the opportunity to supplement coursework with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

**CON 285 INDEPENDENT STUDY  
1-6 CREDITS**

CON 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**COS – Cosmetology**

**WWW.RRCC.EDU/  
WARRENTECH**

**COS 103 SHAMPOO/RINSES/  
CONDITIONERS I  
1 CREDIT**

COS 103 introduces various types of scalp treatments and shampoos. This course enables you to recognize and treat disorders of hair and scalp. It covers product knowledge and proper massage techniques to help control disorders and to cleanse the hair and scalp. The course includes terminology dealing with hair structure, scalp, and hair disorders and provides training in a lab or classroom setting.

**COS 110 INTRODUCTION TO  
HAIR COLORING  
2 CREDITS**

COS 110 provides theory pertaining to the law of color, theory of color, chemistry of color, product

knowledge, and analysis of hair and scalp. The course covers basic techniques and procedures for the application of hair coloring.

**COS 111 INTERMEDIATE I:  
HAIR COLORING  
2 CREDITS**

COS 111 focuses on theory and practical application of color products, formulations of color, level and shades of color. The course examines techniques in a specialized class or in a supervised salon setting.

**COS 120 INTRODUCTION TO  
HAIR CUTTING  
2 CREDITS**

COS 120 is an introduction to the theory relevant to patron protection, angles, elevations, and the analysis of hair textures as related to hair cutting. It covers the proper use and care of hair cutting implements, focuses on basic hair cutting techniques using all cutting implements, disinfection, and sanitation procedures as they relate to haircutting.

**COS 121 INTERMEDIATE I:  
HAIR CUTTING  
2 CREDITS**

COS 121 focuses on the theory of related facial shapes and head and body forms to determine the client's appropriate haircut. The course incorporates practical applications of hair cutting techniques in specialized classes or in the supervised salon (clinical setting).

**COS 130 INTRODUCTION TO  
HAIRSTYLING  
2 CREDITS**

COS 130 combines theory with the practical application of roller placement, shaping, pincurls, finger waves, airforming iron curling, soft pressing and hard pressing.

**COS 131 INTERMEDIATE I:  
HAIRSTYLING  
2 CREDITS**

COS 131 focuses on the accepted methods of styling hair, air forming roller sets, finger waves, pin curls, braiding, and hair pressing.

**COS 140 INTRO TO CHEMICAL  
TEXTURE  
1 CREDIT**

COS 140 introduces a combination of theory and practice focusing on the analysis of hair and scalp, proper equipment and product knowledge. This course includes basic techniques in permanent waving and chemical relaxing. It provides training in a classroom or lab setting on mannequins or live models.

**COS 141 INTERMEDIATE I:  
CHEMICAL TEXTURE  
1 CREDIT**

COS 141 emphasizes theory and practical application of permanent waves and chemical relaxers in specialized classes or a supervised salon setting. This course enables you to practice different wrapping techniques required by trend styles.

**COS 150 LAWS, RULES AND  
REGULATIONS  
1 CREDIT**

COS 150 provides instruction concerning the laws, rules, and regulations and how they govern the cosmetology and barber industry. The effects these have on you, licensed individual, salons, and school owners are covered.

**COS 160 INTRO TO  
DISINFECTION, SANITATION &  
SAFETY  
2 CREDITS**

COS 160 introduces the various methods of disinfection, sanitation, and safety as used in the cosmetology industry. This course includes classroom study of bacteriology and the terminology dealing with cosmetology.

**COS 161 INTERMEDIATE I:  
DISINFECTION, SANITATION &  
SAFETY  
1 CREDIT**

COS 161 focuses on the theory and daily practice of proper methods of disinfection, sanitation and safety procedures as related to all phases of cosmetology. It covers terminology and training of disinfection, sanitation, and safety procedures. This course also includes customer service training in a supervised salon (clinical) setting or specialized class.

**COS 203 SHAMPOO/RINSE/  
CONDITIONERS II  
1 CREDIT**

COS 203 provides theory and practical training in shampoos, rinses and conditioners. This course examines advanced techniques to prepare you for employment. It includes preparation for the State Board Licensing Examination in shampoos, rinses, and conditioners.

**COS 210 INTERMEDIATE II:  
HAIR COLORING  
2 CREDITS**

COS 210 provides continued instruction in the theory and practical application of color products, formulations of color, level and shades of color. It enables you to practice techniques in a specialized class or in a supervised salon setting.

**COS 211 ADVANCED HAIR  
COLORING  
2 CREDITS**

COS 211 provides continued instruction on advanced theory and practical techniques in hair coloring. The course focuses on the recognition of color problems and color correction procedures. It covers advanced techniques and product knowledge to prepare you for employment and prepares you for the State Board Licensing Examination pertaining to hair coloring.

**COS 220 INTERMEDIATE II:  
HAIR CUTTING  
2 CREDITS**

COS 220 provides continued instruction in the theory related to facial shapes, head and body forms to determine the client's appropriate haircut. It incorporates practical applications of haircutting techniques.

**COS 221 ADVANCED HAIR  
CUTTING  
2 CREDITS**

COS 221 focuses on advanced cutting techniques using all the cutting tools. It emphasizes current fashion trends and includes student preparation for the State Licensure examination.

**COS 230 INTERMEDIATE II:  
HAIR STYLING  
2 CREDITS**

COS 230 provides continued instruction on accepted methods of styling hair, air forming, roll set, finger waves, and hair pressing. It examines techniques in specialized classes or in a supervised salon setting.

**COS 231 ADVANCED HAIR  
STYLING  
1 CREDIT**

COS 231 focuses on theory and advanced techniques in all phases of hairstyling to prepare you for employment. Training involves a combination of supervised salon (clinical) work and specialized classes. It includes student preparation for the State Board Licensing Examination relating to hairstyling.

**COS 240 INTERMEDIATE II:  
CHEMICAL TEXTURE  
1 CREDIT**

COS 240 provides continued instruction in the theory and practical application of permanent waves and chemical relaxers in specialized classes or a supervised salon setting. It enables you

to practice different wrapping techniques required by trend styles.

**COS 241 ADVANCED  
CHEMICAL TEXTURE  
1 CREDIT**

COS 241 focuses on advanced techniques to prepare you for employment and the changes in current industry standards. Instruction is provided in specialized classes or supervised salon (clinical) setting. It includes student preparation for the State Board Licensing Examination pertaining to permanent waves and chemical relaxers.

**COS 250 MGMT, ETHICS,  
INTERPERSONAL SKILLS &  
SALES  
1 CREDIT**

COS 250 emphasizes the importance of salon management and the knowledge and skills necessary to build a successful business. The course focuses on the importance of interpersonal skills and basic techniques in salesmanship and customer services. It integrates job readiness skills and professional ethics.

**COS 260 INTERMEDIATE II:  
DISINFECTION, SANITATION &  
SAFETY  
2 CREDITS**

COS 260 provides continued study of theory and practice of proper methods of sterilization, disinfection, sanitation and safety procedures as related to all phases of the industry. It covers terminology and training of disinfection, sanitation and safety procedures. The individual responsibility to provide a safe work environment is practiced.

**COS 261 ADVANCED  
DISINFECTION, SANITATION &  
SAFETY  
1 CREDIT**

COS 261 provides advanced training on decontamination and safety practices in a supervised salon and/

or classroom setting. It examines advanced techniques that prepare you for employment and includes student preparation for the State Board Licensing Examination in decontamination and safety for all aspects of the industry. Study of OSHA requirements for schools and salon are conducted in a theory or practical setting.

**COS 262 ADVANCED II:  
DISINFECTION, SANITATION &  
SAFETY  
3 CREDITS**

COS 262 is the extra hours/credits required for the hairstylist program, per State Board of Colorado Barber/Cosmetology Board.

The course provides advanced training on decontamination and safety practices in a supervised salon and/or classroom setting. It examines advanced techniques that prepare you for employment and includes student preparation for the State Board Licensing Examination in decontamination and safety for all aspects of the industry. Study of OSHA requirements for schools and salon are conducted in a theory or practical setting.

**CRJ – Criminal Justice**

[WWW.RRCC.EDU/CRIMINAL](http://WWW.RRCC.EDU/CRIMINAL)

**CRJ 101 BASIC POLICE  
ACADEMY I  
6 CREDITS**

Prerequisite: Permission of academy director.

CRJ 101 conforms to P.O.S.T. standards and state certification requirements as well as the basic skills and knowledge necessary to perform the entry level duties of a peace officer. Emphasis will be on simulating actual situations utilizing a lecture and laboratory mode of learning.



**CRJ 102 BASIC POLICE  
ACADEMY II  
12 CREDITS**

Prerequisite: Permission of academy director.

CRJ 102 conforms to P.O.S.T. standards and state certification requirements as well as the basic skills and knowledge to perform the entry level duties of a peace officer. Emphasis will be on simulating actual situations utilizing a lecture and laboratory mode of learning.

**CRJ 103 BASIC LAW  
ENFORCEMENT  
ACADEMY III  
2 CREDITS**

Prerequisite: Permission of academy director .

CRJ 103 enhances the standards established by the P.O.S.T. Board and state certification requirements as well as the basic skills and knowledge necessary to perform the entry level duties of a Police Officer. Emphasis will be on expanding the P.O.S.T. curriculum to create a unique learning experience.

**CRJ 104 BASIC LAW  
ENFORCEMENT ACADEMY IV  
1 CREDIT**

Prerequisite: Permission of academy director.

CJR 104 enhances the standards established by the P.O.S.T. Board and state certification requirements as well as the basic skills and knowledge necessary to perform the entry level duties of a Police Officer. Emphasis will be on expanding the P.O.S.T. curriculum to create a unique learning experience.

**CRJ 105 BASIC LAW  
8 CREDITS**

Prerequisite: Permission of academy director.

CRJ 105 conforms to P.O.S.T. standards and state certification requirements as well as the basic skills and knowledge necessary to perform the entry level duties of a peace officer. Emphasis will be on

United States Constitution, arrest, search and seizure, interrogation and confessions, rules of evidence, Colorado Criminal Code, Colorado Traffic Code, Colorado Children's Code, Liquor Code and controlled substances.

**CRJ 106 ARREST CONTROL  
TECHNIQUES  
3 CREDITS**

Prerequisite: Permission of academy director.

CRJ 106 covers the skills, knowledge and abilities necessary to effectively maintain control of a suspect when making an arrest. The course emphasizes the continuum of force and de-escalation of force.

**CRJ 107 LAW ENFORCEMENT  
DRIVING  
3 CREDITS**

Prerequisite: Permission of academy director.

CRJ 107 covers the skills, knowledge and abilities required for operation of a law enforcement vehicle, emphasizes defensive driving, and enables you to demonstrate skills by driving a vehicle under simulated conditions.

**CRJ 108 FIREARMS  
3 CREDITS**

Prerequisite: Permission of academy director.

CRJ 108 discusses the skills, knowledge and abilities necessary to safely use police firearms. You will demonstrate skills by firing weapons on a firing range. You will demonstrate basic safety techniques and will explain the firearms role within the continuum of force.

**CRJ 110 INTRODUCTION TO  
CRIMINAL JUSTICE  
3 CREDITS**

CRJ 110 introduces a study of the agencies and processes involved in the criminal justice system: the legislature, the police, the prosecutor, the public defender, the courts, and corrections. It

includes an analysis of the roles and problems of the criminal justice system in a democratic society, with an emphasis upon inter-component relations and checks and balances.

**CRJ 111 SUBSTANTIVE  
CRIMINAL LAW  
3 CREDITS**

Prerequisite: CRJ 110

CRJ 111 teaches legal definitions of crime, purposes and functions of the law, historical foundations, and the limits of the criminal law.

**CRJ 112 PROCEDURAL  
CRIMINAL LAW  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 112 covers constitutional and procedural considerations affecting arrest, search and seizure, post-conviction treatment, origin, development, philosophy, and constitutional basis of evidence. It focuses on degrees of evidence and rules governing admissibility, judicial decisions interpreting individual rights, and an analysis of case studies from arrest through final appeal.

**CRJ 118 REPORT WRITING  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 118 identifies the areas of concern in regards to proper documentation of police related activities. It focuses on report writing skills, proper structuring of interviews and chronological documentation of events. The course incorporates proper sentence structuring, the use of correct terminology and accuracy in written reports.

**CRJ 125 LAW ENFORCEMENT  
OPERATIONS  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 125 examines the complexity and multidimensional aspects of the law enforcement role and career; law enforcement discretion; law

enforcement values and culture in modern America. It covers the role and functions of law enforcement in occupational, social, political and organizational context.

### **CRJ 126 PATROL PROCEDURES 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 126 focuses on an in-depth study of the basic knowledge and skills required of a peace officer to safely and effectively accomplish the patrol procedure.

### **CRJ 135 JUDICIAL FUNCTION 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 135 examines the criminal process with an analysis of the major judicial decision makers, i.e., prosecutors, defense attorneys, judges, and the discretionary aspects of adjudication.

### **CRJ 145 CORRECTIONAL PROCESS 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 145 focuses on the post-conviction corrections process, the development of a correctional philosophy, theory, and practice, a description of institutional operation, programming and management, and community-based corrections, probation, and parole.

### **CRJ 150 VICTIMS OF CRIME AND TRAUMA 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 150 introduces you to the role the crime victim plays in the criminal justice system. The traditional response that a crime victim receives from the system will be studied and the psychological, emotional and financial impact these responses have on victimization will be analyzed.

### **CRJ 151 DOMESTIC VIOLENCE 3 CREDITS**

Prerequisites: CRJ 110 and CRJ 150 .

CRJ 151 examines theories, issues, legal strategies, and intervention applicable to abuse in intimate relationships.

### **CRJ 152 SEXUAL ASSAULT 3 CREDITS**

Prerequisites: CRJ 110 and CRJ 150.

CRJ 152 examines sexual assault beginning with definitions and describing the degrees of sexual assault and the penalties and realities of punishment. It covers myths, statistics, services, treatment and prevention. Both the rapist and the adolescent offender are profiled. The course emphasizes the pro-active approach with regard to prevention.

### **CRJ 153 VIOLENCE AGAINST CHILDREN 3 CREDITS**

Prerequisites: CRJ 110 and CRJ 150.

CRJ 153 includes an in-depth study of physical, sexual, and emotional abuse and neglect of children.

It focuses on identification and treatment of abusive families and victims of abuse and the response of the legal system, the community, and human service agencies.

### **CRJ 167 FINGERPRINTING 3 CREDITS**

CRJ 167 is an in-depth instruction of the interpretation, classifications, and presentation in court of the Henry System of classification of fingerprint patterns. Instruction includes the discussion of lifting and preserving fingerprints from crime scenes. The processing of a crime scene using basically powders and a magna brush. You will be proficient in the Henry System and use of all kits and allied equipment in high level at the completion of the course.

### **CRJ 190 FINANCIAL INVESTIGATION 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 190 introduces current perspectives dominant in the field of financial investigations. It includes concepts of law and evidence, sources of information, including financial institutions, business financial record keeping, tracing funds using a variety of methods, and interviewing as applied to detecting and resolving financial crimes. The course emphasizes theoretical principles and applications of financial investigative techniques.

### **CRJ 205 PRINCIPLES OF CRIMINAL LAW 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 205 focuses on common law and statutory law crimes, the Model Penal Code, elements defining crimes and penalties, defenses to criminal accusations, and definitions and distinctions between criminal and civil law.

### **CRJ 210 CONSTITUTIONAL LAW 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 210 focuses on the powers of government as they are allocated and defined by the United States Constitution. It includes intensive analysis of United States Supreme Court decisions.

### **CRJ 218 DRUG INVESTIGATIVE STRATEGIES 3 CREDITS**

Prerequisite: CRJ 110.

CRJ 218 focuses on laws dealing with gambling, prostitution, sex crimes, and narcotics. It emphasizes special techniques employed in the detection, suppression, and apprehension of violators. It includes effects of drugs and narcotics, identification of narcotics, and terminology.

**CRJ 220 HUMAN RELATIONS AND SOCIAL CONFLICT  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 220 highlights the environmental, organizational and socio-psychological dimensions of social control. It includes the study of individual attitudes, beliefs and behavior involved in role conflicts, community relations and conflict management in the social structure.

**CRJ 225 CRISIS INTERVENTION  
3 CREDITS**

Prerequisites: CRJ 110 and CRJ 150

CRJ 225 provides information and application of crisis theories in working with diverse populations. It examines the interventionist role.

**CRJ 230 CRIMINOLOGY  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 230 examines the question of crime causation from legal, social, political, psychological and theoretical perspectives. It covers the history and development of criminology.

**CRJ 231 INTRODUCTION TO FORENSIC SCIENCE AND CRIMINALISTICS  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 231 focuses on the fundamentals of forensic science that are essential for gathering evidence at the crime scene and analyzing it in the crime laboratory.

**CRJ 236 CRJ RESEARCH METHODS  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 236 Introduces and applies methods for criminal justice and criminology with an emphasis on the scientific method and the role of empirical inquiry into criminal justice and criminology. This course will include the study of methodologies of data collection and analysis,

the logic of research, the role of theory, measurement, sampling and research designs. Field research and the professional norms and ethics of criminal justice and criminology research will also be covered.

**CRJ 239 MANAGING EMERGENCY WORKER STRESS  
3 CREDITS**

Prerequisites: CRJ 110 and CRJ 150.

CRJ 239 provides an understanding of trauma reaction and stress management for first line responders, i.e., police officers, victim advocates, paramedics and firemen. It focuses on practical application of coping skills and stress management for first line responders.

**CRJ 240 CRIMINAL INVESTIGATIONS  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 240 introduces investigation methods and procedures from preliminary through the follow-up stages.

**CRJ 245 INTERVIEW AND INTERROGATION  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 245 focuses on the study of technical and legal approaches used in gathering desired information from victims, witnesses, and suspects. It examines the fundamental characteristics of questioning and the use of psychological influences.

**CRJ 246 TRAFFIC INVESTIGATION  
3 CREDITS**

Prerequisite: CRJ 110.

CRJ 246 provides an overview of the skills and concepts necessary to complete an accurate investigation of a traffic collision. The course emphasizes traffic management concepts, selective traffic enforcement, and safety issues.

**CRJ 269 ADULT SURVIVORS OF MOLESTATION  
3 CREDITS**

Prerequisites: CRJ 110, CRJ 150.

CRJ 269 provides the potential victim advocate with the latest treatment modalities for victims who are adult survivors of childhood molestation. The course will also focus on the possible long term destruction mannerisms (Post Traumatic Stress Disorder) as well as the immediate trauma. Discussion will focus on how this type of crime can impact its victims' physical, mental, and emotional attitudes, thereby affecting their personal and professional lives.

**CRJ 275 SPECIAL TOPICS  
1-6 CREDITS**

Prerequisite: Some topics may be restricted to criminal justice practitioners.

CRJ 275 provides you with a vehicle to pursue in-depth exploration of special topics of interest.

**CRJ 280 INTERNSHIP  
1-6 CREDITS**

Prerequisite: Permission of internship and CRJ coordinators.

CRJ 280 provides placement in the criminal justice field to integrate theory with practice.

**CRJ 285 INDEPENDENT STUDY  
1-6 CREDITS**

Prerequisite: Permission of instructor.

CRJ 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**CRJ 289 CAPSTONE  
1 CREDIT**

CRJ 289 provides a demonstrated culmination of learning within a given program of study.

## CSC – Computer Science

WWW.RRCC.EDU/CIS

### CSC 119 INTRODUCTION TO PROGRAMMING 3 CREDITS

CSC 119 is a general introduction to computer programming. The course emphasizes the design and implementation of structured and logically correct programs with good documentation. The course focuses on basic programming concepts, including numbering systems, control structures, modularization, and data processing. A structured programming language will be used to implement program designs.

### CSC 126 GAME DESIGN AND DEVELOPMENT 3 CREDITS

CSC 126 combines problem-solving techniques with computer game design and implementation to introduce you to basic gaming and computer science concepts. You will design, implement, and test computer games using software that allows for basic game creation through a wide variety of game creation tools; no prior programming experience is required.

### CSC 154 INTRODUCTION TO MS VISUAL BASIC .NET (OOP) 3 CREDITS

Prerequisite: CSC 119, equivalent experience or permission of instructor.  
CSC 154 provides you with the knowledge and skills needed to develop applications in Microsoft Visual Basic .NET for the Microsoft .NET Platform. The course focuses on user interfaces, program structure, language syntax, and implementation details. This is the first course in the Visual Basic .NET curriculum and will serve as the entry point for other .NET courses.

### CSC 160 COMPUTER SCIENCE I 4 CREDITS

Prerequisite: MAT 121 College Algebra, equivalent experience, or permission of instructor.  
CSC 160 introduces you to the discipline of computer science. Topics covered will include algorithm development, data representation, arithmetic and logical expressions, subprograms and input/output operations using a structured programming language. Intensive computer laboratory activities are required. Object-oriented techniques will also be emphasized.

### CSC 161 COMPUTER SCIENCE II 4 CREDITS

Prerequisite: CSC 160 or equivalent experience or permission of instructor.  
CSC 161 continues the structured algorithm development and problem-solving techniques begun in Computer Science I. You will gain experience in the use of data structures and design of larger software projects. Intensive computer laboratory experience is required. Object-oriented techniques will also be emphasized.

### CSC 165 DISCRETE STRUCTURES 3 CREDITS

Prerequisite: CSC 160 or equivalent experience or permission of instructor.  
CSC 165 prepares you for a fundamental understanding of computing and computer science. Topics covered will include set theory, Boolean algebra, relations, functions, graph theory, and techniques for formal reasoning.

### CSC 200 GAME PROGRAMMING I 3 CREDITS

Prerequisite: CSC 126, CSC 119 and CSC 154 or CSC 160, equivalent experience, or permission of instructor.  
CSC 200 introduces the C++ student

to game programming techniques and using a game library. Skills developed include programming input devices, 2D game theory and design, bit map handling, sprite programming, and threads.

### CSC 227 3D GAME PROGRAMMING 3 CREDITS

Prerequisite: CSC 126 and CSC 200, CSC 160 or CSC 236 or equivalent experience, or permission of instructor.  
CSC 227 is a continuation of CSC 200. You will be involved with creating Terrains, Structures, and Environments. You will also learn about Game Missions, Clients, and the basics of testing.

### CSC 228 3D GAME SCRIPTING 3 CREDITS

Prerequisites: CSC 126 and CSC 127 and CSC 227, CSC 160 or CSC 236 or equivalent experience or permission of instructor.  
CSC 228 allows you to engage in advanced game engine scripting. Topics include problem-solving, objects, string, Artificial Intelligence (AI), and group behaviors.

### CSC 236 C# PROGRAMMING 4 CREDITS

Prerequisite: CSC 119.  
CSC 236 introduces the C# programming language and covers all syntactical components of the language including arrays, structures, functions, and classes. Content will focus on writing clear properly structured and well-documented programs using C# and object oriented methodology.

### CSC 240 JAVA PROGRAMMING 3 CREDITS

Prerequisite: CSC 160, equivalent experience, or permission of instructor.  
CSC 240 is an introduction to the Java programming language and will cover basic graphics, threads,

events/procedures, user interface, and libraries. You will write and execute a variety of Java programs. Java Applets will be incorporated into HTML pages, allowing for the use of real-time sound, graphics, animation, and user interaction.

### **CSC 248 JAVA INTERNET PROGRAMMING** **3 CREDITS**

Prerequisite: CSC 240, equivalent experience, or permission of instructor.

CSC 248 covers Java programming in the Internet environment. It focuses on server-side programming and covers network programming, database connectivity, server programming, multimedia, and Java beans.

### **CSC 250 PROGRAMMING WITH MICROSOFT ADO .NET** **3 CREDITS**

Prerequisite: CSC 154, CSC 251, CSC 261, or equivalent experience or permission of instructor.

CSC 250 teaches you to build data-centric applications and Web services with Microsoft ADO.NET, Microsoft SQL Server, and the Microsoft .NET Framework. This course includes designing and building data-centric, distributed applications.

### **CSC 251 PROGRAMMING IN VISUAL BASIC .NET** **3 CREDITS**

Prerequisite: CSC 154, equivalent experience, or permission of instructor.

CSC 251 provides you with the knowledge and skills needed to develop Microsoft .NET-based applications by using Visual Basic .NET. It focuses on Visual Basic .NET (a significant upgrade to Visual Basic) and incorporates new features and framework goals of the .NET architecture. This course enables you to create enterprise applications for the .NET Platform and to create more traditional Visual Basic

applications that take advantage of the enhancements to the language.

### **CSC 253 MS ASP.NET WEB APPLICATION DEVELOPMENT** **3 CREDITS**

Prerequisite: CSC 251 or CSC 261.

CSC 253 will teach programmers and beginning Web developers the fundamentals of Web application site implementation by using Microsoft ASP.NET and Microsoft Visual Basic .NET. This course focuses on using the Microsoft Visual Studio .NET environment and the Microsoft .NET Platform to create an ASP.NET Web application that delivers dynamic content to a Web site.

### **CSC 261 PROGRAMMING IN C# .NET** **3 CREDITS**

Prerequisite: CSC 160, equivalent experience, or permission of instructor.

CSC 261 provides you with the knowledge and skills needed to develop C# applications for the Microsoft .NET Platform. This course focuses on C# program structure, language syntax, and implementation details.

### **CSC 262 VS.NET APPLICATION DEVELOPMENT: VB & C#** **3 CREDITS**

Prerequisites: CSC 251, CSC 261, or equivalent experience.

CSC 262 provides C# programmers with the skills required to create Windows Forms applications by using the .NET Framework. The course will cover the major topics for Windows client application programming on the .NET Framework. These topics include Windows Forms, GDI+, simple data access, interoperating with unmanaged code, threading and asynchronous programming issues, simple remoting, Web access, Web Services consumption, debugging, security, and deployment issues for desktop applications.

## **CUA – Culinary Arts**

[WWW.RRCC.EDU/CULINARY](http://WWW.RRCC.EDU/CULINARY)

### **CUA 101 FOOD SAFETY AND SANITATION** **2 CREDITS**

CUA 101 covers the basic rules of sanitation, food-borne illnesses, safe food temperatures, safe food handling techniques, the HACCP Program, pest control procedures, and local/state health rules and regulations for food service operations. At the completion of the course, you will take a nationally recognized test from the Education Foundation of the National Restaurant Association. If passed with a score of 75% or more, you will receive a Certificate of Completion from the Education Foundation.

### **CUA 105 FOOD SERVICE CONCEPTS AND MANAGEMENT SKILLS** **3 CREDITS**

CUA 105 demonstrates the use of management skills training in the food service industry by use of student interaction research, and also demonstrates the various styles of menu development. The course includes basic responsibility for food service personnel in all kitchen positions with emphasis on advertising vs. publicity, job analysis, description specifications, and duty list as related to recruiting and hiring process. It covers application, interview techniques, training, and hiring processes and incorporates preparation of menus for different styles of food service establishments.

### **CUA 121 INTRODUCTION TO FOOD PRODUCTION PRINCIPLES AND PRACTICES** **1 CREDIT**

CUA 121 provides you with the fundamental principles of commercial kitchen operations including safety and sanitation applications, use and care of

equipment, tools, utensils and knives, recipe use and conversion, organization of work, and basic cooking methods.

### **CUA 122 INTRODUCTION TO STOCKS, SOUPS, AND SAUCES**

#### **1 CREDIT**

CUA 122 focuses on the fundamental principles of stocks, soups, sauces, gravies, and thickening agents. It enables you to produce a variety of these products in the commercial kitchen, incorporating practice in the use of tools, utensils, equipment, and application of safety and sanitation practices. You will apply pre-preparation skills and efficient organization of work techniques.

### **CUA 123 INTRODUCTION TO GARDE MANGER**

#### **1 CREDIT**

CUA 123 provides fundamental principles of cold food and non-alcoholic beverage preparation and production in a commercial kitchen. The course enables you to produce a variety of cold food and non-alcoholic beverage products incorporating practice in the use of tools, utensils, equipment, and application of safety and sanitation methods. It introduces basic cold food decorative work, such as fruit and vegetable garnishes and carvings, terrines, and hors d'oeuvres. This course also focuses on pre-preparation procedures and efficient organization of work techniques.

### **CUA 124 VEGETABLE PREPARATION AND BREAKFAST COOKERY**

#### **1 CREDIT**

CUA 124 introduces you to vegetable preparation and breakfast cookery in a commercial kitchen. The course focuses on the significance of variety of breakfast items and the preparation of vegetable items using a variety of cooking methods. It

emphasizes the effects of seasonings and cooking methods on vegetable products. You will prepare, plate, and garnish breakfast orders similar to those ordered in restaurants with egg cookery and dairy products emphasized.

### **CUA 127 SOUPS, SAUCES, AND CONSOMMÉS**

#### **3 CREDITS**

CUA 127 covers the preparation of the five mother sauces and small-derived sauces. The course enables you to prepare stocks, consommés, emulsified sauces, clear soups, pureed soups, chowders, national, and cream soups in a commercial kitchen. It introduces gravies and sauce garnishing.

### **CUA 131 STARCHES, PASTAS, CASSEROLES, AND GRAIN PRODUCTS**

#### **1 CREDIT**

CUA 131 provides the basics of preparing and/or cooking potatoes, starches, legumes, and pastas. The course enables you to prepare and cook a variety of casseroles and grain products using a commercial kitchen for the preparation area. It allows you to apply pre-preparation skills and efficient organization of work techniques.

### **CUA 132 CENTER OF THE PLATE: MEAT**

#### **1 CREDIT**

CUA 132 provides you with the basics of meat handling, including principles used for selecting meat products, their basic cuts, and cooking methods. It focuses on a variety of meat products in a commercial kitchen.

### **CUA 133 CENTER OF THE PLATE: POULTRY, FISH, AND SEAFOOD**

#### **1 CREDIT**

CUA 133 provides the basics of handling poultry, fish, and seafood, including principles used

for selection and the basic forms these products have, as well as the methods of cooking them. It focuses on preparation of poultry, fish, and seafood products in a commercial kitchen and incorporates practice in the use of these principles and methods. The course covers pre-preparation skills and efficient organization of work techniques.

### **CUA 135 CENTER OF THE PLATE: BEEF AND VEAL**

#### **1 CREDIT**

CUA 135 provides you with the basic information required for proper selection, handling, and cooking of beef and veal products. The course focuses on a variety of beef and veal products commonly used in the professional kitchen.

### **CUA 139 CENTER OF THE PLATE: PORK, LAMB, AND GAME**

#### **1 CREDIT**

CUA 139 provides you with the basic information required for the proper selection, handling, and cooking of pork, lamb, and game. The course focuses on a variety of pork, lamb, and game products commonly used in the professional kitchen.

### **CUA 141 BAKING: PRINCIPLES AND INGREDIENTS**

#### **1 CREDIT**

CUA 141 provides you with the fundamentals of baking terminology, principles of baking, and the characteristics and functions of the main ingredients used in bakery production. It orients you to commercial equipment, tools, and utensils used in baking.

### **CUA 142 BASIC YEAST-RAISED PRODUCTS AND QUICK BREADS**

#### **1 CREDIT**

CUA 142 provides you with the fundamentals of basic yeast-raised production and quick breads. The course enables you to produce white

bread, rolls, variety grain breads, specialty breads, sweet yeast-raised products, and quickbreads in a commercial kitchen.

### **CUA 143 BAKING: CAKES, PIES, PASTRIES, AND COOKIES**

#### **1 CREDIT**

CUA 143 provides you with the fundamentals of basic cake, pie, pastry, and cookie production. The course enables you to produce a variety of cakes, pies, pastries, cookies, and assorted dessert items in a commercial kitchen.

### **CUA 144 BAKING APPLICATIONS**

#### **1 CREDIT**

CUA 144 serves as the practical vehicle for you to apply basic baking principles and practices to the production of yeast breads, quick breads, cakes, icings, pastries, pies, and cookies. It focuses on the preparation of a variety of baked goods in a commercial kitchen according to a baking production schedule. The course enables you to demonstrate comprehensive knowledge of products as well as speed and efficiency in the production of quality baked goods.

### **CUA 150 BAKING: DECORATING AND PRESENTATION**

#### **3 CREDITS**

CUA 150 examines the preparation and production of cakes, pastries, different styles of decorating, commercial equipment, and types of products used for decoration. It covers plate painting, national products, and designing show pieces.

### **CUA 151 BAKING: INTERMEDIATE BREAD PREPARATION**

#### **3 CREDITS**

CUA 151 focuses on preparation of types of bread products including

French, rye, wheat, brioche, and croissants. The course enables you to demonstrate different styles of presentation including rolling, braiding, cloverleaf, parker-house, single knot, butter-flake, comb, and wreath shape. It examines production steps, ingredients, and commercial equipment that apply to course training.

### **CUA 152 INDIVIDUAL FANCY DESSERT PRODUCTION**

#### **3 CREDITS**

CUA 152 focuses on the preparation and decoration of individual dessert items in a commercial kitchen. It covers the preparation of cream horns, napoleons, éclairs, cream puffs, marzipan fruits, marzipan sculptures, tarts, flambéd desserts, international desserts, pastry shells, pulled sugar, spun sugar, and individual chocolate decorations. You will research and locate dessert menus/recipes to be used in lab production.

### **CUA 156 NUTRITION FOR THE HOSPITALITY PROFESSIONAL**

#### **3 CREDITS**

CUA 156 provides you with the fundamentals of human nutrition. It focuses on the nutritional needs of humans throughout their life cycle as well as those with special dietary needs. You will may take a nationally recognized test from the Educational Foundation of the National Restaurant Association.

### **CUA 157 MENU PLANNING**

#### **3 CREDITS**

CUA 157 introduces you to planning menus and integrating them into foodservice operations. It equips you with a working knowledge of the function, mechanics, and results achieved by the menu, providing an overview of the existing and growing food service industry as seen through the menu.

### **CUA 180 CULINARY ARTS INTERNSHIP 1**

#### **5 CREDITS**

CUA 180 provides you with the opportunity to supplement coursework with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **CUA 182 CULINARY ARTS INTERNSHIP 2**

#### **5 CREDITS**

CUA 182 provides you with the opportunity to supplement coursework with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **CUA 210 ADVANCED CUISINE AND GARDE MANGER**

#### **4 CREDITS**

CUA 210 focuses on the preparation of food display items for buffets and banquets, such as fancy garnishes, fruit and vegetable carvings, canapés, and party trays. It includes patés, galantines, terrines, and choud froid items. It also incorporates the creation of food artistry show pieces, meeting competition guidelines developed by the American Culinary Federation, and covers the preparation of a regional, ethnic or cultural culinary presentation based upon personal research.

### **CUA 242 INTERMEDIATE GARDE MANGER**

#### **1 CREDIT**

CUA 242 focuses on producing a variety of garde manger items in the kitchen. It incorporates practice in the use of tools, utensils, and equipment and the application of safety and sanitation practices. This

course emphasizes preparation skills and efficient organization of work skills.

### **CUA 255 SUPERVISION IN THE HOSPITALITY INDUSTRY 3 CREDITS**

CUA 255 provides the current/future foodservice operator, manager, or supervisor with a solid foundation for developing communication skills, planning and decision-making skills, and skills for creating a goal-oriented environment using management principles in the selection, training, evaluating, delegating, motivating, rewarding, and disciplining of employees. It stresses skills for success through people development.

### **CUA 261 COST CONTROLS CREDITS: 3**

CUA 261 provides students with the opportunity to learn the types of costs usually found in the food service industry. Students will learn to apply control techniques to a variety of costs and sales. They will also learn to interpret a variety of financial reports which reflect the relationship between costs and income. Students may take the national Cost Controls test from the National Restaurant Association Education Foundation. If they pass the test with 75% or higher, they will receive a national certificate for the course.

### **CUA 281 CULINARY ARTS INTERNSHIP 3 5 CREDITS**

CUA 281 places you in an actual work situation where you will participate in the operation of a foodservice establishment. Hours of work are arranged by the site supervisor and you, the intern. The number of hours required is determined by the number of credits the course carries.

## **CWB – Computer Web**

[WWW.RRCC.EDU/CIS](http://WWW.RRCC.EDU/CIS)

### **CWB 110 COMPLETE WEB AUTHORING: HTML 3 CREDITS**

Prerequisites: CIS 130 and CIS 128 or a working knowledge of Windows  
CWB 110 explores a complete set of Web authoring skills using HTML (Hypertext Markup Language). Topics include links, backgrounds, controlling text and graphic placement, tables, image maps, frames, forms, and CSS (Cascading Style Sheets).

### **CWB 130 COMPLETE WEB EDITING TOOLS: DREAMWEAVER 3 CREDITS**

Prerequisites: CWB 110 and CIS 128 or a working knowledge of Windows.  
CWB 130 explores the complete set of Web editing tools provided by the software specified. Topics include links, backgrounds, controlling text and graphic placement, tables, image maps, frames, and forms.

### **CWB 162 INTRO TO IMAGE EDITING: PHOTOSHOP 3 CREDITS**

Prerequisite: CIS 128 or a working knowledge of Windows.  
CWB 162 provides an introduction to digital graphics. The course emphasizes image processing and special effects. Chemical-free darkroom and illustration techniques are studied along with graphics/text integration.

### **CWB 164 XML 3 CREDITS**

Prerequisite: CWB 110 or a working knowledge of HTML, including CSS.  
CWB 164 is designed to teach you how to create a well formed XML document, understand how DTDs impose structure, and how Style Sheets transform an XML document. Among the many topics that will be

discussed are processing XML with application code, working with the DOM, recognizing common industry parsers, and the integration of XML into an infrastructure.

### **CWB 205 COMPLETE WEB SCRIPTING: JAVASCRIPT 3 CREDITS**

Prerequisites: CWB 110 and one programming language (CSC 154 or higher) or permission of instructor.  
CWB 205 explores the complete set of Web scripting skills needed to develop Web Applications. Topics include variables, data types, arithmetic operations, logical operations, looping, creating and reading cookies, creating an array, displacing data based on a cookie value, setting flags, working with frames, creating objects in a hidden frame, using the History Object, writing HTML to another window, determining browser, and directing keystrokes.

### **CWB 208 WEB APPLICATION DEVELOPMENT: PHP 3 CREDITS**

Prerequisite: CSC160, CIS 251, and CWB 110, or permission of instructor.  
CWB 208 teaches you how to work in the server-side scripting environment. You will learn the basics of application development and general principles that apply to most development environments. You will develop applications using two different server-side application development tools: PHP Hypertext Preprocessor (PHP) and Cold Fusion. You also will learn key application standards, such as source and revision control, coding standards, code optimization, and data integrity.

### **CWB 245 COMPLETE WEB ANIMATION: FLASH 3 CREDITS**

Prerequisites: CSC 119 or CSC 160; CWB 245 and CWB 162 are recommended, or permission of instructor.



CWB 245 explores the complete set of Web animation tools. Topics include creating an .swf file; publishing the file with interactivity and animation; creating .swf files encompassing navigation, animation, event sound, streaming sound, behavior actions; getting a movie clip, tell targets, preliminary Generator discussion, and preloaded sequences; integration of 3D objects; and producing a high-end project.

### **CWB 246 ADVANCED WEB ANIMATION: FLASH 3 CREDITS**

Prerequisite: CWB 245 or permission of instructor.

CWB 246 is an advanced topics study of the Flash r/6 authoring tool, Flash's scripting language Action Script, and the complex functions of the Macromedia Flash .swf file format. The main objective of the course is the exposure to advanced interactivity, design, and coding principles.

### **CWB 262 IMAGE EDITING II: PHOTOSHOP 3 CREDITS**

Prerequisite: CWB 162.

CWB 262 covers advanced features of Adobe Photoshop, including advanced image editing and image preparation for the Web. Topics include color management, color correction, photographic retouching, effects, file formats, optimization, ImageReady, animated gifs, image maps, and slicing.

### **CWB 289 CAPSTONE 3 CREDITS**

CWB 289 requires a demonstrated culmination of learning within a given program of study.

## **DAN – Dance**

### **WWW.RRCC.EDU/DANCE**

#### **DAN 105 HIP HOP I 1 CREDIT**

DAN 105 consists of basic traditional jazz and ballet movements. Warm-up exercises will include body toning and stretching. You will learn diagonal step combinations leading to hip-hop dance routines.

#### **DAN 106 HIP HOP II 1 CREDIT**

DAN 106 includes traditional jazz, ballet, and street dancing techniques as well as warm-up exercises, such as body toning and stretching. You will learn diagonal and center step combinations leading to hip-hop dance routines.

#### **DAN 111 MODERN DANCE I 1 CREDIT**

DAN 111 introduces basic concepts and skills of modern dance and focuses on technique work to increase strength, flexibility, endurance, coordination, rhythm, and spatial awareness. The course also explores dance as a tool for communication and dance as an art form. DAN 111 may be repeated for no more than three credits.

#### **DAN 112 MODERN DANCE II 1 CREDIT**

DAN 112 includes a more in-depth study of modern dance concepts as well as more specific techniques of modern dance choreography. It focuses on more advanced technique work with more emphasis on improvisation. DAN 112 may be repeated for a total of three credits.

#### **DAN 121 JAZZ I 1 CREDIT**

DAN 121 introduces the basic techniques and vocabulary of jazz dance and the basic elements of dance. The course focuses

on movement-oriented dance, comprised of warm-up exercises, center combinations, traveling combinations, and cool down. The course may be repeated for a maximum of three credits.

#### **DAN 122 JAZZ II 1 CREDIT**

DAN 122 continues Jazz I with an increased knowledge of jazz dance. The course enables you to work at an intermediate level with a basic understanding of body alignment, balance, and musicality.

#### **DAN 125 HISTORY OF DANCE I 3 CREDITS**

DAN 125 introduces the history of dance as a theatre or performing art. Examines dance from Classical Greece through the Renaissance, including court and classical ballet to modern dance with African and Caribbean influences.

#### **DAN 130 DANCE SAMPLER 1 CREDIT**

DAN 130 introduces the beginning dancer to popular dances through a social dance sampler in Salsa, Swing, and Country Western Dance technique, footwork, body posturing, rhythms, and dance floor etiquette. Examines a variety of dances such as Salsa's Mambo, Cha-Cha, and Rumba; Swing's Lindy Hop (jitterbug); and Country Western's Two Step, Cowboy Waltz, Cotton-Eyed Joe and various Country Western line dances.

#### **DAN 131 BALLET I 1 CREDIT**

DAN 131 introduces the basic techniques of ballet, which are built upon knowledge of ballet terminology, fundamental exercises, and the basic elements of dance. It focuses on movement-oriented dance, comprised of stretching, barre warm-up exercises, simple terre à terre and jumping steps, and basic extended positions. The course

may be repeated for a maximum of three credits.

### **DAN 132 BALLET II 1 CREDIT**

DAN 132 continues Ballet I and emphasizes ballet terminology, fundamental exercises, and the basic elements of dance. It focuses on an intermediate level within the basic structure of the ballet class. The course may be repeated for a maximum of three credits.

### **DAN 143 TAP I 1 CREDIT**

DAN 143 introduces basic tap dance movements and techniques. The shuffle, ball change, brush, flap heel drop, stomp, and stamp step are covered.

### **DAN 151 BELLY DANCE I 1 CREDIT**

DAN 151 presents belly dance - the oldest dance form known to humankind as a celebration of life. The course emphasizes developing balance and enables you to perform a belly dance and learn the history of belly dance and costuming techniques.

### **DAN 152 BELLY DANCE II 1 CREDIT**

DAN 152 continues DAN 151, with emphasis on coordination and balance and additional techniques. It includes costume design.

### **DAN 154 DANCE AND STAGE MOVEMENT 3 CREDITS**

DAN 154 introduces you to the basic elements of modern dance and to the potential of dance and stage movement as a means of communication.

### **DAN 224 DANCE FOR MUSICAL THEATRE 3 CREDITS**

Prerequisites: DAN 154 or permission of instructor.

DAN 224 introduces you to dance

within the context of musical theatre. The course enables you to practice non-verbal communication and expressive movement techniques.

### **DAN 251 BELLY DANCE III 1 CREDIT**

DAN 251 continues Belly Dance II (DAN 152) with emphasis on coordination, balance and additional techniques. Includes costume design, fitness, and the emphasis of learning advanced dance techniques to perform professionally.

### **DAN 275 SPECIAL TOPICS 1-6 CREDITS**

DAN 275 provides you with a vehicle for in-depth exploration of special topics of interest.

## **DMS – Diagnostic Medical Sonography**

[WWW.RRCC.EDU/DMS](http://WWW.RRCC.EDU/DMS)

You must be accepted into the DMS program to take any courses other than RTE 255 and DMS 101. Individuals who are already certified by the ARDMS may enroll in any of the DMS courses without applying to the program. Contact the program director for more information: 303.914.6034

### **RTE 255 MULTIPLANAR SECTIONAL IMAGING (PROGRAM PREREQUISITE) 2 CREDITS**

RTE 255 is a multi-planar sectional anatomy course with co-relative MRI and CT images. This course is designed for both post-graduate imaging professionals and radiologic technology students who want to enhance knowledge and skills. You will be able to identify normal anatomy, anatomic variants, and selected pathologies in orthogonal trans-axial, sagittal, and coronal planes through the study of line drawings, plasticized cadaverous

sections, and related MR and CT images. This course is designed to develop, in you, a working knowledge of anatomy and pathologies encountered in sectional imaging modalities such as MRI and CT.

### **DMS 101 INTRODUCTION TO SONOGRAPHY 2 CREDITS**

DMS 101 provides an overview of sonography for students interested in the Diagnostic Medical Sonography program with an introduction to pulse-echo imaging, general sonography, cardiac sonography, vascular technology and typical career opportunities.

### **DMS 201 SURVEY OF GENERAL SONOGRAPHY 2 CREDITS**

DMS 201 provides an overview of general sonography emphasizing normal abdomen, superficial structures, female pelvis and obstetrical ultrasound including common abnormalities and typical career opportunities.

### **DMS 202 NEUROSONOLOGY 2 CREDITS**

DMS 202 introduces students to gross anatomy, sectional anatomy, and pathology of the brain and spinal cord in addition to the sonographic appearances of normal and abnormal structures.

### **DMS 203 CEREBROVASCULAR SONOGRAPHY 2 CREDITS**

DMS 203 provides an in-depth study of cerebrovascular disease and the ultrasonic evaluation of it. You will learn how to perform a complete B-mode and Doppler ultrasonic examination using all current industry standards. Transcranial Doppler techniques will also be presented. Pathological development and pathophysiology will be described. This course will also review techniques for patient

assessment, obtaining patient histories, evaluating and correlating patient symptoms with diagnostic findings. Surgical and non-surgical corrective techniques will be discussed. You will be introduced to correlating ultrasound test results with angiography, computed tomography, nuclear medicine, vascular procedures, and magnetic resonance imaging.

### **DMS 204 VENOUS SONOGRAPHY 2 CREDITS**

DMS 204 provides you with an in-depth study of the evaluation of peripheral venous disease using duplex ultrasound and plethysmographic techniques. You will learn to evaluate for venous thrombosis and insufficiency. Superficial venous mapping will be demonstrated. You will review techniques for evaluating the presence of venous disease. You will learn pathological mechanism and risk factors for venous disease. Surgical and non-surgical corrective procedures will be discussed. Correlation with other vascular procedures will be demonstrated.

### **DMS 205 SMALL PARTS ULTRASOUND 2 CREDITS**

DMS 205 is designed to teach specific knowledge of anatomy of the breast, thyroid, scrotum, prostate, and the surrounding structures. The ability to identify pathology or to locate abnormalities is also an integral part of the class.

### **DMS 206 VASCULAR ULTRASOUND 2 CREDITS**

DMS 206 will cover basic positioning and scanning protocol of the vascular system. Review of the anatomy, hemodynamics and terminology unique to the vascular system with emphasis on the external carotid system,

the upper and lower venous and arterial systems and the abdominal vasculature will be included.

### **DMS 207 ADVANCED OBSTETRIC SONOGRAPHY 2 CREDITS**

DMS 207 introduces students to the practice and concepts of advanced/high-risk obstetrical sonography. Students will study genetics and genetic testing, maternal and fetal conditions, fetal testing and interventions, and perinatal screening.

### **DMS 208 SURVEY OF ECHOCARDIOGRAPHY 2 CREDITS**

DMS 208 provides an overview of echocardiography emphasizing normal anatomy, including common abnormalities and typical career opportunities.

### **DMS 221 OB/GYN ULTRASOUND I 2 CREDITS**

DMS 221 provides a systematic study of embryology to include development of the major organ systems with correlation to sonographic imaging at all stages of embryologic, fetal development and the surrounding environment. You will master the foundations of obstetric and gynecologic sonography.

### **DMS 222 OB/GYN ULTRASOUND II 2 CREDITS**

DMS 222 covers a detailed study of the high-risk pregnancy and the use of ultrasound in detection of fetal abnormalities in organ systems to include: neural, musculoskeletal, gastrointestinal, heart, multiple pregnancy. Maternal factors such as infertility, disease, and teratogens are also covered.

### **DMS 225 FETAL ECHOCARDIOGRAPHY 2 CREDITS**

DMS 225 provides an overview of fetal echocardiography including fetal cardiac anatomy, physiology, normal fetal heart, the abnormal fetal heart to include congenital anomalies and an overview of scanning techniques.

### **DMS 231 ABDOMINAL ULTRASOUND I 2 CREDITS**

DMS 231 provides a systematic study of the abdomen to include the function and development of the major organ systems with correlation to sonographic imaging and the surrounding environment. You will master the foundations of cross-sectional anatomy and abdominal sonography.

### **DMS 232 ABDOMINAL ULTRASOUND II 2 CREDITS**

DMS 232 provides a systematic study of the gastrointestinal tract, pediatric abdomen, neonatal brain and transplanted organs. You will review the necessary sterile technique preceding invasive and intraoperative procedures and learn the applications of contrast agents in ultrasound. Other imaging techniques will be discussed as well as the principles guiding the field of sonography. A mock registry examination will prepare you for writing the national registry examination.

### **DMS 235 PEDIATRIC ECHOCARDIOGRAPHY 2 CREDITS**

DMS 235 provides an overview of pediatric echocardiography including cardiac anatomy, physiology, normal pediatric heart, the abnormal pediatric heart to include congenital anomalies and an overview of scanning techniques using the ASE guidelines.

**DMS 241 ULTRASOUND PHYSICS I**  
**2 CREDITS**

DMS 241 provides theoretical and practical approaches to understanding ultrasound physics fundamentals. You will learn the ergonomics of proper scanning, cart, chair, and room setup to aid in the prevention of musculoskeletal injury seen in many sonographers with improper technique.

**DMS 242 ULTRASOUND PHYSICS II**  
**2 CREDITS**

DMS 242 covers a detailed study of ultrasound physics and the application within the clinical setting. Manipulation of technique controls, basic mathematical concepts, various Doppler modalities, equipment artifacts, QC/QA procedures, 3D fundamentals, and bioeffects are covered.

**DMS 244 ULTRASOUND SCANNING LAB**  
**6 CREDITS**

DMS 244 prepares the sonography student for ultrasound internship with an emphasis on applied instrumentation, ergonomics, and image optimization.

**DMS 251 VASCULAR ANATOMY AND PHYSIOLOGY**  
**2 CREDITS**

DMS 251 equips you with an understanding of the anatomy and physiology of the circulatory system. You will learn the anatomy of the veins and arteries of the human body from the great vessels to the microscopic structures at the capillary level. You will study the physiology of the circulatory system, including the effects of disease processes.

**DMS 252 ABDOMINAL VASCULAR SONOGRAPHY**  
**2 CREDITS**

DMS 252 teaches you how to perform duplex exams of the renal, mesenteric, aorta and iliac arteries as well as the inferior vena cava, iliac, hepatic and portal veins. You will identify risk factors and describe pathogenic mechanisms of these vessels. Surgical and interventional techniques will be discussed. Post interventional ultrasonic evaluation of these procedures will also be discussed and demonstrated. Correlation with other diagnostic procedures will be demonstrated.

**DMS 255 ADULT ECHOCARDIOGRAPHY I**  
**2 CREDITS**

DMS 255 introduces the student to the field of echocardiography to include echocardiographic anatomy, physiology, scanning technique with an emphasis on 2-D, M-mode and Doppler imaging following ASE guidelines.

**DMS 256 ADULT ECHOCARDIOGRAPHY II**  
**2 CREDITS**

DMS 256 expands echocardiographic imaging techniques with an emphasis on stress echocardiography, transesophageal, intraoperative, advanced cardiac imaging. ECG techniques are introduced with an emphasis on normal and abnormal rhythms encountered in echocardiography.

**DMS 261 INTRODUCTION TO VASCULAR TESTING**  
**2 CREDITS**

DMS 261 introduces you to the field of vascular technology. You will receive an introduction to vascular terminology, patient assessment, and the role of imaging and non-imaging procedures in the diagnosis of vascular disease.

**DMS 262 ARTERIAL SONOGRAPHY**  
**2 CREDITS**

DMS 262 provides an in-depth study of peripheral arterial disease and non-invasive evaluation of it. You will learn how to perform B-mode and Doppler evaluation of the upper and lower extremities. You will also learn how to perform pulsed volume recording, segmental blood pressures and plethysmography. Pathological and pathophysiologic states will be described. The course will review pertinent techniques for patient assessment, obtaining patient histories, evaluating and correlating patient symptoms with diagnostic findings. You will be introduced to correlating information with other diagnostic procedures. Surgical and non-surgical corrective techniques will be discussed. Techniques for evaluating post interventions or surgical techniques will also be explained.

**DMS 265 ADULT ECHO PATHOLOGY I**  
**2 CREDITS**

DMS 265 introduces echocardiographic pathology with an emphasis on valvular heart disease, ventricular function and hypertensive heart disease.

**DMS 266 ADULT ECHO PATHOLOGY II**  
**2 CREDITS**

DMS 266 expands echocardiographic pathology with an emphasis on pericardial disease, cardiomyopathies, congenital heart disease and diseases of the aorta.

**DMS 280 CLINICAL OBSERVATION**  
**2.5 CREDITS**

DMS 280 prepares the beginning ultrasound student for clinical internship under the direct supervision of a registered sonographer with a focus on introductory skills necessary

for clinical internship to include instrumentation, scanning techniques and image evaluation. The student will spend seven to eight hours per week at the clinical site for training in patient care and work efficiency in the clinical setting.

### **DMS 281 ULTRASOUND INTERNSHIP I 10 CREDITS**

DMS 281 provides clinical experience for the beginning ultrasound student. You will master the foundations of instrumentation, scanning techniques and image evaluation of sectional anatomy. You will spend 30 hours per week at the clinical site to additionally provide sufficient time for training in appropriate patient care and work efficiency in the scanning lab.

### **DMS 282 ULTRASOUND INTERNSHIP II 10 CREDITS**

DMS 282 continues the clinical experience for the ultrasound student. Application of the small parts didactic lectures will be applied and will include image evaluation and cross-sectional anatomy of the thyroid, breast and scrotum. The foundations of vascular anatomy, instrumentation, scanning techniques and image evaluation will be stressed. You will spend 30 hours per week at the clinical site under the direct supervision of a registered sonographer.

### **DMS 283 ULTRASOUND INTERNSHIP III 10 CREDITS**

DMS 283 continues the clinical experience for the ultrasound student. Application of the topics covered in advanced didactic lectures will include an introduction to invasive procedures using ultrasound guidance. Sterile technique and standard precautions will be reviewed. You will spend 30 hours per week at the clinical site

under the direct supervision of a registered sonographer.

### **DMS 289 ULTRASOUND CAPSTONE 3 CREDITS**

DMS 289 prepares the sonography student to effectively search for a job and sit for the American Registry of Diagnostic Medical Sonographers examination in their specialty.

## **ECE – Early Childhood Education**

[WWW.RRCC.EDU/ECE](http://WWW.RRCC.EDU/ECE)

### **ECE 101 INTRODUCTION TO EARLY CHILDHOOD EDUCATION 3 CREDITS**

Prerequisite: A grade of B or higher in REA 060 or appropriate SAT, ACT or Accuplacer score. ECE 101 provides an introduction to early childhood education. It includes the eight key areas of professional knowledge: child growth and development; health, nutrition, and safety; developmentally appropriate practices; guidance; family and community relationships; diversity; professionalism; and administration and supervision. This course focuses on birth through age eight.

### **ECE 102 INTRODUCTION TO EARLY CHILDHOOD LAB TECHNIQUES 3 CREDITS**

Co-requisite: ECE 188 Field Experience. Prerequisite: ECE 101 and a grade of C or higher in REA 090 and ENG 090 or appropriate SAT, ACT or Accuplacer score that indicates college reading ability. ECE 102 includes a classroom component and required placement in a child care setting (ECE 188). The supervised placement provides you with the opportunity to observe

children, to practice appropriate interactions, and to develop effective guidance and management techniques. This class addresses ages birth through eight.

### **ECE 103 GUIDANCE STRATEGIES FOR CHILDREN 3 CREDITS**

Prerequisite: A grade of B or higher in REA 060 or appropriate SAT, ACT or Accuplacer score. ECE 103 explores guidance theories, applications, goals, techniques, and factors that influence expectations, classroom management issues, and prosocial skills from birth through age eight.

### **ECE 111 INFANT AND TODDLER THEORY AND PRACTICE 3 CREDITS**

Co-requisite: ECE 112 or permission of instructor. ECE 111 presents an overview of theories, applications (including observations), and issues pertinent to infant and toddler development in group and/or family settings. It also includes the state mandated infant and toddler requirements for licensing, health, safety, and nutrition issues.

### **ECE 112 INTRODUCTION TO INFANT/TODDLER LAB TECHNIQUES 3 CREDITS**

Co-requisite: ECE 111 or permission of instructor. ECE 112 includes a classroom seminar and placement in an infant and/or toddler setting. The supervised placement provides you with the opportunity to observe, to practice appropriate interactions, and to develop effective guidance and nurturing techniques with infants and/or toddlers. The class includes topics from prenatal development through age two.

**ECE 125 SCIENCE/MATH AND THE YOUNG CHILD**  
**3 CREDITS**

ECE 125 examines theories of cognitive development as a framework for conceptualizing the way young children acquire scientific and mathematical skills, concepts, and abilities. It enables you to research and develop appropriate individual and group scientific and mathematical activities for young children.

**ECE 126 ART AND THE YOUNG CHILD**  
**2 CREDITS**

ECE 126 prepares you to plan and implement a comprehensive and developmentally appropriate art program for young children. Additionally, you will investigate the development of self-taught art techniques in young children.

**ECE 127 MUSIC/MOVEMENT FOR THE YOUNG CHILD**  
**1 CREDIT**

ECE 127 focuses on the purposes of incorporating music and movement into the early childhood curriculum. Through active participation with hands-on experiences, you will work with the concepts of age and developmental appropriateness when designing fun activities in both subjects.

**ECE 188 PRACTICUM: EARLY CHILDHOOD EDUCATION**  
**1 CREDIT**

Co-requisite: ECE 102 Introduction to Early Childhood Lab Techniques. ECE 188 provides you with field experience in early childhood programs.

**ECE 191 SCHOOL AGE THEORY AND PRACTICE**  
**3 CREDITS**

ECE 191 emphasizes processes for planning and implementing developmentally appropriate environments and experiences and

selection of appropriate materials in school age programs working with children ages 6 to 12 years of age. It also includes expression and problem-solving skills in school age children.

**ECE 192 SCHOOL AGE LAB TECHNIQUES**  
**3 CREDITS**

ECE 192 incorporates lab experience in before/after school, summer camp, or elementary school programs. The class focuses on planning and implementing developmentally appropriate curriculum for school age children and includes assisting the supervising teacher in all activities.

**ECE 205 NUTRITION, HEALTH AND SAFETY**  
**3 CREDITS**

Prerequisite: ECE 101 and a grade of C or higher in REA 090 and ENG 090 or appropriate SAT, ACT or Accuplacer score that indicates college reading ability. ECE 205 focuses on nutrition, health, and safety as key factors for optimal growth and development of young children. It includes nutrient knowledge, menu planning, food program participation, health practices, management and safety, appropriate activities, and communication with families around these issues. This course addresses information from before birth through age eight.

**ECE 220 CURRICULUM DEVELOPMENT: METHODS AND TECHNIQUES**  
**3 CREDITS**

Prerequisite: ECE or PSY 238 or permission of instructor. ECE 220 provides an overview of early childhood curriculum development. It includes processes for planning and implementing developmentally appropriate environments and experiences, selection of appropriate materials,

and quality in early childhood programs.

**ECE 225 LANGUAGE AND COGNITION FOR THE YOUNG CHILD**  
**3 CREDITS**

Prerequisite: ECE or PSY 238 or permission of instructor. ECE 225 examines theories of cognitive and language development as a framework for conceptualizing the way children acquire thinking skills. It addresses observation, planning, facilitation, creative representation, and evaluation strategies within the context of play with a focus on language, science, math, problem solving, and logical thinking. Ages addressed are birth through age eight.

**ECE 226 CREATIVITY AND THE YOUNG CHILD**  
**3 CREDITS**

ECE 226 provides an emphasis on encouraging and supporting creative self expression and problem solving skills in young children. It explores creative learning theories and research and focuses on developmentally appropriate curriculum strategies in all developmental domains. Ages addressed are birth through eight.

**ECE 228 LANGUAGE AND LITERACY**  
**3 CREDITS**

ECE 228 presents strategies for optimum language development, literacy, and the social/emotional development which supports acquisition of these skills. It addresses children's language and literacy in home, classroom, and community settings and provides appropriate teacher/child verbal interactions, classroom environments, and activities. Ages addressed are birth through eight.

**ECE 237 THEORIES AND TECHNIQUES OF SOCIAL AND EMOTIONAL GROWTH  
3 CREDITS**

Prerequisite: ECE or PSY 238 and ECE 220.  
ECE 237 incorporates student specific techniques and strategies for guiding and enhancing the social and emotional growth of children 0-8 years. The class introduces and compares the theories and theorists underlying quality interactions and patterns of social and emotional progression.

**ECE 238 CHILD GROWTH AND DEVELOPMENT  
4 CREDITS**

Prerequisite: ECE 101 and a grade of C or higher in REA 090 and ENG 090 or appropriate SAT, ACT or Accuplacer score that indicates college reading ability.  
ECE 238 covers the growth and development of the child from conception through the elementary school years. It examines the physical, cognitive, language, social and emotional domains and the concept of the whole child. It also addresses how adults can provide a supportive environment for optimum growth and development.

**ECE 240 ADMINISTRATION OF EARLY CHILDHOOD CARE AND EDUCATION PROGRAMS  
3 CREDITS**

Prerequisite: ECE 101 or permission of Instructor. It is recommended that you have completed all director certification courses before taking this course.  
ECE 240 examines Colorado's minimal licensing requirements, as well as optimal standards pertaining to the operation of programs for young children ages birth to eight. The focus is on the director's administrative skills and role as a community advocate for young children.

**ECE 241 ADMIN: HUMAN RELATIONS FOR EARLY CHILDHOOD PROFESSIONS  
3 CREDITS**

Prerequisite: ECE 101 or permission of Instructor.  
ECE 241 focuses on the human relations component of an early childhood professional's responsibilities. Topics include director-staff relationships, staff development, leadership strategies, parent-professional partnerships, and community interaction.

**ECE 256 WORKING WITH PARENTS, FAMILIES, AND COMMUNITY SYSTEMS  
3 CREDITS**

ECE 256 examines attitudes and family values systems and how they affect parent-professional partnerships. It addresses communication, problem-solving, and conflict resolution strategies. You will learn how to plan effective activities and programs for parent involvement in facilities serving children birth to age eight.

**ECE 260 EXCEPTIONAL CHILD  
3 CREDITS**

Prerequisite: ECE or PSY 238 or permission of instructor.  
ECE 260 presents an overview of typical and atypical developmental progression. It includes planning techniques, learning strategies, legal requirements, and accommodations and adaptations that are necessary in order to create an integrated classroom environment for a child with a wide range of exceptionalities. This course focuses on birth through age twelve.

**ECE 275 SPECIAL TOPICS  
1-6 CREDITS**

ECE 275 explores current topics, issues, and activities related to one or more aspects of the early childhood care and education profession.

**ECE 288 EARLY CHILDHOOD EDUCATION PRACTICUM  
1-12 CREDITS**

ECE 288 provides students with advanced field experience opportunities in early childhood education programs.

**ECO – Economics**

**WWW.RRCC.EDU/ECONOMICS**

**ECO 101 ECONOMICS OF SOCIAL ISSUES  
3 CREDITS**

ECO 101 examines the major socio-economic issues of the past century. It covers poverty and growth, education, health care, pollution and discrimination.

**ECO 201 PRINCIPLES OF MACROECONOMICS  
3 CREDITS**

Prerequisite: MAT 121 suggested.  
ECO 201 focuses on the study of the American economy, stressing the interrelationships among household, business, and government sectors. The class explores saving and investment decisions, unemployment, inflation, national income accounting, taxing and spending policies, the limits of the market and government, public choice theory, the Federal Reserve System, money and banking, and international trade.

**ECO 202 PRINCIPLES OF MICROECONOMICS  
3 CREDITS**

Prerequisite: MAT 121 suggested.  
ECO 202 studies the firm, the nature of cost, and how these relate to the economy as a whole. The class analyzes economic models of the consumer, perfect competition, monopoly, oligopoly and monopolistic competition. It explores economic issues including market power, population growth, positive and negative externalities, income

distribution, poverty and welfare, discrimination, and international economic interdependence.

## **EDU – Education**

[WWW.RRCC.EDU/EDUCATION](http://WWW.RRCC.EDU/EDUCATION)

### **EDU 110 OVERVIEW OF SPECIAL POPULATIONS FOR PARAS 3 CREDITS**

EDU 110 provides you with knowledge in the areas of laws and history of special education; roles and responsibilities of paraeducators; planning for students with disabilities; typical and non-typical developmental stages of children and youth; basic learning concepts; cognitive, communicative, physical, and affective needs of students with disabilities; understanding people with disabilities; transition; job coaching; and how to teach students self-advocacy skills.

### **EDU 130 TEST PREP FOR PARAEDUCATOR WORKKEYS 1 CREDIT**

EDU 130 reviews the format and content for the ACT Paraeducator WorkKeys assessment. You will become familiar with the knowledge needed for the applied math, reading for information, and writing assessments.

### **EDU 131 INTRODUCTION TO ADULT EDUCATION 3 CREDITS**

EDU 131 introduces you to the basic concepts in the instruction of adults. Emphasis will be placed on understanding the adult learner and how individual backgrounds and experiences can affect the learning process. Additionally, the course will cover applicable federal and state legislation which affects adult learning programs and will provide information on the resources and

associations in the field of adult education.

### **EDU 132 PLANNING, ORGANIZING, AND DELIVERING ADULT EDUCATION INSTRUCTION 3 CREDITS**

EDU 132 will cover the basics of planning an adult education program, organizing instruction within the various content areas and delivering the material in a variety of ways, both in groups and individualized instruction. A wide variety of learning principles and theories will be addressed, showing their applicability to the adult learner and his/her education.

### **EDU 133 ADULT BASIC EDUCATION (ABE) AND ADULT SECONDARY EDUCATION (ASE/GED) 3 CREDITS**

EDU 133 specifically addresses the different levels within an adult education program. Each level will be addressed in terms of appropriate assessment tools and instructional techniques. Emphasis will be placed on teaching ways that the adult education instructor can encourage the development of cognitive skills at each level, as a springboard to the next higher level.

### **EDU 134 TEACHING ENGLISH AS A SECOND LANGUAGE (ESL) TO ADULT LEARNERS 3 CREDITS**

EDU 134 introduces the development and implementation of a program to teach English to adults whose first language is not English. Topics will range widely from assessment and placement to the theories behind language acquisition. You will also cover a wide variety of methodologies, both group and individualized, that are aimed at teaching the non-English speaker the written and verbal skills necessary to successfully function in the U.S.

### **EDU 135 FAMILY LITERACY IN ADULT EDUCATION 3 CREDITS**

EDU 135 introduces the philosophy and theory behind family literacy, as well as giving practical advice on the development and implementation of a family literacy program. The four-component model—adult education, early childhood education, parent and child together time (PACT), and parenting—will be covered, both in theory and practical application.

### **EDU 151 LITERACY INTERVENTION FOR PARAEDUCATORS 4 CREDITS**

EDU 151 is an introduction to the five components of scientifically based reading research: phonemic awareness, alphabetic principle, fluency, vocabulary development, and comprehension. This course will provide an overview of research-based practices for reading instruction and provide the participants with a systematic and sequential scope and sequence of the reading process.

### **EDU 152 MATH INTERVENTIONS FOR PARAEDUCATORS 3 CREDITS**

EDU 152 focuses on the best practices of teaching mathematics, particularly in intervention situations. This includes knowledge of national, state, and district mathematics content standards, process standards, approaches to teaching mathematics, literature connections, and proper use of manipulatives and assessment. Content focuses on numbers and operations.

### **EDU 153 ESL AND CULTURAL ISSUES FOR PARAEDUCATORS 3 CREDITS**

EDU 153 provides an introduction to multicultural education and the issues facing students whose



## **EGT – Engineering Graphics Technology**

**WWW.RRCC.EDU/EGT**

(See CAD for more listings)

### **EGT 220 INTRODUCTION TO CIVIL GRAPHICS TECHNOLOGY 3 CREDITS**

Prerequisite: Basic 3D knowledge or permission of instructor. EGT 220 introduces the fundamental concepts and drafting principles required of a civil engineering technician. The course covers roles, required skills and responsibilities of a civil engineering technician, terminology, types of civil drafting and employment opportunities, classes of maps and map projections, typical drawing formats, current drafting and CAD practices, and mapping resources.

### **EGT 221 LAND SURVEYING CONCEPTS 3 CREDITS**

Prerequisite: EGT 220 or permission of instructor. EGT 221 enables you to apply map symbols, to calculate and measure map scales, to describe land parcels, to write and lay out legal descriptions, and to describe land using the Public Land Survey System. You have the opportunity to learn to interpret and reduce field notes; to lay out horizontal and vertical angles, bearings, azimuths, coordinates, and traverses; to mathematically close a boundary survey; to interpret G.P.S. data; and to create a computer database. The course includes lecture, computer drawing, and small project work.

primary language is not English. The topics will be covered with the perspective of paraprofessionals in mind. The class will examine culture as a framework through which identities are shaped and will explore the socio-political aspects of cultural identity and how they influence attitudes, approaches, and educational systems. Topics include second language acquisition, stages of English proficiency, strategies for the classroom, institutional racism, discrimination, and deficit views of particular racial and ethnic groups and of English language learners.

### **EDU 221 INTRODUCTION TO TEACHER EDUCATION 3 CREDITS**

EDU 221 will study the historical, social, political, philosophical, cultural, legal, and economic forces that shape the United States public school system as students explore teaching as a career choice. Topics will include current issues of educational reform, technology as it relates to education, and considerations related to becoming a teacher in the state of Colorado. A field-experience component will be required.

### **EDU 234 MULTICULTURAL EDUCATION 3 CREDITS**

EDU 234 focuses on the need to recognize and understand the similarities and differences among people and to develop a respect for all individuals and groups. The course assists teachers who need to recognize the special learning needs of children from different racial, ethnic, cultural, and socio-economic groups and to encourage teachers to integrate multicultural/diversity teaching into the school curriculum. This class can also count toward teacher recertification.

### **EDU 240 TEACHING THE EXCEPTIONAL LEARNER 3 CREDITS**

EDU 240 focuses on the individual differences and modifications that are necessary in the educational practices of the exceptional learner. The course covers applicable law - IDEA, ADA and 504, discusses IEPs and IFSPs, and covers the major disability categories. The class also discusses the various challenges, problems and contradictions of the law and its application both in early childhood and the K-12 educational settings. Finally, the class discusses ways to work with the entire family, and not just the child.

### **EDU 261 TEACHING, LEARNING, AND TECHNOLOGY 3 CREDITS**

EDU 261 prepares you to integrate technology into your teaching curriculum. It enables you to design educational and training materials by incorporating instructional technology. The course explores a variety of technologies, including the computer, Internet, multimedia, graphics, audio, and text with an emphasis on increasing learning through their use. It examines combining technology with a variety of instructional methodologies. This class can also count toward teacher recertification.

### **EDU 288 PRACTICUM II 1 CREDIT**

EDU 288 provides you with the opportunity to supplement coursework with practical field experience related to your educational program. You will work under the immediate supervision of experienced personnel at an education facility and with the direct guidance of the instructor.

### **EGT 222 TOPOGRAPHIC MAP CONCEPTS AND EARTHWORK 3 CREDITS**

Prerequisite: EGT 220 or permission of instructor.

EGT 222 shows you how to identify and interpret topographic symbols, interpret different types of survey data, construct topographic map models, interpolate contours, set up grading plans, perform grade calculations, research resources for topographic maps, and identify map scales.

### **EGT 230 DRAFTING AND DESIGN I 6 CREDITS**

Prerequisite: CAD 101, CAD 102, or equivalent.

EGT 230 develops a fundamental understanding of Single Family Residence design using 2D drawings. Project management for a complete set of Construction Drawings is emphasized, as well as pertinent design data relative to the AAS degree emphasis. Use of Model Space / Paper Space, floating viewports manipulation, external references, and interface tools is emphasized. Material is relative to the certificate or degree program.

### **EGT 231 DRAFTING AND DESIGN II 6 CREDITS**

Prerequisite: EGT 230 or equivalent. EGT 231 examines ideas, sketches, and layouts to create working drawings of a design relative to the certificate of degree program while working within Industry Standards. Projects require full documentation details and the presentation of working drawings. 3D applications are used and "real world" methods are taught through the course of the semester, from basic understanding to the most complex design.

## **EIC – Electricity Industrial/Commercial/ Residential**

[WWW.RRCC.EDU/ELECTRICAL](http://WWW.RRCC.EDU/ELECTRICAL)

### **EIC 100 ELECTRICAL CONSTRUCTIONS AND PLANNING 4 CREDITS**

EIC 100 introduces the planning of electrical system installations from blueprints to the completed job and preparation of material lists, job sheets, and time schedules for various phases of construction. The course emphasizes the National Electrical Code.

### **EIC 104 BASICS OF INDUST. ELECTRICITY 1.5 CREDITS**

EIC 104 focuses on resistance, current, voltage, and power in AC and DC circuits; measurements; computations of series and parallel circuits; circuit analysis; and troubleshooting with basic test equipment.

### **EIC 110 ELECTRICAL INSTALLATIONS I 4 CREDITS**

EIC 110 covers residential building wiring in conformance with the current National Electrical Code and local codes using non-metallic cable. The course emphasizes proper use of tools and safety.

### **EIC 120 ELECTRICAL INSTALLATION II 4 CREDITS**

Prerequisite: EIC 110 or permission of instructor.

EIC 120 explores commercial and industrial building wiring in conformance with the current National Electrical Code and local codes using electric metallic tubing and other raceways. The emphasis is on proper use of tools and safety.

### **EIC 124 ELECTRICAL SAFETY REQUIREMENTS 1 CREDIT**

EIC 124 focuses on training that is 100% practical and deals with every important aspect of OSHA's electrical safety-related work practices and how they apply. The course teaches the safe installation and maintenance of electrical equipment and covers the use of personal protective equipment.

### **EIC 130 NATIONAL ELECTRICAL CODE I 4 CREDITS**

EIC 130 focuses on the National Electrical Code and local code requirements for electrical installation. It covers chapters one through four of the National Electrical Code.

### **EIC 134 LIFE SAFETY CODE (NFPA 101) 1.5 CREDITS**

EIC 134 addresses new and existing buildings with specific requirements that directly influence the safety of people and protection of property and equipment. The course is designed for inspectors, managers, engineers, architects, building owners and insurers, manufacturers (including fire suppression and alarm systems) and others in the building-related field.

### **EIC 135 NATIONAL ELECTRICAL CODE II 4 CREDITS**

EIC 135 builds on course EIC 130 and covers chapters five through nine of the National Electrical Code, including hazardous locations, special occupancies, conditions, and equipment.

### **EIC 144 GROUNDING AND BONDING 1.5 CREDITS**

EIC 144 prepares you for the latest technology and techniques available for code and standards-compliant

grounding and bonding systems. This course focuses on grounding and bonding requirements as they relate to Article 250 and other articles of the NEC. The course covers installation, testing and inspection procedures for eleven power systems. This course includes rules to minimize the risk of electricity as a source of electric shock and as an ignition source for fires.

### **EIC 150 DC CIRCUIT FUNDAMENTALS 4 CREDITS**

Prerequisite: MAT 107 or equivalent. EIC 150 covers the principles of DC electricity and magnetism with emphasis on Ohm's, Kirchoff's and Watt's laws to analyze circuits voltage current and power. It addresses common measuring instruments and safety.

### **EIC 155 AC CIRCUIT FUNDAMENTALS 4 CREDITS**

Prerequisites: EIC 150 or permission of instructor. EIC 155 emphasizes resistance, current, voltage, and power in AC, measurements, computations of series and parallel circuits, circuit analysis, and troubleshooting with basic test equipment. It covers the principles of AC electricity, magnetism, inductive and capacitive circuits; use of phasors to represent AC quantities; the concept of reactive volt-amperes and power factor; and use of instruments, including VOM's and oscilloscopes. The course explores the principles of polyphase alternating current systems, Wye and Delta circuit configurations; safety procedures will be explored.

### **EIC 160 ELECTRICAL INSTRUMENTS AND MEASUREMENTS 4 CREDITS**

Prerequisite: EIC 150 or permission of instructor. EIC 160 covers the proper techniques for using electrical instruments, including volt/ohm, amp, phase-rotation, oscilloscopes, and recording meters. The course focuses on instrument transformers for journeymen and in-plant electricians.

### **EIC 165 SOLID STATE DEVICES AND CIRCUITS 4 CREDITS**

Prerequisites: EIC150, EIC155, or permission of instructor. EIC 165 explores the basic properties of diodes, transistors, triacs, SCRs, and other solid state devices. It covers applications of solid state devices in control and power conversion and the circuits in equipment likely to be encountered in power installations.

### **EIC 166 TUNING DDC/ PROCESS CONT. LOOPS 1.5 CREDITS**

EIC 166 investigates process characteristics and process control loops to learn quick and proper controller adjustment for good response. It includes defining proportional band, integral and derivative, formal open and closed loop tuning methods, and advances control methods. The course enables you to use computer simulation software to learn the concepts of proportional band, integral and derivative, and to practice different tuning methods.

### **EIC 167 ELECTRICAL MAINTENANCE 4 CREDITS**

EIC 167 introduces you to common electrical repairs, electrical systems, tools, and test equipment. It includes replacing or repairing devices such as receptacles, light fixtures and ballasts, circuit breakers, fuses, and switches. The course addresses electrical safety and code applications.

### **EIC 168 MAINTENANCE MANAGEMENT 1 CREDIT**

EIC 168 covers the critically important but often overlooked component of maintenance management. It focuses on the implementation of a maintenance program or improvement of an existing program. The course covers how to reduce unscheduled overtime, excessive material costs, and the number of breakdown repairs.

### **EIC 169 ELECTRICAL CODE CALCULATIONS 4 CREDITS**

EIC 169 discusses calculations used in the application of the National Electrical Code. It emphasizes sizing of branch circuit and feeder conductors and calculating ratings of protective devices.

### **EIC 205 ADVANCED ELECTRICAL PLANNING 4 CREDITS**

EIC 205 explores the planning and layout of large commercial and industrial electrical installations.

### **EIC 210 ADVANCED NATIONAL ELECTRICAL CODE 4 CREDITS**

Prerequisite: EIC 130, EIC 135, or permission of instructor. EIC 210 is an Advanced National Electrical Code course for the in-plant technician. The course emphasizes how to interpret NEC rules that apply to industrial/

commercial installations. Maintenance electricians and residential wiremen desiring to upgrade their knowledge of these rules can benefit from this class.

**EIC 211 IECC INTERNATIONAL ENERGY CONSERVATION CODE  
4 CREDITS**

EIC 211 IECC International Energy Conservation Code encourages energy conservation through efficiency in envelope design, mechanical systems, lighting systems and the use of new materials and techniques. This class provides an overview of critical concepts of the latest edition of the IECC and provides a basis for the correct use of the code in the design, plan review, inspection, and analysis of projects. It provides a clear understanding and correct use of the requirements identified by these basic code provisions, tables and categorizations that allow code users to apply the code in clear-cut situations, and helps to build their understanding of the intent of the code when asked to make code compliance decisions.

**EIC 215 ADVANCED CODE CALCULATIONS  
4 CREDITS**

Prerequisite: EIC 169 or permission of instructor.  
EIC 215 is an extension of EIC 190. The course emphasizes calculations for sizing conductors, conduits, fittings, protective devices, relays related to branch circuits, and feeders for motor loads. Other loads as they apply to industrial/commercial situations are also explored. Sizing of transformers and power factor correction calculations is discussed as well.

**EIC 217 ELECTRICAL ESTIMATING/COSTING  
4 CREDITS**

EIC 217 focuses on the fundamentals of electrical estimating, material

takeoffs from prints, required labor hours, material loss allowances, and scheduling to ensure orderly work progress.

**EIC 220 INDUSTRIAL ELECTRICAL CONTROLS I  
4 CREDITS**

Prerequisite: EIC 150 or permission of instructor.

EIC 220 studies the application of electrical and electromechanical sensing/ control devices; heating, ventilating, and air conditioning applications; motor control; conveyor drives; and other industrial applications. You will design control systems to meet assigned conditions, use principles of relay logic to prepare correct ladder diagrams and wire up, and test and trouble-shoot systems in the laboratory. The course stresses accuracy, safety, and National Electric Code requirements.

**EIC 221 TROUBLE-SHOOTING CONTROL CIRCUITS  
1.5 CREDITS**

EIC 221 bridges the gap between the theoretical knowledge and the critical thinking skills needed on the job. It incorporates working at a troubleshooting station with circuits that are identical to motor control circuits in a plant. The course concentrates exclusively on teaching hands-on troubleshooting.

**EIC 222 INTRO. INSTR. AND PROCESS CONTROL  
1.5 CREDITS**

EIC 222 investigates the theory of industrial instrumentation measurement through process control. The course includes theory and measurement and methods for temperature, pressure, level, and flow. It incorporates hands-on training equipment to measure temperature and pressure and perform calibration of a pressure differential transmitter. The course enables you to construct a closed loop and tune the loop. Test

equipment is used to simulate a two-wire transmitter and source a current signal for calibration of an I/P transducer.

**EIC 223 ADVANCED INDUSTRIAL ELECTRICAL CONTROLS  
4 CREDITS**

Prerequisite: EIC 220 or permission of instructor.

EIC 223 Builds on the application of electrical and electromechanical sensing/control devices; heating, motor control; conveyor drives; and other industrial applications. It focuses on variable speed drive technology, including operation, set-up, troubleshooting, maintenance, proper selection and application for drives, and basic drive overview and comparison. You will be introduced to real world uses of pneumatic and electro-pneumatic control through hands-on learning; you will learn to read symbols, and understanding of component technologies. You will design advanced control systems to meet assigned conditions, use principles of relay logic to prepare correct ladder diagrams and wire up, and test and trouble-shoot systems in the laboratory. The course stresses accuracy, safety, and National Electric Code requirements.

**EIC 224 UNDERSTANDING PLC'S  
1.5 CREDITS**

EIC 224 improves your ability to read, interpret, and analyze electrical ladder drawings. The course acquaints you with the basic electromechanical components commonly used in electrical control circuits, as well as solid-state relays, and the role of programmable controllers.

**EIC 225: PROGRAMMABLE CONTROLLERS  
4 CREDITS**

Prerequisites: EIC 150 and 220 or permission of instructor.

EIC 225 studies the use of solid-

state control equipment, primarily the programmable controller and associated solid-state sensors to control equipment, machinery, or complete processes. The course includes concepts of solid-state logic, characteristics of solid-state sensors, conversions of relay logic control systems to programmable control systems, and microprocessor-based systems and remote control of processes. It enables you to design, implement, and test control systems in the laboratory to meet specifically-assigned control problems and also emphasizes accuracy, safety and National Electrical Code requirements.

### **EIC 226 PLC CONTROLLERS ADVANCED 4 CREDITS**

Prerequisite: EIC 225 or permission of instructor.

EIC 226 studies the advanced uses and applications of programmable logic controllers toward automated equipment, machines, and processes. The course includes understanding the functions of PLC hardware components, converting relay logic to ladder logic, comprehending ladder logic instruction functionality, and identifying the PLC's data structure. It enables you to create, implement, and troubleshoot ladder logic programs that simulate automated machine control and processes.

### **EIC 227 MECHANICAL DRIVES 1.5 CREDITS**

EIC 227 covers the basics of mechanical drives including chain drives, belt drives, bushings, couplings, gear drives, bearings, and lubrication. It includes study of power transmission physics, shafts, keyways and keyseats, prime movers, gearing, chain drives, belt drives, bushing couplings, bearings, lubrication, clutches, brakes and torque limiters, and mechanical variable speed drives.

### **EIC 229 AC AND DC VARIABLE-SPEED DRIVE 1.5 CREDITS**

EIC 229 teaches variable speed drive technology that offers a cost-effective method to match driver speed to load demands and represents a state-of-the-art opportunity to reduce operating costs and improve overall productivity. It focuses on variable speed drive technology, including operation, set-up, troubleshooting, maintenance, proper selection and application for drives, and basic drive overview and comparison.

### **EIC 230 INSTRUMENTATION & CONTROLS I 4 CREDITS**

EIC 230 introduces the basic concepts, principles, equipment, and components of instrumentation and control systems found in the process and energy supply industries. The fundamental process variables of pressure, temperature, level, flow and physical properties will be presented. Control loop structure and function will be introduced. The function and operation of a proportional-integral-derivative (PID) controller will be introduced. You will assemble and operate basic control loops in a laboratory setting.

### **EIC 231 ELECTRO-PNEUMATIC TRAINING 1.5 CREDITS**

EIC 231 introduces the real world of pneumatic and electro-pneumatic control and power transmission through a powerful interactive training program. The course focuses on the full scope of compressed air production, preparation, and distribution. Through hands-on learning, you will learn to apply simple gas laws, reading of symbols, and understanding of component technologies.

### **EIC 234 HIGH VOLTAGE ELECT. SAFETY 1.5 CREDITS**

EIC 234 incorporates the latest technological equipment to include demonstrations with participant interaction as well as hands-on lab exercises. This course addresses basic operational theory and the actual operation of various types of AC and DC motors. This is an entry-level course, so prior electrical experience is desired but not required.

### **EIC 240 FIRE ALARM FUNDAMENTALS 4 CREDITS**

EIC 240 covers terminology, symbols, diagrams, devices, circuits, and wiring. The course focuses on basic layouts and principles involved in fire alarm system design and construction.

### **EIC 241 ADVANCED FIRE ALARM SYSTEMS 4 CREDITS**

Prerequisite: EIC 240.

EIC 241 covers design, installation, documentation, testing, and codes. The course focuses on advanced layout and principles involved in fire alarm system design and construction, allowing you to test for NICET II certification.

### **EIC 242 NATIONAL FIRE ALARM CODE 4 CREDITS**

EIC 242 covers Fire Alarm Code (NFPA72) and local codes terminology, symbols, diagrams, devices, circuits, and the wiring of fire alarm systems. The basic code layouts and principles involved in fire alarm design and construction also will be addressed. Students testing for NICET certifications can benefit from this class.

**EIC 261 PROJECT MANAGEMENT**  
**1 CREDIT**

EIC 261 covers the critically important but often overlooked component of construction-project management. The course includes project scope of work, estimator/project manager alliance, specification analysis, analysis of contractual documents, management documentation, successful meetings, critical path management, prospective on-project milestones, creation and evaluation of cost coding, employee/company quality control, supervisor/foreman relations, project documentation, change orders, project evaluation, billing final inspection, and project close-out.

**EIC 264 CABLING SYSTEM GROUNDING AND BONDING**  
**1 CREDIT**

EIC 264 prepares you for the latest technology and techniques available for code and standards compliant grounding and bonding systems. It enables you to learn correct procedures in order to comply with applicable codes and standards.

**EIC 275 SPECIAL TOPICS**  
**0.5-12 CREDITS**

Prerequisite: Permission of instructor.

EIC 275 provides you with a vehicle to pursue in-depth exploration of special topics of interest.

**EIC 282 INTERNSHIP**  
**0.5-12 CREDITS**

Prerequisite: Permission of instructor.

EIC 282 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

**EIC 285 INDEPENDENT STUDY**  
**0.5-12 CREDITS**

Prerequisite: Permission of instructor.

EIC 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**EMP – Emergency Management and Planning**

[WWW.RRCC.EDU/EMPLAN](http://WWW.RRCC.EDU/EMPLAN)

**EMP 101 PRINCIPLES OF EMERGENCY MANAGEMENT**  
**3 CREDITS**

EMP 101 presents a broad overview of an emergency management system and the importance of an integrated approach to managing emergencies.

**EMP 105 EMERGENCY PLANNING**  
**3 CREDITS**

EMP 105 introduces a specialized type of community planning that identifies local government strategies, resources and responsibilities for protecting citizens from the effects of disasters and other major emergency events.

**EMP 106 EXERCISE DESIGN AND EVALUATION**  
**3 CREDITS**

EMP 106 provides knowledge and the development of skills that enable you to train a staff and to conduct an exercise that tests a community's plan and its operational response capability.

**EMP 107 EMERGENCY OPERATIONS CENTER AND COMMUNICATIONS**  
**3 CREDITS**

EMP 107 provides the knowledge and skills to manage and operate an EOC during crisis situations.

**EMP 109 INCIDENT COMMAND SYSTEM**  
**3 CREDITS**

EMP 109 explores the dynamics of managing major emergency incidents and examines the National Incident Management System.

**EMP 240 LEADERSHIP AND INFLUENCE**  
**3 CREDITS**

EMP 240 examines the dynamics of leadership techniques as they apply to emergency and disaster situations.

**EMP 241 DECISION MAKING AND PROBLEM SOLVING**  
**3 CREDITS**

EMP 241 enables you to clearly identify a problem and its causes in order to determine the appropriate type of decision making style.

**EMP 242 EFFECTIVE COMMUNICATION**  
**3 CREDITS**

EMP 242 sharpens presentation and media skills of emergency management officials when giving and receiving information in emergency management contexts.

**EMP 244 DEVELOPING VOLUNTEER RESOURCES**  
**3 CREDITS**

EMP 244 improves skills in recognizing volunteer resources in the community, and enhances the ability to manage the involvement of volunteers in all phases of emergency management.

**EMP 247 DECISION MAKING IN A CRISIS**  
**3 CREDITS**

EMP 247 focuses on individual and group decisions based on a model problem-solving process.

**EMP 280 – BUSINESS  
EMERGENCY MANAGEMENT  
3 CREDITS**

EMP 280 develops contingency planning and emergency response skills required by private sector companies.

**EMP 291 - BASIC PUBLIC  
INFORMATION OFFICER  
3 CREDITS**

EMP 291 provides you an opportunity to practice and expand on public information skills in a crisis environment.

**EMS – Emergency  
Medical Services**

[WWW.RRCC.EDU/EMS](http://WWW.RRCC.EDU/EMS)

**EMS 115 FIRST RESPONDER  
3 CREDITS**

EMS 115 provides you with core knowledge and skills to function in the capacity of a first responder arriving at the scene of an emergency, providing supportive care until advanced EMS help arrives.

**EMS 125 EMERGENCY  
MEDICAL TECHNICIAN –  
BASIC  
9 CREDITS**

Prerequisite: Permission of instructor.

Corequisite: EMS 170.

EMS 125 enables you, after successful completion of this course, to take the National Registry EMT-Basic certification examinations as required by the Colorado Department of Health and Environment. Student must be at least 18 years of age.

**EMS 126 EMERGENCY  
MEDICAL TECHNICIAN –  
BASIC REFRESHER  
3 CREDITS**

Prerequisites: Current or less than 6 months expired EMT Basic certification; permission of instructor  
EMS 126 provides required didactic and skills review for renewing EMT students.

**EMS 130 EMERGENCY  
MEDICAL TECHNICIAN  
INTRAVENOUS THERAPY  
2 CREDITS**

Prerequisite: Current Colorado State EMT Basic certification; permission of instructor.  
EMS 130 focuses on cognitive and skill practice as required by Colorado Prehospital Care Program for EMT Basic level IV approval. It examines criteria, procedures and techniques for IV therapy, discusses fluid and electrolyte balance and principles and treatment for shock.

**EMS 170 EMT-BASIC CLINICAL  
1 CREDIT**

Prerequisite: Permission of instructor.

Co requisite: EMS 125 or 126.

EMS 170 provides the EMT student with the clinical experience required.

**EMS 180 EMT-CLINICAL  
INTERNSHIP  
2 CREDITS**

Prerequisite: Current Colorado State EMT Basic certification; permission of instructor.

EMS 180 provides the Emergency Medical Technician (EMT) with supervised clinical learning experience that goes beyond the initial EMT requirements for the State of Colorado Department of Health. The course enables you to work with an assigned preceptor for 90 hours of clinical experience to develop an understanding of the role and responsibilities of the EMT-Basic.

**EMS 214 BASIC TRAUMA LIFE  
SUPPORT  
1 CREDIT**

Prerequisite: EMT-Basic or higher certification.

EMS 214 provides you with information and skill practice to treat trauma patients in the prehospital environment.

**THE FOLLOWING  
COURSES ARE OFFERED  
IN CONJUNCTION WITH  
HOSPITAL-BASED PARAMEDIC  
PROGRAMS.**

Only students accepted into the Hospital-based Paramedic programs may register for them. Prerequisites for these programs normally include successful completion of an EMT Basic course, IV approval, Basic EKG interpretation, Anatomy and Physiology, and approximately one year of experience as an EMT-Basic. Contact an EMS faculty advisor for more information.

**EMS 225 FUNDAMENTALS OF  
PARAMEDIC PRACTICE  
3 CREDITS**

EMS 225 serves as the first course of the National Standard Paramedic Curriculum as approved by the Colorado State Department of Health and Environment.

**EMS 226 FUNDAMENTALS OF  
PARAMEDIC PRACTICE LAB  
2 CREDITS**

EMS 226 serves as the lab experience to coincide with EMS 225 topics.

**EMS 227 PARAMEDIC SPECIAL  
CONSIDERATIONS  
3 CREDITS**

EMS 227 focuses on a comprehensive study of Advanced Life Support Practice.

**EMS 228 PARAMEDIC SPECIAL CONSIDERATIONS LAB  
2 CREDITS**

EMS 228 serves as the lab experience for those students enrolled in EMS 227.

**EMS 229 PARAMEDIC PHARMACOLOGY  
3 CREDITS**

EMS 229 focuses on a comprehensive study of emergency pharmacology.

**EMS 230 PARAMEDIC PHARMACOLOGY LAB  
2 CREDITS**

EMS 230 serves as the required lab course in the paramedic education program.

**EMS 231 PARAMEDIC CARDIOLOGY  
5 CREDITS**

EMS 231 addresses cardiology topics as presented in the National Standard Curriculum for paramedics.

**EMS 232 PARAMEDIC CARDIOLOGY LAB  
1 CREDIT**

EMS 232 incorporates a hands-on application of principles of cardiac care in the pre-hospital environment.

**EMS 233 PARAMEDIC MEDICAL EMERGENCIES  
4 CREDITS**

EMS 233 focuses on a comprehensive study of adult and pediatric medical emergencies.

**EMS 234 PARAMEDIC MEDICAL EMERGENCIES LAB  
1 CREDIT**

EMS 234 focuses on a clinical study of adult and pediatric medical emergencies.

**EMS 235 PARAMEDIC TRAUMA EMERGENCIES  
4 CREDITS**

EMS 235 focuses on a comprehensive study of adult and pediatric trauma emergencies.

**EMS 236 PARAMEDIC TRAUMA EMERGENCIES LAB  
1 CREDIT**

EMS 236 serves as a lab presenting various acute trauma scenarios.

**EMS 237 PARAMEDIC INTERNSHIP PREPARATORY  
2 CREDITS**

EMS 237 reviews concepts and techniques used in the pre-hospital setting.

**EMS 280 PARAMEDIC INTERNSHIP I  
6 CREDITS**

EMS 280 serves as the preceptor/ internship program for paramedic students.

**EMS 281 PARAMEDIC INTERNSHIP II  
6 CREDITS**

EMS 281 serves as the continuation of EMS 280, preceptor program for paramedic students.

## ENG – English

[WWW.RRCC.EDU/ENGLISH](http://WWW.RRCC.EDU/ENGLISH)

**ENG 030 BASIC WRITING SKILLS  
2 CREDITS**

ENG 030 focuses on sentence and basic paragraph structure and development. The course enables you to review and improve grammar, usage, and punctuation skills while employing critical thinking strategies and the writing process to respond to a wide variety of writing situations.

**ENG 060 WRITING FUNDAMENTALS  
3 CREDITS**

Prerequisite: ENG 030 or appropriate ACCUPLACER score.

ENG 060 focuses on paragraph structure and development and introduces the formal essay. The course enables you to review and

improve grammar, usage, and punctuation skills while employing critical thinking strategies and the writing process to respond to a wide variety of writing situations.

**ENG 090 BASIC COMPOSITION  
3 CREDITS**

Prerequisite: ENG 060 or appropriate ACCUPLACER score.

ENG 090 emphasizes critical thinking as you explore writing for specific purposes and audiences. The course enables you to develop skills required for college-level writing while reviewing paragraph structure and focusing on essay development.

**ENG 116 DESIGNING PRINT DOCUMENTATION  
3 CREDITS**

ENG 116 focuses on developing technical documents, such as product manuals and troubleshooting guides that are delivered to users in print form. The course emphasizes content, organization, presentation, and style of print documentation. This course introduces concepts of document preparation and printing, as well as project cycle management, working as part of a documentation team, and collaboration with technical experts.

**ENG 118 DESIGNING ONLINE DOCUMENTATION  
3 CREDITS**

ENG 118 focuses on developing technical documents that are delivered to users online, such as online manuals and online help information. The course emphasizes content, organization, presentation, and style of online documentation. This course introduces hypertext and Web publishing concepts, as well as project cycle management, working as part of a documentation team, and collaboration with technical experts.



**ENG 119 RESUMÉS AND COVER LETTERS**  
**1 CREDIT**

ENG 119 provides an introduction to writing resumés and cover letters. You will learn a variety of techniques for writing, presenting, formatting, and organizing traditional resumes, electronic resumes and cover letters.

**ENG 121 ENGLISH COMPOSITION I**  
**3 CREDITS**

Prerequisite: A grade of C or higher in ENG 090, ESL 053, or appropriate SAT, ACT or ACCUPLACER score.

ENG 121 emphasizes the planning, writing, and revising of compositions, including the development of critical and logical thinking skills. You will write a minimum of five compositions that stress analytical, evaluative, and persuasive/argumentative writing.

**ENG 122 ENGLISH COMPOSITION II**  
**3 CREDITS**

Prerequisite: A grade of C or higher in ENG 121.

ENG 122 expands and refines the objectives of English Composition I. The course emphasizes critical/ logical thinking and reading, problem definition, research strategies, and writing analytical, evaluative, and/or persuasive papers that incorporate research.

**ENG 131 TECHNICAL WRITING**  
**3 CREDITS**

Prerequisites: Appropriate assessment score in reading and writing or C or better in ENG 090 or equivalent.

ENG 131 develops skills one can apply to writing a variety of technical documents. The course focuses on principles for organizing, drafting writing, and revising clear, readable documents for industry, business, and government.

**ENG 132 TECHNICAL WRITING II**  
**3 CREDITS**

Prerequisites: Grade of C or better in ENG 131 (or its equivalent) or permission of instructor.

ENG132 expands and refines the objectives of ENG 131, emphasizing formal presentations, both written and oral.

**ENG 205 TECHNICAL EDITING**  
**3 CREDITS**

ENG 205 focuses on editing technical documents of varying lengths and types, from memos to product manuals. The course emphasizes consistency, readability, and conformity to an organization's style manual. This course introduces conventions governing content, organization, presentation, and style of technical documents. The course covers how to develop a style manual. The course introduces concepts of project cycle management, working as part of a documentation team, and collaboration with technical experts.

**ENG 221 CREATIVE WRITING I**  
**3 CREDITS**

ENG 221 teaches techniques for creative writing. The course explores imaginative uses of language through creative genres (fiction, poetry, literary nonfiction) with emphasis on your own unique style, subject matter and needs.

**ENG 226 FICTION WRITING**  
**3 CREDITS**

Prerequisite: ENG 221 or permission of instructor.  
ENG 226 teaches techniques for creating fiction, including the study and appreciation of the language and forms of the short story.

**ENG 227 POETRY WRITING**  
**3 CREDITS**

Prerequisite: ENG 221 or permission of instructor.  
ENG 227 teaches techniques for creating poems, including study

of figurative language, forms, and sound patterns of poetry.

**ENG 230 CREATIVE NONFICTION**  
**3 CREDITS**

ENG 230 teaches you to incorporate literary techniques into factual writing. The course enables you to survey a wide range of readings and analyze form and content. The course includes critical review, biographical profiles, travel writing, and memoirs. This course provides the opportunity for you to write and review your own nonfiction in a supportive, constructive setting.

**ENG 231 LITERARY MAGAZINE**  
**3 CREDITS**

ENG 231 teaches you the editorial process involved in preparing a literary magazine for publication. The course covers the process of selection of material (fiction, nonfiction, poetry, and visual art) to be published, as well as design, layout, and production to prepare a manuscript for publication. The course enables you to produce a literary magazine.

**ENT – Engineering Technology**

**ENT 106 - PRINT READING FOR MANUFACTURING**  
**3 CREDITS**

Prerequisites: None  
ENT 106 focuses on blueprint reading techniques related to manufacturing operations. The course will cover basic drafting standards, sketching, machine shop math, symbol interpretation, tolerance, and dimensioning standards.

### **ENT 146 CONSTRUCTION MATERIALS AND METHODS 3 CREDITS**

ENT 146 focuses on basic knowledge of construction materials, how they are manufactured, and their application in light commercial and industrial structures.

## **ENV – Environmental Science**

### **ENV 101 INTRODUCTION TO ENVIRONMENTAL SCIENCE WITH LAB 4 CREDITS**

ENV 101 introduces you to the basic concepts of ecology and the relationship between environmental problems and biological systems. This course includes discussions on biology, chemistry, geology, energy, natural resources, pollution and environmental protection.

## **ENVY – Energy Technology**

### **ENVY 101 INTRODUCTION TO ENERGY TECHNOLOGIES 3 CREDITS**

ENVY 101 introduces the energy technologies in use today and those that are in the research stage as possible alternatives. The course presents technologies including active solar heating, passive solar heating, wind energy systems, biomass, photovoltaic, co-generation, low and high head hydro, hydrogen, geothermal, power towers and energy storage systems.

### **ENVY 102 BUILDING ENERGY AUDIT TECHNIQUES 3 CREDITS**

ENVY 102 teaches the principles of building energy audit techniques to include diagnostic software. During the course the student will perform an energy audit. As a result

of the audit, he/she will be able to recommend application of the most appropriate energy-saving treatments such as insulation, windows, appliances and HVAC equipment.

### **ENVY 120 THERMAL INSTALL 4 CREDITS**

ENVY 120 will teach the student about solar thermal panels and installation techniques. The student will apply the principles of solar energy, site analysis, cost vs. payback, sizing, energy audit, and solar system design into a project.

### **ENVY 121 THERMAL INSTALL 2 & CONTROLS 4 CREDITS**

ENVY 121 is a continuation of the skills learned in ENVY 120 with additional labs to help reinforce the learning process. The student will learn additional control techniques and troubleshooting will be a major part of the class.

### **ENVY 130 SOLAR PV GRID-TIE 2 CREDITS**

ENVY 130 will teach the student how to layout an installation for maximum performance using standard industry tools such as a Solar Path Finder. Conduit Bending, wiring, roof penetrations are also part of the course.

### **ENVY 131 ADVANCED PV INSTALL 3 CREDITS**

ENVY 131 will expose the student to additional labs having to do with panel racking and installation. Battery storage and usage calculations for off grid housing will be part of the course.

### **ENVY 132 NABCEP PREP 1 CREDIT**

ENVY 132 will provide the student with a review of what might be on the NABCEP Entry Level certification test.

### **ENVY 230 TROUBLESHOOTING 3 CREDITS**

ENVY 230 will teach the student the trouble areas they might encounter while servicing a PV system.

### **ENVY 231 CONTRACTORS CLASS 4 CREDITS**

ENVY 231 helps the student understand the electrical code 690. Permitting, Excel rebate forms and sample forms from local jurisdictions will be explored.

### **ENVY 235 ENERGY SYSTEMS DESIGN 3 CREDITS**

ENVY 235 focuses on integration of energy system functions in a typical building including: codes and standards; energy economics; electrical system organization; waste heat recovery; utility system optimization; HVAC building system optimization

### **ENVY 240 ESTIMATING 4 CREDITS**

ENVY 240 will be the Capstone class for the student "bringing it all together." The student will be required to bid a job to include all materials properly priced with labor, sub contracting, sales tax and all other required fees in a package that will provide a quality job to the customer while showing a profit.

### **ENVY XXX INTRODUCTION TO WIND ENERGY 3 CREDITS**

Students are introduced to the fundamentals of electrical power generation from wind energy. Students are introduced to the working conditions and requirements for wind power technicians. Students identify the function of basic wind turbine equipment and systems. The governmental policies and guidelines are introduced.

## ESL – English as a Second Language

**WWW.RRCC.EDU/  
INTERNATIONAL**

### **ESL 012 INTERMEDIATE PRONUNCIATION 3 CREDITS**

Prerequisite: appropriate placement score.

ESL 012 provides listening, speaking and reading activities that help you recognize and produce a variety of stress and intonation patterns in English. It helps you to produce problematic English sounds.

### **ESL 033 ADVANCED CONVERSATION 3 CREDITS**

Prerequisite: appropriate placement score.

ESL 033 provides you with opportunities to increase the listening and speaking skills required in academic and work situations. It emphasizes vocabulary building, listening and note-taking strategies, as well as questioning, discussion, and presentation skills.

### **ESL 043 ADVANCED READING 3 CREDITS**

Prerequisites: completion of Intensive English Program or appropriate placement score.

ESL 043 prepares you for academic reading assignments. It assists you to read more accurately and critically thought the development of vocabulary knowledge and reading skills. It introduces research skills.

### **ESL 053 ADVANCED COMPOSITION 3 CREDITS**

Prerequisites: completion of Intensive English Program or appropriate ACCUPLACER score.

ESL 053 reviews paragraph organization and develops the skill of writing essays using selected

rhetorical modes. It emphasizes accurate use of advanced grammatical structures. It includes summarizing, paraphrasing, and research writing.

### **ESL 091 BASIC INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: appropriate assessment score.

ESL 091 develops and strengthens oral and written communication in English for non-native speakers at the basic level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the first of six levels of intensive English as a second language.

### **ESL 092 HIGH BASIC INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: ESL 091 or appropriate assessment score.

ESL 092 develops and strengthens oral and written communication in English for non-native speakers at the high basic level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the second of six levels of intensive English as a second language.

### **ESL 093 LOW INTERMEDIATE INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: ESL 092 or appropriate assessment score.

ESL 093 develops and strengthens oral and written communication in English for non-native speakers at the low intermediate level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the third of six levels of intensive English as a second language.

### **ESL 094 INTERMEDIATE INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: ESL 093 or appropriate assessment score.

ESL 094 develops and strengthens oral and written communication in English for non-native speakers at the intermediate level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the fourth of six levels of intensive English as a second language.

### **ESL 095 HIGH INTERMEDIATE INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: ESL 094 or appropriate assessment score.

ESL 095 develops and strengthens oral and written communication in English for non-native speakers at the high intermediate level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the fifth of six levels of intensive English as a second language.

### **ESL 096 LOW ADVANCED INTENSIVE ENGLISH 8 CREDITS**

Prerequisite: ESL 095 or appropriate assessment score.

ESL 096 develops and strengthens oral and written communication in English for non-native speakers at the low advanced level by focusing on the four skills: grammar, reading, writing, and listening/speaking. It provides the sixth of six levels of intensive English as a second language.

### **ESL 275 SPECIAL TOPICS: SEMI-INTENSIVE ESL 6 CREDITS**

Prerequisites: appropriate assessment score.

ESL 275 develops and strengthens oral and written communication in English for non-native speakers at the intermediate level by focusing

on the four skills: grammar, reading, writing, and listening/speaking.

### **ESL 276 SPECIAL TOPICS: IBT TOEFL PREPARATION 4 CREDITS**

Prerequisite: successful completion of Intensive English Program or appropriate assessment score. ESL 276 provides non-native speakers of English with training for the iBT TOEFL exam. TOEFL is required for non-native speakers who wish to continue their education in four-year college and university settings. The integrated speaking, listening, reading, and writing skills required for the new iBT TOEFL are emphasized in this course.

## **EST – Esthetician**

**WWW.RRCC.EDU/  
WARRETECH**

### **EST 110 INTRODUCTION TO FACIALS AND SKIN CARE 3 CREDITS**

EST 110 provides a basic understanding of massage manipulations when providing facials, the study of skin in both theory and practical applications, and the benefits derived from proper facial and skin care routines. Training is conducted in a classroom or lab setting using mannequins or models.

### **EST 111 INTERMEDIATE FACIALS & SKIN CARE 2 CREDITS**

EST 111 covers theory and practical application pertaining to anatomy, skin disorders, skin types and facial shapes. You will help patrons to select the proper skin care treatment. Practical and theory application can be done in specialized classes or supervised salon (clinical) setting using models or customer service.

### **EST 210 ADVANCED MASSAGE & SKIN CARE 2 CREDITS**

EST 210 provides you with advanced techniques in massage, skin care, and lash/brow tinting. Theory and practical procedures ready you for employment. Instruction is provided in specialized classes or in a supervised salon (clinical) setting. Student preparation for State Board Licensing Examination is covered.

### **EST 211 FACIAL MAKEUP 1 CREDIT**

EST 211 provides instruction on cosmetics and their functions. The importance of color theory, facial types, and skin tones as they relate to facial makeup is covered. Instruction from the basic makeup application to the corrective makeup procedure is taught. Disinfection and sanitation is taught as it pertains to all aspects of makeup.

### **EST 212 HAIR REMOVAL 3 CREDITS**

EST 212 provides in-depth study and practice of hair removal and the practice of patron protection and safety. Training for general waxing and body waxing procedures are provided. Demonstration of disinfection and sanitation as it pertains to Colorado rules and regulations will be practiced.

## **XXX – Environmental Technology – Natural Resource Management**

### **PENDING APPROVAL**

### **XXX 100 SUSTAINABILITY IN ENVIRONMENTAL TECHNOLOGY 3 CREDITS**

xxx 100 provides you with an in-depth study of the environmental regulatory industry as it applies to air, water, soils and solids.

The student is instructed in areas of investigations, reporting, assessments and compliance strategy programs for industrial, commercial and environmental industries. This course is designed as an introduction to environmental issues around the world and offers suggestive insight to career development.

### **XXX 110 ATMOSPHERIC ENVIRONMENTAL APPLICATION 4 CREDITS**

xxx 110 is a complete study in atmospheric monitoring including weather patterns, temperature, storm projection and it's affects on airborne discharges from industry, commercial and domestic sources. Students are instructed on air sampling techniques, data entry and modeling techniques as well as compliance strategies and regulations.

### **XXX 120 SOIL AND SOLID WASTE STUDIES 4 CREDITS**

xxx 120 covers the purpose, components regulatory disposal requirements for solid wastes as well as soil sampling techniques, data interpretation. The student will also study types of soils, solid wastes and recycling programs available In the United States. Additionally, proper disposal programs and land reuse development. Superfund sites are investigated to use a models for study which include mining operations and hazardous disposal sites.

### **XXX 140 REGULATORY STUDIES 4 CREDITS**

xxx 140 is a detailed study with the United States Environmental Protection Agency's regulatory system including its operations, research, compliance management system and regulatory

implementation. The student will become fully versed in terminology, legal procedures, legislation and Acts that are used in today's environmental enforcement and control efforts including the Clean Water Act, Soils Management and Air Discharge Requirements as well as current goal setting programs.

### **XXX 150 GLOBAL ENVIRONMENTAL AWARENESS 4 CREDITS**

xxx 150 is a comprehensive study of global environmental issues that are of concern to individual country development efforts. Studies include China, India, the United States, Europe, Antarctica and the Western Pacific. The course also presents various environmental programs that are being used to assist with social and environmental problems including those using multiple country and resource programs.

### **XXX 200 ENVIRONMENTAL ENGINEERING 4 CREDITS**

xxx 200 is an entry level engineering course that is designed to develop engineering skills and considerations towards environmental projects. Topics include, assessment, plotting, planning basic design and process development. Engineering basics are instructed in water treatment and storage facilities, power generation facilities and solid waste disposal facilities. (Students who participate in this course must have completed ENV 100, 110 and 120.)

### **XXX 210 ENERGY SCIENCE AND TECHNOLOGY 4 CREDITS**

xxx 210 is a general study course on various alternative energy developments including wind, solar and hydroelectric facilities. The course also includes case studies of bio fuels, waste

management and gas generation from waste facilities. Topics include design, development, application, environmental impact and costs analysis of alternative energies. The student gains insight to the many alternative energy options available and can associate these options to direct application as it applies to general industry and commercial facilities that must rely on energy for production and manufacturing.

## **FIW – Fine Woodworking**

[WWW.RRCC.EDU/FINEWOOD](http://WWW.RRCC.EDU/FINEWOOD)

### **FIW 100 FUNDAMENTALS OF WOODWORKING 4 CREDITS**

FIW 100 introduces you to the manipulation of materials, drawings, hand and power tools, sharpening, joinery, assembly, and preparation for and finishing to accomplish woodworking.

### **FIW 101 INTRODUCTION TO WOODWORKING 8 CREDITS**

FIW 101 is an introduction to woodworking based on an old-world approach to the instruction of basic woodworking skills. This is a thorough and intense class and is intended for the serious student only. An example of the intensity of this class is best illustrated by the first project, a Krenov style wood plane. The final project consists of a student' designed tool box. The course includes in-depth instruction of all hand, power, and stationary tools and thorough instruction on the elements of design, shop drawings, and wood science. The business side of woodworking is also discussed including the creation of a portfolio, customer relations, and wood shop set-up.

### **FIW 102 CLASSICAL GUITAR CONSTRUCTION 5 CREDITS**

FIW 102 teaches you how to build a guitar from scratch. Beginning with raw materials, you are expected to build a classical based guitar. As the guitars are built, you will learn many of the skills which distinguish the art of Lutherie.

### **FIW 103 STEEL STRING GUITAR CONSTRUCTION 5 CREDITS**

FIW 103 takes you through the actual process of creating a steel string guitar from scratch. Beginning with raw materials, you are expected to build a steel string guitar, either OM (Orchestra Model) or dreadnaught style.

### **FIW 104 ELEMENTS OF DESIGN 2 CREDITS**

FIW 104 is designed to assist you in developing an approach to furniture design that will assist them with either a current project or projects in the future. The class covers sketches, shop drawings, and model making.

### **FIW 106 PLANE MAKING 4 CREDITS**

Prerequisite: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 106 explores the tradition of craftsmen making their own tools and offers an explanation of the ideal within the creation of hand planes. The course enables you to determine the type of construction techniques to use in building this project through researching old methods and examining current practices. The final outcome is demonstrated by using the new plane.

### **FIW 108 TOOLMAKING AND JIGS 4 CREDITS**

Prerequisite: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 108 expands the capabilities, speed and accuracy of the

woodworker through the use of jigs and specialty tools. The course focuses on constructing several projects (box joint jig, a router table, a mock dovetail jig or spring pole lathe) of progressing difficulty.

### **FIW 109 INTRODUCTION TO CABINETMAKING 4 CREDITS**

FIW 109 will introduce you to the various components of cabinetmaking. The course will teach you basic shop drawing, material properties, joinery, and power and stationary tools as relating to basic cabinet construction. Safe and efficient use of machinery and materials are the essential goals of this course.

### **FIW 115 STRIP CANOE BUILDING 4 CREDITS**

FIW 115 focuses on constructing a strip canoe utilizing forms, thin wood strips, and epoxy/fiberglass techniques resulting in a beautiful and strong yet lightweight craft. It explores construction of seats, thwarts, and paddles.

### **FIW 116 CABRIOLE LEG AND QUEEN ANNE FURNITURE 4 CREDITS**

Prerequisite: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 116 focuses on the Queen Anne style in order to guide the furniture maker to depart from rectilinear form and create curves and bends in wood. The course examines patternmaking and building from drawings to create a chair, table, cabinet or similar piece.

### **FIW 118 LATHE TURNING 4 CREDITS**

FIW 118 explores the capacities of a lathe through spindle and faceplate turnings. The use of lead, cove, taper, cylindrical, v-cut, proportion and curved line relationships are examined. Lathe components, tools and sharpening are explored.

### **FIW 119 INTERMEDIATE TURNING I 4 CREDITS**

Prerequisite: FIW 118 or permission of instructor. FIW 119 guides you through the art and craft of turning natural edge bowls, end grain hollowing, box making, platters, other open forms, and closed forms/internal hollowing techniques.

### **FIW 121 INTERMEDIATE TURNING II 4 CREDITS**

Prerequisite: FIW 119 or permission of instructor. FIW 121 teaches you how to create unique turning through the use of finish applications, burning, inlays, and texturing.

### **FIW 122 WOOD CARVING 4 CREDITS**

FIW 122 allows you to experiment with knife and gouge to discover the many possibilities of wood decoration through carving and the qualities of numerous materials. Ultimately you are expected to produce samples of chip and relief carvings to demonstrate what's been learned.

### **FIW 125 FINISHING WOOD 4 CREDITS**

FIW 125 allows you to research the wide variety of finishes available from the oldest formulations to the bewildering array of modern films and stains. You will experiment with a representative sampling of colorations and surface finishes on a variety of species of wood using a selection of application techniques.

### **FIW 128 DOORMAKING 4 CREDITS**

Prerequisites: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 128 involves the planning, design, selection and purchase of materials, construction, finishing and hanging of a door you have made. Assorted styles of door construction,

joinery, glues and fabrication techniques are examined.

### **FIW 200 VENEERING AND MARQUETRY 4 CREDITS**

Prerequisites: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 200 covers the surface decoration of wood; both edge and face treatments through the use of thin, often expensive, exotic or figured woods. Manmade and solid substrates for veneering are examined as well as available patterns, styles, Marquetry techniques and creating multiple layer banding for a project are covered.

### **FIW 201 JOINERY 4 CREDITS**

Prerequisite: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 201 explores different types of wood connections, using both hand and power tool techniques in frame and carcass joinery. You are expected to cut, fit and assemble projects to demonstrate their knowledge.

### **FIW 205 TABLEMAKING 4 CREDITS**

Prerequisite: FIW 201. FIW 205 involves the study and construction of flat surface using some of the wide variety of potential styles, sizes, materials and techniques available. Solid and sheet goods are examined as well as alternative construction methods and their various qualities. Fastenings, edging and movement concerns are explored.

### **FIW 206 CHAIRMAKING 4 CREDITS**

Prerequisite: FIW 201. FIW 206 uses chair construction to examine some of the alternatives of machine and hand-tool construction as illustrated by seat shaping through router surfacing vs. inshave use, for example. Spindle turnings,

spokes have use and compound angles may be encountered in constructing a chair. Chair style often dictates resolving construction dilemmas such as jointing compound curves and jig making for tapered legs with fluting or reeding.

#### **FIW 208 FURNITURE REPAIR 4 CREDITS**

Prerequisites: FIW 100 (or equivalent) and FIW 125.

FIW 208 recognizes the need to repair and restore furniture and allows you to explore jigs, veneer repair, replacing broken pieces and reassembling reconditioned furniture. You are expected to provide furniture of sufficient complexity to challenge their abilities. Joinery, carving, stripping, and refinishing are topics covered in this course.

#### **FIW 209 CABINETMAKING 4 CREDITS**

Prerequisites: FIW 109, FIW 100, FIW 101 or permission of instructor. FIW 209 will take the skills learned in the introductory course, and expand them. The course extensively covers techniques to use for the construction of more elaborate cabinets and large quantities of cabinets. This course also covers the estimation of materials and time for kitchen or similar cabinet installations.

#### **FIW 210 BENDING AND LAMINATIONS 4 CREDITS**

Prerequisites: FIW 100, FIW 101, FIW 109 or permission of instructor. FIW 210 involves the process of curving natural and manmade panels through a variety of methods including spaced kerfs, cold lamination and steam bending. Form construction, various qualities of different wood species and adhesive selection are studied.

#### **FIW 211 SHOP CARPENTRY 4 CREDITS**

Prerequisite: Permission of instructor.

FIW 211 is for the non-site, shop carpenter and includes jig and patternmaking; stationary power tool maintenance and adjustment; machining of woods; and techniques unique to shops, cabinetmakers and mill workers.

#### **FIW 213 FURNITURE MAKING 4 CREDITS**

Prerequisite: FIW 201.

FIW 213 teaches furniture design, construction techniques and material selection.

#### **FIW 215 ADVANCED JOINERY 4 CREDITS**

Prerequisites: FIW 201 and FIW 206. FIW 215 examines all types of joinery from decorative to the most complex of hand and machine cutting techniques. You will study and learn their respective qualities in regards to strength, material and adhesive selection, wood movement and the properties of different joints. A project incorporating many of these joints will be expected.

#### **FIW 217 ADVANCED CABINETMAKING 4 CREDITS**

Prerequisite: FIW 209.

FIW 217 expands skills taught in FIW 209. The course includes a review of the types of joints, gluing and hardware used in cabinets. The course also familiarizes you with various types/designs of cabinets used in residential/commercial construction. Construction of shop-built cabinets including a variety of door styles and the proper use of power tools for creating various designs is expected. The uses and application of plastic laminates are explored and you learn the proper installation of shop-built cabinets.

#### **FIW 219 WOODWORKING LAB 4 CREDITS**

Prerequisite: FIW 100 or FIW 109.

FIW 219 provides the opportunity for the experienced woodworker to create a piece to expand their woodworking skills through the design and construction of a carefully selected woodworking project. In collaboration with the instructor you will create drawings, choose materials, resolve joinery techniques, estimate and construct the proposal. Emulation of a profitable woodworking business is part of this class experience and the ability to anticipate, plan, complete, and work individually will be expected.

#### **FIW 220 ADVANCED FURNITURE AND CABINET CONSTRUCTION 4 CREDITS**

Prerequisite: FIW 213 or FIW 209.

FIW 220 is designed to assist you in organizing their woodworking abilities. By the time you take this course, you should have a stable base of skills and abilities. Your completion of this project should demonstrate your understanding of advanced woodworking techniques, the ability to create and use shop drawings, and finishing techniques.

#### **FIW 250 PERIOD FURNITURE REPRODUCTION 4 CREDITS**

Prerequisite: FIW 201.

FIW 250 involves researching and selecting a period and style of furnituremaking from the biblical era to contemporary times and building a reproduction piece. You will examine then and now techniques and materials while selecting the construction process for their individual piece. Period reproduction becomes musical instruments, boats or other items as you become involved in their research.

### **FIW 275 SPECIAL TOPICS 0 – 6 CREDITS**

FIW 275 provides you with a vehicle to pursue in depth exploration of special topics of interest

### **FIW 280 TECHNICAL PROJECT 4 CREDITS**

Prerequisite: Permission of the instructor.

FIW 280 enables you to participate in individual study on a special project which is related to the plumbing program. This technical project consists of a written and approved proposal and scheduled progress reports.

### **FIW 285 INTERNSHIP 4 CREDITS**

Prerequisite: Permission of the instructor.

FIW 285 provides you with the opportunity to apply your skills in a real woodworking environment.

## **FRE – French**

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

### **FRE 101 CONVERSATIONAL FRENCH I 3 CREDITS**

FRE 101 introduces beginning students to conversational French and focuses on understanding and speaking French. It covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

### **FRE 102 CONVERSATIONAL FRENCH II 3 CREDITS**

Prerequisite: FRE 101 or instructor permission.

FRE 102 continues the sequence for beginning students who wish to understand and speak French. It covers basic conversational patterns, expressions, and grammar.

### **FRE 111 FRENCH LANGUAGE I 5 CREDITS**

FRE 111 begins a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the French language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

### **FRE 112 FRENCH LANGUAGE II 5 CREDITS**

Prerequisite: FRE 111 or instructor permission.

FRE 112 continues French I in the development of functional proficiency in listening, speaking, reading and writing the French language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **FRE 211 FRENCH LANGUAGE III 3 CREDITS**

Prerequisite: FRE 112 or instructor permission.

FRE 211 continues French I and II in the development of increased functional proficiency in listening, speaking, reading and writing the French language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **FRE 212 FRENCH LANGUAGE IV 3 CREDITS**

Prerequisite: FRE 211 or instructor permission.

FRE 212 continues French I, II and III in the development of increased functional proficiency in listening, speaking, reading and writing the French language. Note: The order of the topics and the methodology will vary according to individual texts and instructors

## **FST – Fire Science Technology**

[WWW.RRCC.EDU/FIRE](http://WWW.RRCC.EDU/FIRE)

### **FST 100 FIREFIGHTER I 9 CREDITS**

Prerequisite or Corequisite: FST 102 strongly recommended before taking Fire Academy: EMS 125/170 (EMT-Basic) and FST 160 (CPAT Test Prep). FST 100 addresses the requirements necessary to perform at the first level of progression as identified in National Fire Protection Association (NFPA) 1001, Firefighter Professional Qualifications. This course is a classroom section in which the IFSTA 200 Essentials of Firefighting Manual is taught.

### **FST 102 INTRODUCTION TO FIRE SCIENCE AND SUPPRESSION 3 CREDITS**

FST 102 introduces the fire service organization and operation from past to present operations. It includes operation and organization of federal, state, local and private protection forces. The course emphasizes extinguishing methods and equipment, special extinguishing agents, and special hazard considerations. It serves as a prerequisite for students with no previous fire suppression training or experience.

### **FST 103 FIREFIGHTER OCCUPATIONAL HEALTH AND SAFETY 3 CREDITS**

FST 103 focuses on on-scene and on-the-job firefighter health, safety and fitness, the safety officer, mental well-being, stress management, and standards related to health, safety, and fitness. This course parallels NFPA 1500 Standards



**FST 104 FIRE PROTECTION SYSTEMS**  
**3 CREDITS**

Prerequisites: FST 100 and 105, or permission of instructor. FST 104 addresses principles and functions involved in the installation and use of sprinkler systems, special suppression systems, and fire detection and alarm systems. It covers portable fire extinguishing equipment requirements, sprinkler systems, installation, inspection and maintenance, special protection systems, and residential sprinklers.

**FST 105 BUILDING PLANS AND CONSTRUCTION**  
**3 CREDITS**

FST 105 covers various methods of building construction, the materials used in building construction, and their relationship to methods of fire attack and extinguishments. The course includes types of building construction, principles of fire resistance, flame spread, smoke and fire containment, basic knowledge of plan review, and blueprint specifications.

**FST 106 FIRE INSPECTION PRACTICES**  
**3 CREDITS**

FST 106 introduces the organization of the fire prevention agency; inspections, surveying, mapping and company inspections; recognition of fire hazards; engineering a solution to the hazard; enforcement of the solution; and public relations as affected by fire prevention. Fire Inspector I State Certificate is available.

**FST 107 HAZARDOUS MATERIALS AWARENESS OPERATIONS**  
**3 CREDITS**

FST 107 covers hazardous materials incidents, recognizing and identifying hazardous materials, planning response, implementing response procedures, decision

making, and continued evaluation at the awareness and operation level.

**FST 110 JOB PLACEMENT AND ASSESSMENT**  
**3 CREDITS**

FST 110 addresses all aspects of the fire service entrance examination process and emphasizes various components of the exam, including the written, physical abilities, and oral interview. The objective of this class is to help increase the entrance firefighter candidate's chance of obtaining a career in the fire service.

**FST 121 TECHNICAL ROPE RESCUE**  
**4 CREDITS**

FST 121 provides you with the knowledge and skills to handle low and high angle rescues using rescue rope and associated hardware. The course takes you from the introductory level up to advanced skills in three separate sessions. Belay, rappel, and raising systems are taught in a real-life setting in both high- and low-angle rescue environments. You are also taught care and maintenance of equipment.

**FST 132 STRUCTURAL COLLAPSE RESCUE**  
**2 CREDITS**

FST 132 covers the various types of construction, causes for structural collapse, types of structural collapse, and identification of structural component failures. You will study mitigation of a structural collapse response and other associated hazards through use of ICS, proper size-up, building failure analysis, monitoring techniques, shoring systems and associated equipment, proper search and recovery techniques, and personal protective equipment requirements.

**FST 133 TRENCH RESCUE**  
**2 CREDITS**

FST 133 covers trench types; trench versus excavation rescues; soil

types encountered at trench rescue sites; collapse dynamics; ICS/IMS; equipment, materials and tools used for rescue operations; personal protection issues; trench shoring; and victim extrication.

**FST 134 CONFINED SPACE RESCUE**  
**2 CREDITS**

FST 134 covers the definition of confined space; OSHA considerations and permit requirements; monitoring instruments; ICS/IMS, victim contact; breathing apparatus such as SABA/ SCBA; communications and equipment, e.g., radio/hardwired; patient packaging, rescue versus recovery; and patient extrication.

**FST 135 ICE WATER RESCUE**  
**2 CREDITS**

FST 135 covers types of ice encountered in ice water rescue, ICS/IMS; ice strength, patient evaluation and contact, rescue equipment, ice water rescue techniques, rescue suit safety, belay line and shore support, hypothermia, Zodiac boat techniques, and victim rescue.

**FST 136 SWIFT WATER RESCUE**  
**2 CREDITS**

FST 136 covers fast water hazards and risk analysis relating to swift water rescue, low head dam, ICS/IMS, victims in vehicles, rescue equipment and techniques, rope systems and throw bags, reach/throw/go, rescuer safety and shore support, and personal protective equipment.

**FST 137 VEHICLE EXTRICATION**  
**2 CREDITS**

FST 137 covers transportation emergency assessment skills as they relate to vehicle extrication; establishing safety zones; "reading" the wreck; ICS/IMS; utilities, traffic and fuel; vehicle construction; air bags; vehicle stabilization; victim

access and stabilization; dismantling the vehicle; and patient packaging.

### **FST 151 DRIVER-OPERATOR 3 CREDITS**

FST 151 provides you with the basic knowledge and skills to safely operate fire apparatus according to the NFPA professional standard. The course enables you to display and demonstrate knowledge of fire apparatus, operation of apparatus, pumps and pumping, hydraulics calculations, maintenance, and testing.

### **FST 160 CANDIDATE PHYSICAL ABILITIES TEST PREP COURSE 3 CREDITS**

FST 160 prepares students for the job of a firefighter as well as the testing requirements to test for CPAT. The tools for all classes will be fire service tools, such as, sledge hammer, hose, nozzle, ladders, pike pole, power saws, and rescue dummy. The course will include the basic fire skills of rescue, hose lay, equipment movement, ladder raise and extend, forcible entry, search, and ceiling breach. The course also includes aerobic and strength training to assist student in passing CPAT.

### **FST 175 SPECIAL TOPIC 1-6 CREDITS**

Prerequisite: Permission of instructor.

FST 175 provides foundational (100 level) and advanced (200 level) classes that are offered in the fire service field that do not fall under the standard curriculum. These may be seminar classes or may be prior-learning credit portfolio classes that apply to fire electives, including National Fire Academy courses, NFPA courses, and local seminars and other professional courses and certifications.

### **FST 180 INTERNSHIP 1-6 CREDITS**

Prerequisite: Permission of program advisor.

FST 180 allows you to gain experience and knowledge from on-the-job training. Positions are non-paid. This course must be arranged through the office of Job Placement/Cooperative Education and with approval of your advisor.

### **FST 201 INSTRUCTIONAL METHODOLOGY (FIRE INSTRUCTOR I ) 3 CREDITS**

Prerequisites: FST 100 and 102, or permission of instructor.

FST 201 covers the role and responsibility of the fire service instructor. It includes oral communication skills, concepts of learning, developing lesson plans, instructional materials and delivery methods, testing and evaluations, records, reports, and demonstration of instructional abilities. Fire Instructor I State Certificate is available.

### **FST 202 FIREFIGHTING STRATEGY AND TACTICS 3 CREDITS**

Prerequisites: FST 102, 104, and 107, or permission of instructor.

FST 202 covers firefighting strategy and tactics, methods of fire attack, fire behavior, building construction, and pre-fire planning.

### **FST 203 FIRE SCIENCE HYDRAULICS 3 CREDITS**

Prerequisites: FST 105 and MAT 106.

FST 203 covers hydraulic calculations that are necessary in water delivery and supply for fire suppression, hydraulic laws and formulas as applied to fire protection requirements, and fire apparatus UL requirements.

### **FST 204 FIRE CODES AND ORDINANCES 3 CREDITS**

Prerequisites: FST 102, 104, 105, 106 or permission of instructor.

FST 204 covers familiarization and interpretation of national, state, and local codes, ordinances, and laws which influence the field of fire prevention. Fire code and life safety code are reviewed and referred to throughout the course.

### **FST 205 FIRE CAUSE DETERMINATION 3 CREDITS**

FST 205 covers the proper method(s) of conducting basic fire investigation, determining area and point of origin, cause and methods of fire spread, and recognition and preservation of evidence. The course includes arson law, Constitutional law, interviewing, court procedures, and testimony.

### **FST 206 FIRE COMPANY SUPERVISION AND LEADERSHIP 3 CREDITS**

Prerequisites: ENG 121; FST 102, 202, or permission of instructor.

FST 206 covers fire department organization, management philosophies, leadership traits, time management, group dynamics, communications, motivation counseling, conflict resolution, and employee discipline. The course meets the components of Fire Officer I State Certificate.

### **FST 207 FIREFIGHTING STRATEGY AND TACTICS II 3 CREDITS**

Prerequisite: FST 202.

FST 207 focuses on tactics and strategies associated with transportation emergencies and fires, high-rise fires, below-ground incidents, confined space emergencies, and special rescue situations.

**FST 251 FIRE SERVICE AND THE LAW  
3 CREDITS**

FST 251 provides the professional fire officer with detailed information on federal, state, and local laws, ordinances, and civil and criminal liabilities that impact the fire service. It includes the OSHA and NFPA standards in-depth, as well as pensions, Workman's Compensation, drug testing, union bargaining agreements, and other topics.

**FST 252 FIRE ARSON INVESTIGATION  
3 CREDITS**

Prerequisites: FST 100, 102, and 205, or permission of instructor.  
FST 252 studies cause and origin as related to arson fires, evidence preservation and chain of evidence, interviewing, giving testimony, and laws associated with fire and arson investigation, records, and reports.

**FST 253 FIRE GROUND ORGANIZATION AND COMMAND  
3 CREDITS**

Prerequisite: FST 202.  
FST 253 focuses on fire ground management, resource availability, management and deployment, National Incident Management System and all related components, communications, problem solving, and table top exercises.

**FST 254 HAZARDOUS MATERIALS TECHNICIAN  
3 CREDITS**

Prerequisite: FST 107.  
FST 254 focuses on techniques associated with hazardous materials mitigation, the use of monitoring devices, components of a mitigation team, and command and control of hazardous materials incidents.

**FST 255 FIRE SERVICE MANAGEMENT  
3 CREDITS**

Prerequisites: FST 202 and FST 206, or permission of instructor.  
FST 255 serves as the basic management course for present and potential members of the fire service and for students and members of other fire science-related professions. It introduces you to current management practices and philosophies and real-world applications from the supervisor's point of view. The course covers decision-making/problem-solving, communication skills, conflict resolution, creativity and innovation, as well as the role of the manager in supervising personnel and programs, e.g., motivation, leadership, counseling, ethics, and handling discipline and grievances.

**FST 256 FIRE SERVICE EMS MANAGEMENT  
3 CREDITS**

FST 256 addresses budgeting, staffing, training, and equipment issues; transportation, standard of care, and protocols; operations, communications, incident and disaster management; and legal issues associated with EMS operations.

**FST 257 FIRE DEPARTMENT ADMINISTRATION  
3 CREDITS**

Prerequisite: FST 206.  
FST 257 focuses on the operations of volunteer and combination fire departments; compliance with standards and ordinances; funding and budgeting; recruiting, hiring, and retaining employees; organizational planning; and public relations.

**FST 258 WILDLAND FIRE INCIDENT MANAGEMENT AND ORGANIZATION  
3 CREDITS**

Prerequisite: FST 152 or previous certified red card training.  
FST 258 introduces and develops supervisory and decision-making skills for fireline management individuals. The course covers (1) First Attack Incident Commander, (2) Crew Supervisor, (3) Incident Commander Multi-Resource, and (4) Task Force/Strike Team Leader. All four courses are certifiable by the Incident Command System under NIIMS and recognized by the National Wildfire Coordinating Group. The course also covers fireline safety, size-up, incident planning, ordering, tactics, strategies, and administrative duties.

**FST 259 WILDLAND FIREFIGHTING  
3 CREDITS**

FST 259 focuses on management of uncontrolled fire burning, urban/wildland interface, strategy and tactics used in controlling wild land fires, prevention methods, and incident command practices.

**FST 260 INTERMEDIATE FIRE BEHAVIOR S290  
2 CREDITS**

FST 260 analyzes the effects of fuels, weather, topography, and fire behavior on the wildland fire environment and acquaints prospective fire line supervisors in wildland fire behavior for effective and safe fire management operations.

**FST 261 FIRE OPERATIONS IN THE URBAN INTERFACE**  
**2 CREDITS**

Prerequisites: Firefighter II in the National Wildfire Coordinating Group and ability to perform wildland firefighting tasks. FST 261 examines fireline personnel skills to anticipate and predict wildland fire behavior, weather, and rates of spread. This course was developed under the Interagency Curriculum established and coordinated by the National Wildfire Coordinating Group. The course covers fire environment, fuels classification, topography and fire behavior, temperature-moisture relationship, fuel moisture, local and general winds, atmospheric stability and instability, keeping current with the weather, extreme fire behavior, fire behavior affecting fireline tactics, and fire behavior predictions.

**FST 262 WILDLAND FIRE BEHAVIOR**  
**3 CREDITS**

Prerequisites: Firefighter II in the NWCG system and ability to perform wildland firefighting tasks in the field. FST 262 gives fireline personnel skills to anticipate and predict wildland fire behavior, weather, and rates of spread. This course was developed under the Interagency Curriculum established and coordinated by the National Wildfire Coordinating Group. The course covers fire environment, fuels classification, topography and fire behavior, temperature- moisture relationship, fuel moisture, local and general winds, atmospheric stability and instability, keeping current with the weather, extreme fire behavior, fire behavior affecting fireline tactics, and fire behavior predictions.

**FST 263 POWERSAWS S212**  
**2 CREDITS**

Prerequisites: Firefighter Type II in National Wildfire Coordinating Group and ability to perform chainsaw operations. FST 263 teaches the wildland firefighter the skills necessary to use, repair, and maintain a chainsaw in the field and focuses on techniques to fell trees and buck material in a fireline operation.

**FST 264 HELICOPTER CREW S217**  
**2 CREDITS**

FST 264 provides training for fire and nonfire personnel involved in project assignments with helicopters. It enables you to develop skills and to work with a helicopter in performing tasks common to all helicopter operations.

**FST 265 IGNITION OPERATIONS S234**  
**2 CREDITS**

Prerequisite: FST 152 or equivalent, Intermediate Fire Behavior; qualification as a Squad Boss/ Firefighter Type 1. FST 265 teaches the wildland firefighter techniques in conducting firing operations. It focuses on the duties and responsibilities in applying fire to the ground, the devices used, techniques and sequences, fire behavior descriptions, evaluations of the operation, and related safety concerns.

**FST 266 CREW BOSS S230**  
**2 CREDITS**

Prerequisite: FST 260 or completion of S290 Intermediate Fire Behavior, squad boss qualification. FST 266 meets the training needs of a crew boss on an incident. It includes preparation, mobilization, tactics and safety, off-line duties, demobilization, and postincident responsibilities.

**FST 270 BASIC AIR OPS S270**  
**1 CREDIT**

Prerequisites: FST 202 and FST 206 or permission of instructor. FST 270 serves as the basic management course for present and potential members of the fire service and for students and members of other fire science-related professions. The course introduces you to current management practices and philosophies and real-world applications from the supervisor's point of view. It covers decision-making/problem-solving, communication skills, conflict resolution, and creativity and innovation, as well as the role of the manager in supervising personnel and programs, e.g., motivation, leadership, counseling, ethics, and handling discipline and grievances.

**FST 275 SPECIAL TOPICS**  
**1-4 CREDITS**

Prerequisite: Permission of instructor. FST 275 provides you with a vehicle to pursue in-depth exploration of special topics of interest not previously offered. The course includes National Fire Academy courses, VFIS courses, NFPA certification courses, or other special subject classes that do not fall under the standard FST curriculum.

**FST 285 INDEPENDENT STUDY**  
**1-6 CREDITS**

Prerequisite: Permission of instructor. FST 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor. The product of this course is an applied research project that will not only benefit the student but the student's organizational skills as well.

## **GEO – Geography**

[WWW.RRCC.EDU/GEOGRAPHY](http://WWW.RRCC.EDU/GEOGRAPHY)

### **GEO 105 – WORLD REGIONAL GEOGRAPHY 3 CREDITS**

GEO 105 facilitates an understanding of spatial relationships between and among the geographic regions of the world. It includes demographic and cultural (political, economic, and historic) forces related to the physical environments of selected regions. The course focuses on analysis of interrelationships between developed and developing regions and the interactions between human societies and natural environments.

### **GEO 106 – HUMAN GEOGRAPHY 3 CREDITS**

GEO 106 introduces geographic perspectives and methods with applications to the study of human activities. The course emphasizes the distribution of humans, adjustments to the natural environment, and land use practices.

### **GEO 165 – HUMAN ECOLOGY 3 CREDITS**

GEO 165 provides a current outlook for the global environment, describing the threats imposed on different natural ecological systems. The course enables the student to develop a set of intellectual tools and ways of thinking about the environment to evaluate for themselves how serious a given environmental problem will be.

## **GED – General Education**

[WWW.RRCC.EDU/GED](http://WWW.RRCC.EDU/GED)

### **GED 011 GED PREPARATION 1 CREDIT**

GED 011 presents material for students who need to prepare for the GED tests: Language Arts, Writing; Language Arts, Reading; Mathematics; Science; and Social Studies.

## **GER – German**

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

### **GER 101 CONVERSATIONAL GERMAN I 3 CREDITS**

GER 101 introduces beginning students to conversational German and focuses on understanding and speaking German. It covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

### **GER 102 CONVERSATIONAL GERMAN II 3 CREDITS**

Prerequisite: GER 101 or permission of instructor.  
GER 102 continues the sequence for students who wish to understand and speak German. It covers basic patterns, expressions, and grammar.

### **GER 111 GERMAN LANGUAGE I 5 CREDITS**

GER 111 begins a sequence dealing with the development of functional proficiency in listening, speaking, reading, and writing the German language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

### **GER 112 GERMAN LANGUAGE II 5 CREDITS**

Prerequisite: GER 111 or instructor permission.

GER 112 continues German Language I in the development of functional proficiency in listening, speaking, reading, and writing the German language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **GER 211 GERMAN LANGUAGE III 3 CREDITS**

Prerequisites: GER 112 or instructor permission.

GER 211 continues German Language I and II in the development of increased functional proficiency in listening, speaking, reading, and writing the German language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **GER 212 GERMAN LANGUAGE IV 3 CREDITS**

Prerequisite: GER 211 or instructor permission.

GER 212 continues German Language I, II, and III in the development of increased functional proficiency in listening, speaking, reading and writing the German language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

## **GEY – Geology**

[WWW.RRCC.EDU/GEOLOGY](http://WWW.RRCC.EDU/GEOLOGY)

### **GEY 111 PHYSICAL GEOLOGY 4 CREDITS**

GEY 111 studies the materials of the earth, its structure, surface features, and the geologic processes involved in its development.

**GEY 116 GEMS, CRYSTALS,  
AND MINERALS  
1 CREDIT**

GEY 116 introduces basic information on the definition, formation, identification, and uses of gems, crystals, and minerals.

**GEY 118 ROCK AND MINERAL  
IDENTIFICATION  
1 CREDIT**

GEY 118 introduces basic information on the definition, formation, identification, and uses of rocks and minerals.

**GEY 119 THE GREAT ICE AGE  
1 CREDIT**

GEY 119 analyzes the effect of the last ice age on the development of North America and also explores theories of climatic change.

**GEY 121 HISTORICAL  
GEOLOGY  
4 CREDITS**

Prerequisite: GEY 111.  
GEY 121 studies the physical and biological development of the earth through the vast span of geologic time. The course emphasizes the investigation and interpretation of sedimentary rocks, the record of ancient environments, fossil life-forms, and physical events, all within the framework of shifting crustal plates.

**GEY 125 CONTINENTAL DRIFT  
1 CREDIT**

GEY 125 presents the theory of plate tectonics and its relationship to continental movement, earthquakes, volcanoes, and the history of life.

**GEY 135 ENVIRONMENTAL  
GEOLOGY  
3 CREDITS**

GEY 135 introduces geology and its relationship to man's environment. The course covers geologic hazards such as floods, landslides, avalanches, earthquakes, and volcanoes. It focuses on surface and

groundwater resources in terms of exploitation and man's responsibility to protect these resources from contamination. The geologic aspects of land use practices, as well as mineral and energy resource exploitation, are reviewed and related to legislation regarding environmental law.

**GEY 140 INTRODUCTION  
TO GLOBAL POSITIONING  
SYSTEMS  
1 CREDIT**

GEY 140 provides instruction on the use and application of hand-held global positioning systems (GPS). The course includes navigation, using a GPS with a topographic map, mapping geologic and man-made features using a GPS, and exchanging information with computerized digital maps.

**GEY 143 THE GEOLOGY AND  
EVOLUTION OF CAVES  
2 CREDITS**

GEY 143 introduces the science of caves. The course includes cave formation and evolution, cave decorations (speleothems), and the adaptations of living organisms to life below ground. It incorporates a one-day field trip to a nearby cave system.

**GEY 205 THE GEOLOGY OF  
COLORADO  
3 CREDITS**

Prerequisites: Permission of Instructor.  
GEY 205 covers the geologic history of Colorado with emphasis on formation of mountain ranges; igneous, sedimentary, and metamorphic rock types; ore deposits; and landforms. It incorporates field experience and/or classroom lectures.

**GEY 208 GEOLOGY FIELD TRIP  
1-5 CREDITS**

Prerequisites: Permission of Instructor.

GEY 208 involves in-depth field studies into the geology of specific regions both within and outside Colorado. Trips lasting from one to several days to study the area constitute the major activity of the course. The specific area of investigation is indicated in the schedule of classes each time the course is offered.

**GIS – Geographic  
Information Systems**

**WWW.RRCC.EDU/GEOGRAPHY**

**GIS 101 INTRODUCTION TO  
GEOGRAPHIC INFORMATION  
SYSTEMS  
3 CREDITS**

GIS 101 surveys the development and operation of automated geographic information systems. The course focuses on the fundamentals of using computers to draw maps and incorporates the study of cartographic fundamentals such as map projections, map scales, selective display of data on maps, and various computer software applications in GIS.

**GIS 110 INTRODUCTION TO  
CARTOGRAPHY  
3 CREDITS**

GIS 110 examines a broad range of map types, emphasizing maps as a communication system with both symbology and specific organizational hierarchies. Discussion and demonstration focuses on essential cartographic principles and practices used for designing maps, with emphasis on cartographic protocol resulting in the effective communication of both qualitative and quantitative information.

### **GIS 210 INTERMEDIATE GIS 3 CREDITS**

GIS 210 builds upon the spatial analysis principles and concepts of GIS 101. Students work with more advanced analytical tools and develop skills in spatial problem solving.

## **HHP – Holistic Health Professional**

[WWW.RRCC.EDU/HEALTH](http://WWW.RRCC.EDU/HEALTH)

### **HHP 100 COMPLEMENTARY HEALING METHODS 1 CREDIT**

HHP 100 explores some of the more widely used alternative/complimentary healing methods. It expands your health horizons and enables you to converse in a knowledgeable manner with patients and practitioners.

### **HHP 103 INTRODUCTION TO CIRCLE OF HEALING 1 CREDIT**

HHP 103 enables you to synthesize different energy methods in order to work as part of a healing group using intuition and group consensus of imagery as the vehicle to create the healing environment.

### **HHP 104 THE HEALING MIND 0.5 CREDITS**

HHP 104 explores the scientific research surrounding mind-healing as well as enhancing mind-body communication skills.

### **HHP 105 PHYTOTHERAPY AND DISEASE PREVENTION 1 CREDIT**

HHP 105 offers herbal pharmacognosy with disease prevention. Plant chemicals are an important source not only for medicines but for compounds that prevent disease. You will develop a basic understanding of

phytochemical classification and explore plant compounds chemically and how they act on the body.

### **HHP 107 MANAGING LIFE'S STRESSES 0.5 CREDIT**

HHP 107 enables you to work with energy, confidence and enthusiasm in your life by learning specific skills that will give you control over stressful situations or people in your life. This experiential class is designed for all who are interested in a higher quality of life and want to reach their full potential. Learn how to relax quickly, improve self-image, improve concentration, and how to control your worry. You can experience freedom from old patterns that create stress, fatigue and restricting beliefs.

### **HHP 108 AROMATHERAPY 0.5 CREDITS**

HHP 108 informs you of the use of essential oils in health maintenance and the healing of disease. (Tantalizing data from the ancient Egyptians exists and has been verified by modern scientific research.) The course explores the pharmacokinetics and neurophysiology of essential oils, looking into their origins, extraction, storage, and use. This course enables you to observe a large number of essential oil remedies and their applications.

### **HHP 110 NEUROLINGUISTIC PROGRAMMING 0.5 CREDITS**

HHP 110 familiarizes students with the core presuppositions of NLP, explores conscious and unconscious communications on a structural level, and experimentally teaches how non-verbal and verbal communications can allow one to effectively establish (and maintain) rapport with others. Students will discover how people get “stuck” and how to get themselves and others

“unstuck,” culminating with an elegant change pattern; proven to be as useful with intrusive memories as it is with accessing new choices.

### **HHP 111 HERBOLOGY I 1 CREDIT**

HHP 111 explores the pharmacokinetics and composition of herbs and their effect on the body systems. The use of herbs in health maintenance and the healing of disease predates written history. Herbs have been found by archeologists in Paleolithic burials and throughout literature of the ancient Chinese and Egyptians verified by modern scientific research. The course focuses on the habitat, harvesting, storage, and usage of a select group of herbs.

### **HHP 122 QIGONG 1 CREDIT**

HHP 122 emphasizes the application of the 18 soft exercises found in Qigong to help relax, increase strength, agility, and vitality while calming the mind.

### **HHP 125 FELDENKRASIS AWARENESS THROUGH MOVEMENT 0.5 CREDITS**

HHP 125 incorporates a series of lessons in how the body functions and how to use it more intelligently. Through gentle and exploratory movements, you will learn to retrain the central nervous system and free yourself from habitual patterns of moving, thinking, and feeling that contribute to stress and dis-ease. Through increased bodily awareness, you will examine ways to move more easily during activities from vigorous sports to breathing, standing, and walking.

### **HHP 130 REIKI LEVEL ONE 1 CREDIT**

HHP 130 explores the traditional Usui use of Reiki. The course covers the history and development of

Reiki work, beginning in Japan, to Hawaii, to the U.S., and later Europe, and focuses on the fundamental beliefs and the dynamics of the Reiki process. It enables each student to receive Reiki attunements to prepare for the Reiki energy work. Each class member gives and receives a Reiki hands-on treatment session.

### **HHP 142 INTRODUCTION TO TRADITIONAL CHINESE MEDICINE 3 CREDITS**

HHP 142 introduces the theories and practice of Traditional Chinese Medicine (TCM), an ancient medical art. Basic theories are discussed, differentiation skills are practiced and treatment modalities are demonstrated.

### **HHP 145 DIGESTIVE WELLNESS 1 CREDIT**

HHP 145 provides you with information on nutritional and herbal self-care treatments. Digestive disorders will be discussed such as acid reflux, Crohns, heartburn, hernia, gas, and bloating.

### **HHP 161 MEDITATION FOR HEALING 1 CREDIT**

HHP 161 incorporates the practice of fundamental techniques for training your mind to be quiet and peaceful; to focus your thoughts on what you choose; to stimulate the Mind-Body conversation to enhance your own health.

### **HHP 164 INTRODUCTION TO HAND REFLEXOLOGY 1 CREDIT**

HHP 164 teaches hand anatomy, basic stroke techniques, and hand reflex points. Reflexology is a gentle art that holistically facilitates opening the channels for healing energy to circulate to all parts of the body. The benefits of reflexology include stress reduction and deep

relaxation, improved circulation, cleansing of body toxins and impurities, energy revitalization, and preventative health care.

### **HHP 166 INTRODUCTION TO REFLEXOLOGY 1 CREDIT**

HHP 166 provides you with knowledge and skill in foot anatomy, basic hand stroke, and foot reflex points. Reflexology is a gentle art that holistically facilitates opening the channels for healing energy to circulate to all parts of the body. Benefits include stress reduction and deep relaxation, improved circulation, cleansing of body toxins and impurities, revitalization of energy and preventative health care.

### **HHP 169 INTRODUCTION TO HEALING HANDS AND FEET 1 CREDIT**

Prerequisite HHP 164 or 166.

Corequisite HHP188.

HHP 169 studies combining the gentle healing hand energy work and gentle foot massage of reflexology in order to bring harmony to the body, mind, spirit, and emotions. You will be provided with the knowledge of how to combine these healing modalities into practice. Seven major energy charkas, how they affect one's own self-healing, and the four energy fields that surround people will be explored.

### **HHP 188 REFLEXOLOGY PRACTICUM 1 CREDIT**

Corequisite HHP 169.

HHP 188 provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **HHP 190 CRYSTAL AND MINERAL USAGE IN HEALTH CARE 0.5 CREDITS**

HHP 190 introduces you to crystal and mineral types, their properties and how to clear, clean, and use for personal use or with clients. The course incorporates hands-on experience to feel the different energies of crystals and minerals.

### **HHP 204 APPLIED AROMATHERAPY 3 CREDITS**

HHP 204 examination of aromatherapy will be implemented from a holistic view. How different practitioners use this healing art will also be studied, including aromatherapists, medical practitioners, nurses, counselors, psychologists, massage therapists, herbalists, and manufacturers of perfume. Current research on essential oils will be covered, and how this research is advancing the practical applications of aromatherapy. This course will also explore holistic factors in aromatherapy, among them the spiritual, biological, social, and environmental sectors.

### **HHP 211 HERBOLOGY II 2 CREDITS**

Prerequisite: HHP 111.

HHP 211 builds upon the information and skills obtained in HHP 111 and further explores the pharmacokinetics and composition of herbs and their effect on the body systems.

### **HHP 212 NEUROLINGUISTIC PROGRAMMING II 0.5 CREDITS**

HHP 212 enhances and expands your ability to build verbal and non-verbal rapport rapidly with others. It includes the process called anchoring, a gentle and respectful method of change. NLP II offers further integration of the



rapport skills taught in NLP I and moves on toward setting “well-formed” outcomes for any and all contexts. Students will discover why many goals do not manifest and differences that can make the difference. Students will explore how the mind (literally) codes experience and how it can be recoded. Additionally, a powerful pattern change is taught, which allows a person to stop unwanted habits or create desired behaviors.

### **HHP 213 SPIRITUAL CARE 0.5 CREDITS**

HHP 213 explores individual development through the life span. The course presents the healing aspects of various religions with correlation to the energy system with Florence Nightingale’s thoughts. Spiritual assessment and interventions for client care are covered.

### **HHP 214 EXPLORING YOUR DREAMS 1 CREDIT**

HHP 214 is a participatory course of dream interpretation leading to an awareness of the benefits of dreams as a valuable tool for facilitating health and personal growth. Participants learn simple tools for dream recall, recording dreams and uncovering the many levels of meaning that are found in every dream. You will evaluate your lifestyle and develop an individual concept of wellness and optimal health by tapping into your dreams as a source for reducing stress and increasing spirituality and inner growth.

### **HHP 215 THE ROLE OF ART IN HEALING 1 CREDIT**

HHP 215 provides an overview of the role of visual art in healing and includes both didactic information and experiential learning. This course enables you to learn how the

role of art in healing has evolved over the years and how to explore different models, approaches, and focuses of healing through visual art. A secondary goal of the course is to help you discover, through art, things about yourself which can enhance your professional work.

### **HHP 221 HIGH LEVEL WELLNESS 1 CREDIT**

HHP 221 explores the positive dimensions of healthy lifestyles and covers the techniques required to meet the basic needs of illness, prevention, and burnout.

### **HHP 223 JIN SHIN LEVEL I 2 CREDITS**

HHP 223 provides basic understanding of the human energy system from an Asian perspective. Jin Shin is non-invasive, performed with light touch on various ‘acupoints’ on the body. This course enables you to learn to identify, access, open, and balance the energy of yourself and others within the Jin Shin system. Four Jin Shin sessions are given and received.

### **HHP 224 INTRODUCTION TO MASSAGE THERAPY 1 CREDIT**

Corequisite HHP 225. HHP 224 provides hands-on techniques to complete a full body massage along with integration of healing touch. Swedish massage techniques and basic foot reflexology combined with a complete energy balance are performed and experienced by each student.

### **HHP 225 EXPANDED CONCEPTS OF MASSAGE 1 CREDIT**

HHP 225 Builds on techniques you learned during HHP 224 Introduction to Massage. It includes application of massage techniques with special populations and it also

examines related basic therapeutic approaches such as hydrotherapy and acupuncture. Considerations for developing professional practice are also addressed.

### **HHP 227 COMMUNICATION SKILLS 0.5 CREDITS**

HHP 227 assists you in acquiring essential skills in communication, conflict resolution, negotiation, and team building.

### **HHP 228 SOLUTION FOCUSED PERSONAL COACHING 0.5 CREDITS**

HHP 228 explores the practice of the effective, quick, Emotional Freedom Technique (EFT), allowing you and others to become more focused.

### **HHP 229 WELLNESS COUNSELING 1 CREDIT**

HHP 229 provides the tools to facilitate yourself and others in the movement towards wellness. It enables you to learn assessment and basic counseling skills to establish contacts and goals for change.

### **HHP 230 JIN SHIN LEVEL TWO 2 CREDITS**

HHP 230 allows the student who has completed HHP 223 to gain advanced experience with this hands-on non-invasive Chinese technique. An expansion of Jin Shin Level One material includes how to read combination pulses and to do flows that balance the body at deeper levels. At the end of Jin Shin Level Two, you will be able to take pulses and administer a full session of Jin Shin to yourself and others. A certificate will be issued to passing students that will place them at Jin Shin Practitioner status within the High Touch Jin Shin Network.

**HHP 235 MIND, BODY  
HEALING AND HEALTH  
3 CREDITS**

HHP 235 focuses on the survey of the rapidly developing awareness of the inner-connectedness of mind and body and spirit. The course explores the dialog between eastern and western health care and the many choices which could enhance health and well-being.

**HHP 236 DANCE THERAPY  
AND HEALING  
0.5 CREDITS**

HHP 236 introduces the theories of Marian Chace/Group Development, Balanche Evan/Creative Movement, and Mary Whitehouse/Authentic Movement. Dance therapy principles can be applied to all caregiver interactions in which professionals want to increase empathy and communication. Participants should come dressed in loose, comfortable clothing. No prior movement experience is necessary.

**HHP 239 ISSUES IN HOLISTIC  
NUTRITION  
0.5 CREDITS**

HHP 239 examines the nutritional alternatives to traditional medical therapies. The discussions will focus on a more optimum level of health using various nutritional techniques.

**HHP 241 HEALING WITH  
IMAGERY  
0.5 CREDITS**

HHP 241 explores the ancient mysteries of shaman healers and the clinical research now validating this power. Learn effective techniques which accelerate healing and develop insight.

**HHP 242 HEALING TOUCH  
LEVEL I  
1 CREDIT**

Healing Touch is energy-based therapeutic approach to healing. The course enables you to develop and use touch as a means of

assessing a client's/patient's state of wellness through the intentional use of touch. Participants are given specific instructions in developing touch sensitivity and practice the assessment and healing methods. Healing Touch is a multi-level program that moves from beginning to advanced practice. After completion of Level 3, you are eligible to apply for certification as a healing touch practitioner.

**HHP 243 HEALING TOUCH  
LEVEL II  
1 CREDIT**

Prerequisite: HHP 242.  
HHP 243 builds upon the knowledge and skills obtained in HHP 242. You will gain the specific skills necessary to become an advanced practitioner. The course emphasizes experiential learning and focuses on developing healing sequences for specific client needs. Back techniques are introduced, and the therapeutic interactions for specific emotional and physiological problems are discussed and practiced.

**HHP 244 HOLISTIC HEALTH  
LEVEL I  
1 CREDIT**

HHP 244 introduces holistic philosophy, theory and practice and how it integrates with nursing in the art and science of caring and healing. The course focuses on conscious application of self-responsibility, caring, human development, stress reduction, communication, problem-solving, teaching, learning, leadership, and change.

**HHP 245 HEALING TOUCH  
LEVEL III  
1 CREDIT**

HHP 245 includes further development of Higher Sense Perception (HSP), sequencing of healing techniques, working with guidance, self-healing, self-development, learning about other healers, and advanced healing

methods. Level III Healing Touch is for students who have completed Level I and Level II and desire more in-depth experience. (30 Continuing Education Contact Hours)

**HHP 246 REIKI LEVEL II  
1 CREDIT**

Prerequisite: HHP 130.  
HHP 246 builds upon the knowledge and skills obtained in HHP 130. You will learn the meaning of the three traditional Usui symbols. It incorporates in-depth discussion about application of the three symbols. You will learn about the necessary preparation of a Reiki therapist in offering treatments. One attunement is given to each student. Each member gives and receives a Reiki treatment using the three Reiki symbols. Long Distance and Mental Reiki processes are learned. Reiki Therapist Certification is available at completion.

**HHP 249 HEALING AND  
SPIRITUAL JOURNALING  
1 CREDIT**

HHP 249 incorporates using a journal as an effective tool for looking at personal growth process, as well as for helping clients in their healing process. The course teaches journaling skills and how to focus specifically on healing through various techniques.

**HHP 254 HOLISTIC HEALTH  
LEVEL II  
2 CREDITS**

Prerequisite: HHP 244.  
HHP 254 provides a more comprehensive study of modalities to strengthen the whole person in the process of facilitating and maintaining optimal health using the basic theory of Holistic Nursing Level I.

## **HIS – History**

[WWW.RRCC.EDU/HISTORY](http://WWW.RRCC.EDU/HISTORY)

### **HIS 101 WESTERN CIVILIZATION I 3 CREDITS**

HIS 101 explores a number of events, people, groups, ideas, institutions, and trends that have shaped Western Civilization from the prehistoric era to 1650. The course reflects the multiple perspectives of gender, class, religion, and ethnic groups. It focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in this discipline.

### **HIS 102 WESTERN CIVILIZATION II 3 CREDITS**

HIS 102 explores a number of events, people, groups, ideas, institutions, and trends that have shaped Western Civilization from 1650 to the present. The course reflects the multiple perspectives of gender, class, religion, and ethnic groups. It focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in this discipline.

### **HIS 111 WORLD CIVILIZATION I 3 CREDITS**

HIS 111 enables you to view history up to 1500 CE in a broad global sense. This course focuses on the common denominators among all people. This approach goes beyond political borders to provide a better appreciation for different cultures.

### **HIS 112 WORLD CIVILIZATION II 3 CREDITS**

HIS 112 enables you to view history post-1500 CE in a broad global sense. This course focuses on the common denominators among all people. This approach goes beyond political borders to provide a better appreciation for different cultures.

### **HHP 256 HOLISTIC HEALTH LEVEL III 2 CREDITS**

Prerequisites: HHP 244 and HHP 254. HHP 256 builds on the basic theory introduced in Holistic Nursing Level II and provides a more comprehensive study of modalities to strengthen the whole person in the process of facilitating and maintaining optimal health.

### **HHP 260 ADVANCED REFLEXOLOGY 1 CREDIT**

Prerequisite: HHP 164 or 166. HHP 260 incorporates a hands-on approach with an emphasis on developing techniques. It continues the basic reflexology class and allows you to work on hand positions while addressing specific techniques for specific issues.

### **HHP 262 PSYCHONEUROIMMUNOLOGY 0.5 CREDITS**

HHP 262 studies the inter-relationship of the body-mind connection and explores the physiological and psychological interaction between the brain, the immune system, and the endocrine system.

### **HHP 263 CREATING A HOLISTIC PRACTICE 0.5 CREDITS**

HHP 263 focuses on the necessary skills to start an independent practice. It includes self-assessment of professional skills, the business plan for marketing, finances, and the actual design of the practice.

### **HHP 265 GIFT OF SELF-ESTEEM 1 CREDIT**

HHP 265 explores self-talk, self-appreciation, self-responsibility, belief, expectations and provides tools for increasing personal power.

### **HHP 267 LIVING WITHOUT LIMITS 0.5 CREDITS**

HHP 267 focuses on the steps that can be taken to clarify goals, obtain support for challenges, and act effectively to accomplish life dreams.

### **HHP 269 HEALING PRESENCE 1 CREDIT**

HHP 269 provides the opportunity to explore the meaning of presence through the process of increased self-awareness and self-discovery, as well as development of essential skills for connecting on a higher level with yourself and others.

### **HHP 270 CLINICAL 2 CREDITS**

HHP 270 continues to build upon the principles that are expected to be understood by students in the holistic health discipline.

### **HHP 276 YOUR HEART'S INTENTION 1 CREDIT**

HHP 276 looks at our heart's intention and what this means in our healing practice, work practice and everyday living. We will observe and discuss: intuition, knowing, seeing, different techniques for manifesting, the laws of attraction, and journaling growth as a healer or as you continue your chosen path. Discussion about self, self worth and how to accept success. The student will be exposed to different types of medications, journaling, and working on manifesting their personal goals.

**HIS 201 UNITED STATES HISTORY I  
3 CREDITS**

HIS 201 explores events, trends, people, groups, cultures, ideas, and institutions in North America and United States history, including the multiple perspectives of gender, class, and ethnicity between the period when Native American Indians were the sole inhabitants of North America and the American Civil War. It focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in the discipline.

**HIS 202 UNITED STATES HISTORY II  
3 CREDITS**

HIS 202 explores events, trends, people, groups, cultures, ideas, and institutions in United States history, including perspectives of gender, class, and ethnicity between the period of the American Civil War and the present. It focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in the discipline.

**HIS 207 AMERICAN ENVIRONMENTAL HISTORY  
3 CREDITS**

HIS 207 traces and analyzes the relationships between Americans and their natural environments throughout the history of the United States. Environmental history interprets the changing ways diverse people have used and viewed their environments over time. It examines the development of conservation movements and environmental policies in modern America.

**HIS 208 THE NATIVE AMERICAN EXPERIENCE  
3 CREDITS**

HIS 208 analyzes historical and socio-cultural change for Native Americans (Indians) from pre-

colonial America to the present, emphasizing those processes and relations with non-Native Americans which have contributed to the current conditions

**HIS 215 WOMEN IN U.S. HISTORY  
3 CREDITS**

HIS 215 examines women's changing roles in American history from the pre-colonial native population to the present. The course emphasizes the nature of women's work and the participation of women in the family, political, religious, and cultural activities and in social reform movements.

**HIS 225 COLORADO HISTORY  
3 CREDITS**

HIS 225 presents the story of the people, society, and cultures of Colorado from its earliest Native Americans through the Spanish influx, the explorers, the fur traders and mountain men, the gold rush, railroad builders, the cattlemen and farmers, the silver boom, the tourists, and the modern state.

**HIS 235 HISTORY OF THE AMERICAN WEST  
3 CREDITS**

HIS 235 traces the history of the American West from the Native American cultures and the frontier experiences of America's earliest, eastern settlers through the Trans-Mississippi West, across the great exploratory and wagon trails, and up to the present West, be it urban, ranching, reservation, resource management, or industrial. The course emphasis is the northern and central parts of the West.

**HIS 236 CONTEMPORARY UNITED STATES HISTORY  
3 CREDITS**

HIS 236 focuses on the major political, economic, social, and cultural developments that have shaped modern America.

**HIS 247 20TH CENTURY WORLD HISTORY  
3 CREDITS**

HIS 247 investigates the major political, social, and economic developments; international relationships; scientific breakthroughs; and cultural trends that have shaped the various global regions and nation-states from 1900 to the present. The course emphasizes the interactions of global regions and nation-states.

**HIS 275 SPECIAL TOPICS  
3 CREDITS**

HIS 275 focuses on the exploration of current topics, issues, and activities related to one or more aspects of history.

**HPR – Health Professional**

[WWW.RRCC.EDU/HEALTH](http://WWW.RRCC.EDU/HEALTH)

**HPR 100 INTRODUCTION TO HEALTH  
3 CREDITS**

HPR 100 provides an exploratory course for students interested in a health career. Basic health skills such as vital signs and CPR will be included

**HPR 102 CPR FOR PROFESSIONALS  
0.5 CREDITS**

HPR 102 meets the requirement for the American Red Cross Professional Rescuer CPR or American Heart Association Basic Life Support for those who work in emergency services, health care, and other professional areas. Material presented in the course is basic patient assessment, basic airway management, rescue breathing, and CPR for infant, children, and adult patients.

**HPR 103 CPR FOR PROFESSIONALS RENEWAL 0.5 CREDITS**

Prerequisite: Current health care provider CPR card.  
HPR 103 provides the opportunity for currently certified CPR providers to renew certificates.

**HPR 106 LAW AND ETHICS FOR HEALTH PROFESSIONS 2 CREDITS**

HPR 106 advances your knowledge in the study and application of medico-legal concepts in medical careers and establishes a foundation for ethical behavior and decision-making.

**HPR 108 DIETARY NUTRITION 1 CREDIT**

HPR 108 studies the basic principles in clinical practice involved in the assistance of health care. The course will cover factors which influence the nutritional status of individuals, methods of nutritional assessment and support, and diet modification for specific disease states.

**HPR 112 PHLEBOTOMY 4 CREDITS**

HPR 112 teaches the duties associated with the practice of venipuncture, capillary puncture, and special collection procedures. You will have experience with quality control, infection control and safety procedures as well as laboratory computer systems. Those students who successfully complete this course may apply for a National Phlebotomy Registry Examination.

**HPR 120 ADVANCED CARDIAC LIFE SUPPORT (ACLS) 1 CREDIT**

Prerequisite: Current basic life-support health care provider C card  
HPR 120 presents the required material for ACLS completion. It will cover arrhythmias, medications, therapeutic modalities for life-threatening arrhythmias, airway

management, and other treatment modalities used in cardiac and respiratory arrest.

**HPR 121 ADVANCED CARDIAC LIFE SUPPORT RENEWAL 0.5 CREDITS**

Prerequisite: ACLS completion with current card.  
HPR 121 presents the required material for ACLS renewal. The course will cover rhythm recognition, cardiac drugs, cardiac monitors, and case-based scenarios.

**HPR 125 OUTDOOR EMERGENCY CARE 4 CREDITS**

HPR 125 prepares you without previous first aid training to handle the emergency care problems seen at alpine and nordic ski areas. The knowledge and skills are oriented toward the wilderness setting with special emphasis on ski and snowboard injuries, altitude and cold weather illnesses, wilderness extrications, and the special equipment ski patrollers need for emergency care and transportation in the outdoor environment. This is a National Ski Patrol course.

**HPR 126 OUTDOOR EMERGENCY CARE REFRESHER 0.5 CREDITS**

HPR 126 provides maintenance of a uniform skill level and acts as a means of national recertification for Outdoor Emergency Care.

**HPR 130 PEDIATRIC ADVANCED LIFE SUPPORT (PALS) 1 CREDIT**

HPR 130 provides the needed information and skills required by health care agencies for pediatric emergencies.

**HPR 131 PEDIATRIC ADVANCED LIFE SUPPORT RENEWAL 0.5 CREDITS**

Prerequisite: Current PALS card.  
HPR 131 provides updates and skill practice to complete renewal requirements for the PALS completion card.

**HPR 178 MEDICAL TERMINOLOGY 2 CREDITS**

HPR 178 introduces the structure of medical terms with emphasis on combining and using the most common prefixes, roots, and suffixes. It includes terms related to clinical laboratory, diagnostic imaging, nuclear medicine, and oncology as well as major body systems. Classroom structure provides accepted pronunciation of terms and relative use in the health care setting.

**HPR 180 PHLEBOTOMY INTERNSHIP 3 CREDITS**

Prerequisite: HPR 112.  
HPR 180 provides you with the opportunity to supplement coursework with practical work experience related to their educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor. Documentation of immunizations and permission of instructor are required.

**HPR 190 BASIC EKG INTERPRETATION 2 CREDITS**

HPR 190 provides instruction for interpretation of EKG strips, and anatomy and physiology of the heart using three-lead monitoring as a guide. Twelve-lead EKG may be discussed.

**HPR 200 12 LEAD EKG INTERPRETATIONS  
2 CREDITS**

Prerequisite: HPR 190.

HPR 200 focuses on each wave and interval of the complex, the axis, and the 12-lead presentation of some rhythm disturbances.

**HPR 210 PHYSICAL ASSESSMENT  
2 CREDITS**

Prerequisite: Current RN license.

HPR 210 explores how to obtain a complete health history, which is integrated with a physical exam. The assessment skills of inspection, palpation, percussion and auscultation are practiced in class. Proper use of equipment such as the otoscope, tuning fork, ophthalmoscope, and reflex hammer are included.

**HPR 215 PHLEBOTOMY REFRESHER  
1 CREDIT,**

Prerequisite: HPR 112.

Permission of the instructor needed. HPR 215 covers OSHA regulations, collection procedures, and requirements for various laboratory tests, phlebotomy technique, problem-solving, legal implications, and rights of the phlebotomist and patient.

**HPR 230 TRAUMA ASSESSMENT AND INTERVENTION  
1 CREDIT**

HPR 230 presents the steps for a systematic head-to-toe assessment and intervention in traumatic emergencies.

**HPR 260 BEREAVEMENT COUNSELING  
0.5 CREDITS**

HPR 260 presents current principles for bereavement counseling. The stages of the grieving process, coping mechanisms, and feelings regarding death will be explored.

**HPR 263 CHILD SELF-ESTEEM  
1 CREDIT**

HPR 263 focuses on skill building in communication, self-expression, and conflict resolution for those dealing with children.

**HPR 269 STRESS MANAGEMENT  
0.5 CREDITS**

HPR 269 provides you with the specific skills that provide control over stressful situations or people. The class is designed for all who are interested in a higher quality of life and want to reach their full potential.

**HUM – Humanities**

[WWW.RRCC.EDU/HUMAN](http://WWW.RRCC.EDU/HUMAN)

**HUM 118 RELIGION IN AMERICAN CULTURE  
3 CREDITS**

HUM 118 investigates the various ways in which religion and American culture interact. The course begins with the religion of Native Americans, which existed in a pre-modern society where religion went unchallenged as the pre-eminent organizing principle, to the post-modern era, where religion competes with a multiplicity of other belief systems in a complex societal matrix. This course pays close attention to the sundry ways in which religion and American culture interface.

**HUM 121 HUMANITIES: EARLY CIVILIZATIONS  
3 CREDITS**

HUM 121 introduces you to the history of ideas that have defined cultures through a study of the visual arts, literature, drama, music, and philosophy. It emphasizes connections among the arts, values, and diverse cultures, including European and non-European, from the ancient world to 1000 C.E.

**HUM 122 HUMANITIES: FROM MEDIEVAL TO MODERN  
3 CREDITS**

HUM 122 examines written texts, visual arts, and musical compositions to analyze and reflect the evolution and confluence of cultures in Europe, Asia, and the Americas from 800 C.E. to 1750. Any two of the three Survey of Humanities courses equal a sequence.

**HUM 123 HUMANITIES: THE MODERN WORLD  
3 CREDITS**

HUM 123 examines the cultures of the 17th through the 20th centuries by focusing on the inter-relationships of the arts, ideas, and history. The course considers the influences of industrialism, scientific development, and non-European people.

**HVA – Heating Ventilation and Air Conditioning**

[WWW.RRCC.EDU/CONSTRUCTION](http://WWW.RRCC.EDU/CONSTRUCTION)

**HVA 102 BASIC REFRIGERATION  
4 CREDITS**

Prerequisite: HVA 100 or OSH 127 or 10 Hour OSHA card. HVA 102 introduces the basic theory of refrigeration systems, components, charging, recycling, and evacuation of refrigeration units.

**HVA 105 ELECTRICITY FOR HVAC/R  
4 CREDITS**

Prerequisite: HVA 100 or OSH 127 or 10 Hour OSHA card. HVA 105 teaches resistance, current, voltage and power in AC and DC circuits; measurements; computations of series and parallel circuits; circuit analysis and

troubleshooting with basic test equipment.

### **HVA 110 FUNDAMENTALS OF GAS HEATING 4 CREDITS**

Co-requisite: OSH 127, HVA 105 or permission of the instructor. HVA 110 introduces you to the fundamentals of gas heating. You will work in a classroom and shop environment. Topics include the basics of gas heating systems, operation of gas valves and burners, gas pipe system design, gas piping system code requirements and basic code requirements for heating systems.

### **HVA 111 PIPING SKILLS 4 CREDITS**

Corequisite: OSH 127. HVA 111 studies the installation of common piping materials in plumbing and HVAC/R systems. Pipe math, terminology, common piping materials and application, figuring offsets and common pipe joints are also covered. Shop projects including pipe support and hanging, center to center measurements and a variety of pipe joining methods are explored.

### **HVA 112 R-410A 1 CREDIT**

HVA 112 enlightens you on conditions required for proper operation with R-410a.

### **HVA 113 REFRIGERANT RECOVERY TRAINING 1 CREDIT**

Prerequisite: OSH 127, VA 102 or permission of the instructor. HVA 113 explains the laws regarding refrigerant recovery. The course includes hands-on use of recovery equipment. Upon successful completion of this course you will be prepared to take the EPA certification test. Test is offered following the class. Test fee is not included in course fee.

### **HVA 114 CENTRIFUGAL PUMPS 1.5 CREDITS**

HVA 114 presents information on why and how pumps are designed. It will cover how pumps work and what causes pumps to fail. Topics covered include pump basics, pump theory, pump systems, pump design and selection, horizontal pump installation, and pump maintenance and troubleshooting.

### **HVA 122 COMMERCIAL REFRIGERATION 4 CREDITS**

HVA 122 covers commercial ice makers, walk-in coolers, walk-in freezers, and self-contained \ refrigeration units.

### **HVA 131 REFRIGERATION AND AIR CONDITIONING BASICS 1.5 CREDITS**

HVA 131 covers the basics of refrigeration and air conditioning and provides a blend of theory with hands on training. The course covers the practical application of refrigeration and air conditioning in domestic, commercial, and heat pump applications. It also provides a basis of information allowing you an understanding of servicing and troubleshooting techniques. EPA certification testing, plus HVAC Excellence Technician's Certificate testing are offered.

### **HVA 132 AIR CONDITIONING AND REFRIGERATION CONTROLS 4 CREDITS**

Prerequisites: HVA 102 and 105, or permission of instructor. HVA 132 applies the knowledge of basic electricity to controls related to air conditioning and refrigeration equipment. The course also works on reading and drawing schematic and ladder diagrams.

### **HVA 134 AIR CONDITIONING SYSTEMS 4 CREDITS**

HVA 134 studies the basics of air conditioning system design, operation and installation. You will learn how cooling systems can be designed with human comfort and efficient operation in mind. Time is spent in the shop installing components related to these systems.

### **HVA 140 BASIC SHEET METAL 4 CREDITS**

HVA 140 teaches the basic skills required to install duct systems for those entering the HVAC trade. Information covered includes: tools, safety, common materials, installation standards and practices. The course will cover fabrication of transitions and common fittings.

### **HVA 141 SHEET METAL FABRICATION 2 CREDITS**

HVA 141 covers the basics of shop based sheet metal tools and hand tools and how they can be used to create fittings for residential ducting systems. Safety and operation of tools will be stressed. You will learn to layout and fabricate a furnace plenum, a transition, square and radius elbows, and other fittings as time permits.

### **HVA 146 HVA INSTALLATION CODE 2 CREDITS**

HVA 146 covers mechanical code requirements for combustion air systems, venting systems, fuel piping systems in residential applications.

### **HVA 162 HEATING CONTROLS 4 CREDITS**

Prerequisites: HVA 110 and 105, or permission of the instructor. HVA 162 applies the knowledge of Basic Electricity to Controls related to heating equipment. This includes

boilers and furnaces with emphasis on ignition and controls related to high efficiency heating equipment. Course work includes reading and drawing ladder and schematic wiring diagrams.

### **HVA 192 REFRIGERANT RETROFIT TRAINING 1.5 CREDITS**

HVA 192 allows you to understand and gain knowledge to perform refrigerant retrofit. This course will provide you with a working knowledge of alternative refrigerants plus an understanding of retrofit procedures. A quick history of CFC ozone depletion will give you an understanding of EPA mandates. You have an opportunity to become EPA certified.

### **HVA 193 HYDRAULICS TRAINING 1.5 CREDITS**

HVA 193 increases knowledge of basic hydraulics to become a better troubleshooter and lower maintenance costs. Training stations are utilized in each training session. Cutaways of all major components are used in the sessions to visually demonstrate the component's construction and operation. Developing an understanding of how it works leads to an understanding of how and why it fails.

### **HVA 194 FUNDAMENTALS OF PNEUMATIC CONTROLS 1.5 CREDITS**

HVA 194 introduces the subject of pneumatic comfort controls. It is device oriented and provides a thorough treatment of those devices commonly utilized in comfort control systems including theory and basic operation of pneumatic thermostats, receiver-controllers, relays, dampers, valves and pneumatic actuators. Calibration, operation and preventive maintenance aspects of these components are highlighted.

### **HVA 200 INTERNATIONAL RESIDENTIAL CODE – MECHANICAL & FUEL GAS 2 CREDITS**

HVA 200 covers the mechanical and fuel gas requirements of the IRC. You will be given the opportunity to learn and apply the general requirements of this code. The course will review and apply the sizing requirements of parts V & VI of this code.

### **HVA 206 MECHANICAL CODES 4 CREDITS**

HVA 206 reviews in detail the International Mechanical Code. The course is intended to give those entering the HVAC/R trade as well as experienced trades people taking certification examinations a solid knowledge of this code.

### **HVA 226 BOILER OPERATOR 1.5 CREDITS**

Prerequisite: Documental boiler experience or permission of the instructor.  
HVA 226 gives you the opportunity to learn all facets of boiler operation, maintenance and repair. The course will review mathematical formulas used in boiler plant operation.

### **HVA 231 PNEUMATIC CONTROLS 4 CREDITS**

Prerequisites: HVA 102,105,132 or permission of the instructor.  
HVA 231 covers pneumatic controls and systems used in controlling commercial and industrial HVAC equipment. The course includes lab experimentation with pneumatic controls, rebuilding of valves and actuators and calibration of various types of controls. You will work with controls from most of the major manufacturers.

### **HVA 232 ADVANCED AIR CONDITIONING AND REFRIGERATION CONTROLS 4 CREDITS**

Prerequisites: HVA 102, HVA 105, HVA 113, HVA 132.  
HVA 232 covers the advanced study of air conditioning and refrigeration controls.

### **HVA 233 ADVANCED REFRIGERATION 4 CREDITS**

Prerequisites: HVA 100 or OSH 127, HVA 102, 105, 113, 132.  
HVA 233 builds on the skills acquired in refrigeration fundamentals. You will have an opportunity to study and to work on rooftop units, ice machines, and commercial reach-in and walk-in coolers.

### **HVA 240 SERVICING FORCED AIR SYSTEMS 4 CREDITS**

Prerequisites: HVA 100 or OSH 127, HVA110, 105, 162 or permission of the instructor.  
HVA 240 covers the operation, repair and maintenance of forced air heating systems. The course studies the different types of furnaces, code requirements, common controls and mechanical problems. This course also explores the A.G.A. approved method of testing furnace heat exchangers. Customer relations and workplace behavior are discussed.

### **HVA 247 HOT WATER HEATING SYSTEMS 4 CREDITS**

Prerequisites: HVA 105, HVA 110, HVA 111 or PLU 101, HVA 162 or permission of the instructor.  
HVA 247 covers the theory of operation behind these systems, as well as installation, maintenance and repair. The course also examines air elimination, circulator pump and pipe sizing. Boiler and heat convector sizing are also discussed.



**HVA 251 BUILDING  
AUTOMATION I, INSTALLER  
4 CREDITS**

Prerequisite: Basic understanding of PCs and Windows operating system, wiring skills and HVAC experience. HVA 251 provides you with an overview of building automation systems. This course helps you to understand the installation of building automation devices with regard to HVAC equipment.

**HVA 252 BUILDING  
AUTOMATION II, SERVICE  
4 CREDITS**

Prerequisite: HVA 251. HVA 252 covers operating and modifying an installed building automation system. This is a highly interactive course where you will learn and exercise common applications of a building management system.

**HVA 253 BUILDING  
AUTOMATION III, ADVANCED  
OPERATIONS  
4 CREDITS**

Prerequisite: HVA 252. HVA 253 covers complete set up and programming of a building automation system. The class includes extensive hands-on workshops.

**HVA 257 LOW-PRESSURE  
STEAM HEATING  
4 CREDITS**

Prerequisites: HVA 105, 110, 162, 206, 247 or permission of the instructor. HVA 257 examines low pressure steam systems including boilers, piping, heat convectors. Repair and maintenance of these systems is covered as well as theory behind their operation. Boiler feed water and condensate systems are also discussed.

**HVA 261 A/C SYSTEMS  
SERVICE AND REPAIR  
4 CREDITS**

Prerequisites: HVA 100 or OSH 127, HVA 102, 105, or permission from instructor. HVA 261 emphasizes the service of HVAC systems. You will develop a preventative maintenance program for various types of equipment; both commercial and residential. Troubleshooting techniques and equipment repair and rebuilding are discussed. Additional time is spent on equipment change outs, upgrading and retrofitting different refrigerants.

**HVA 263 CHILLERS  
4 CREDITS**

Prerequisites: HVA 100 or OSH 127, HVA 102, 105, 113, 132. HVA 263 introduces you to chillers and their operating parameters.

**HVA 264 EVAPORATIVE  
COOLING SYSTEMS WATER  
TREATMENT  
4 CREDITS**

Prerequisites: HVA 100 or OSH 127, HVA 102, 103, 105, 113, 132, or permission from the instructor. HVA 264 covers aspects of commercial and residential evaporative cooling systems. Areas examined include maintenance to these systems, water treatment, sizing, pumps and piping.

**HVA 267 RADIANT HEATING  
SYSTEMS  
4 CREDITS**

Prerequisites: HVA 111 or PLU 101, HVA 110, 105, 162, 247 or permission of the instructor. HVA 267 covers the theory of operation, installation and maintenance of warm water radiant heating systems in a combination of lecture and lab. Different methods of zoning, controls, piping methods, piping types and system components are discussed. Upon successful completion, you will be able to design, install, document,

maintain and trouble-shoot all conventional residential warm water, radiant panel heating systems.

**HVA 268 ADVANCED  
HYDRONIC CONTROLS  
4 CREDITS**

Prerequisites: HVA 110, 111 or PLU 101, HVA 162, 247, 267 or permission of the instructor. HVA 268 takes the operation of hydronic heating systems and allows you to apply the knowledge of advanced hydronic controls to them. You must have a solid field background or education in hydronic heating, electricity and heating controls prior to enrollment.

**HVA 269 INDOOR AIR  
QUALITIES AND VENTILATION  
4 CREDITS**

HVA 269 informs experienced HVAC contractors and service technicians of problems associated with indoor air quality and methods for improvement of the indoor environment. The Mechanical Code and other national standards are covered as well.

**HVA 275 SPECIAL TOPICS  
0.5-6 CREDITS**

HVA 275 provides you with a vehicle to pursue in depth exploration of special topics of interest.

**HVA 280 INTERNSHIP  
0.5-6 CREDITS**

Prerequisite: Permission of the instructor. HVA 280 gives you an opportunity to apply your course studies in a specific area.

**HVA 285 INDEPENDENT  
STUDY  
0.5-6 CREDITS**

Prerequisite: Permission of instructor. HVA 285 students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.

## **HWE – Health and Wellness**

**WWW.RRCC.EDU/HEALTH**

### **HWE 100 HUMAN NUTRITION 3 CREDITS**

HWE 100 introduces basic principles of nutrition with emphasis on personal nutrition. It satisfies the nutrition requirement of students entering health care professions.

### **HWE 101 CARDIO- PULMONARY RESUSCITATION (CPR)**

#### **1 CREDIT**

HWE 101 teaches emergency procedures for respiratory, obstructed airway, and cardiac arrest victims of all ages. It meets certification requirements of the American Red Cross and the American Heart Association.

### **HWE 120 WILDERNESS FIRST AID**

#### **1 CREDIT**

HWE 120 provides limited medical information to cope with basic wilderness emergencies.

### **HWE 129 WILDERNESS FIRST RESPONDER**

#### **4 CREDITS**

HWE 129 provides you with those skills and emergency medical care techniques used by guides, trip leaders, and others providing primary care in backcountry setting. You will be able to respond correctly to those medical and trauma situations commonly encountered when entry into the EMS system is delayed or unlikely.

### **HWE 250 AMERICAN COUNCIL ON EXERCISE PERSONAL TRAINER PREPARATORY COURSE**

#### **2 CREDITS**

HWE 250 provides you with theoretical knowledge and practical skills in preparation for the American

Council on Exercise (ACE) national certification exam in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise; essentials of the client-trainer relationship; conducting health and fitness assessments; and designing and implementing appropriate exercise programs.

## **IMA – Industrial Maintenance Technology**

**WWW.RRCC.EDU/ISOD**

### **IMA 100 INTRODUCTION TO INDUSTRIAL MAINTENANCE 3 CREDITS**

IMA 100 provides you with an overall perspective and foundation for the industrial maintenance field. You will be taught the fundamentals of machine operations commonly used in the manufacturing industry. Topics such as general maintenance procedures, consumable supplies, fasteners, and machine operating specifications will be covered. In addition, high emphasis will be placed upon the understanding of machine blueprints which detail all the systems which are part of a functioning machine. You will also be exposed to parts and specification manuals utilized in the repair of industrial machinery. Finally, you will begin to learn the logical process utilized in the diagnosis of broken, worn, and defective.

### **IMA 120 PUMPS, SEALS, ROTATING EQUIPMENT 3 CREDITS**

IMA 120 explains the theory and operation of various types of pumps and compressors in common use in the process and energy supply industries. Mechanical power transmission systems including direct coupling and v-belt drives will

be studied. The principles involved in the operation of centrifugal and positive displacement pumps and compressors will be discussed, along with the function of various components in pumps and compressors, disassembly and reassembly of pumps, compressors and mechanical drives, and troubleshooting pumps and compressors.

### **IMA 140 INDUSTRIAL PIPE AND PIPING SYSTEMS 3 CREDITS**

IMA 140 explains the use of piping standards and specifications, the identification and use of various materials, and material take-offs common to the process and energy supply industry. The installation and repair of industrial pipe systems commonly used in the conveying of gases and fluids will be covered. The course includes manually and automatically operated valves, regulators and other associated components. Students will work with steel, copper, and PVC pipe.

### **IMA 150 INDUSTRIAL PROBLEM SOLVING METHODS 2 CREDITS**

IMA 150 introduces you to individual and team problem solving techniques and methodologies. Techniques for handling complex, multi-faceted system failures are presented. You must demonstrate use of the techniques at both the individual and team level.

### **IMA 160 BASIC FLUID POWER 3 CREDITS**

IMA 160 provides an understanding of the fundamentals of fluid power, hydraulic transmission of force and energy, operation at the suction side of the pump, petroleum based hydraulic fluids, fire resistant hydraulic fluids, flow rates and velocity, properties of hydraulic fluids, and the function and construction of basic elements of a hydraulic or fluid power system. The

course will cover hydraulic symbols and prints used in industry.

### **IMA 210 VIBRATION PRINCIPLES I 3 CREDITS**

Prerequisite: permission of instructor.

IMA 210 will introduce the principles and basic techniques of industrial machinery vibration analysis. Successful students will be able to calculate vibration frequency from time domain data; convert vibration units of measure and signal detection; read and interpret basic FFT spectra; recognize various vibration sensors, mounting methods and instrumentation; and compare overall or single value vibration measurements against pre-established alert settings and perform basic FFT signature analysis.

### **IMA 211 VIBRATION PRINCIPLES II 3 CREDITS**

Prerequisite: IMA 210 or permission of instructor.

IMA 211 is a continuation of IMA 210 and successful students will be able to select the appropriate machinery vibration measurement technique; maintain a database of results and trends; establish and implement general overall level alarms; set up instruments for the basic resolution of amplitude, frequency and time; perform basic vibration analysis of machinery and components, such as shafts, bearings, gears, fans, pumps and motors, using spectrum analysis. In addition you will be able to classify, interpret and evaluate the test results in accordance with applicable specifications and standards; understand basic single plane balancing concepts; be aware of some causes and effects of bad measurement data; perform basic bump tests to determine natural frequencies and recommend minor corrective actions

### **IMA 250 INDUSTRIAL MACHINE LUBRICATION 3 CREDITS**

IMA 250 provides an understanding of the foundational principles and important considerations involved in properly lubricating industrial machines, including key components such as maintenance strategies, principles of surface protection, lubricant construction; lubricant selection for a variety of components, including rolling element bearings, plain bearings, gear drives, reciprocating engines, hydraulic systems, air compression systems, chains, cables and wire ropes; lubricant condition control; and lubricant storage and handling.

## **IND – Interior Design**

### **IND 100 INTERIOR DESIGN FUNDAMENTALS 4 CREDITS**

IND 100 introduces to design elements, principles and theory. Application techniques, emphasizing design relationships and composition will be explored. Basic skills and techniques of both visual and oral presentations will be introduced.

### **IND 111 DRAFTING FOR INTERIORS 4 CREDITS**

IND 111 introduces the basic drafting tools and techniques, graphic references and symbols, use of pencil and technical pen. Student learns to draft floor plans and interior elevations. Course also covers basic interior dimensioning and lettering as well as isometric drawing construction for interior components.

### **IND 114 SPACE PLANNING 3 CREDITS**

IND 114 teaches the principles and factors of space planning, and practice the space planning process through residential and light commercial applications. Students are introduced to interior architecture. Use of bubble diagrams and freehand ink presentation techniques are also included.

### **IND 117 INTERIOR TEXTILES 2 CREDITS**

IND 117 emphasizes the study of fabrics, fibers, weaves, finishes, dyeing, and printing methods for residential and commercial fabrics and carpets. Resources are discussed and developed.

## **ITA – Italian**

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

### **ITA 101 CONVERSATIONAL ITALIAN I 3 CREDITS**

ITA 101 provides the first course in a sequence for beginning students who wish to understand and speak Italian. The material includes basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

### **ITA 102 CONVERSATIONAL ITALIAN II 3 CREDITS**

Prerequisite: ITA 101 or permission of instructor.  
ITA 102 provides the second course in a sequence for students who wish to understand and speak Italian. The material continues to cover basic conversational patterns, expressions, and grammar.

## **JOU – Journalism**

[WWW.RRCC.EDU/MULTIMEDIA](http://WWW.RRCC.EDU/MULTIMEDIA)

Journalism classes reside under both the JOU and MGD prefixes, and classes are held in the Multimedia Graphic Design Department.

**PREREQUISITES:** basic computer skills. Basic computer skills are defined as basic keyboarding; uploading and downloading files from the Internet and external devices; using the Web for basic research; sending e-mail and attachments; basic file management; the ability to save information to a CD/DVD, flash drive, or external device; burning a CD/DVD; the ability to use the dock or start menu to open applications; create a new folder on the desktop or other location; and open files in an application. Students without these skills are required to take MGD 101 Introduction to Computer Graphics either concurrently or prior to taking other courses in the MGD/PHO/JOU department. If MGD 101 Introduction to Computer Graphics is not a requirement for your degree plan, it can be used as an elective

### **JOU 102 INTRODUCTION TO EDITING 3 CREDITS**

JOU 102 focuses on the process of editing articles for publication in newspapers, newsletters, magazines and the Internet. The Associated Press style is emphasized.

### **JOU 105 INTRODUCTION TO MASS MEDIA 3 CREDITS**

JOU 105 places the mass media in an historical and cultural perspective, considering the validity, integrity, and influence of the media in a democracy.

### **JOU 106 FUNDAMENTALS OF REPORTING 3 CREDITS**

JOU 106 introduces newswriting, reporting and interviewing with an emphasis on clarity, accuracy, completeness, timeliness and fairness.

### **JOU 111 PRINCIPLES OF ADVERTISING 3 CREDITS**

Recommended Prerequisites: MGD 111, MGD 112, MGD 114 and MGD 104.

JOU 111 employs design concepts, principles and practices for advertising management for the mass media.

### **JOU 114 TV PRODUCTION 3 CREDITS**

Recommended Prerequisite: MGD 104.

JOU 114 covers principles and techniques of television production, as well as the role of the director/producer.

### **JOU 121 PHOTOJOURNALISM 3 CREDITS**

JOU 121 provides an introductory, hands-on course in black-and-white photography, with an emphasis on photojournalistic techniques, processing and printing. This course includes an investigation of word/pictures relationships in creating photo essays for publications.

### **JOU 206 INTERMEDIATE NEWSWRITING AND EDITING 3 CREDITS**

Recommended Prerequisites: JOU 102 and JOU 106.

JOU 206 presents how to gather information as an investigative reporter through research of local, state and federal government publications, how to cover police beat and city hall, how our courts and regulatory agencies function, and how to cover other challenges as the environment, religion, science, medical, public safety and business.

### **JOU 215 PUBLICATIONS PRODUCTION AND DESIGN 3 CREDITS**

JOU 215 is a Capstone class, which students should take in their final semester prior to graduation. Students will participate in the planning, writing, design, and production processes of a non-newspaper publication.

### **JOU 241 MAGAZINE ARTICLE WRITING 3 CREDITS**

Recommended prerequisites: JOU 102, JOU 106 and JOU 206. JOU 241 studies trade, consumer and technical markets; manuscript development with emphasis on nonfiction; submission techniques; and trends affecting the marketing of manuscripts.

### **JOU 225 INTERNET MEDIA 3 CREDITS**

Recommended Prerequisites: MGD 101, MGD 104, MGD 111, MGD 112, MGD 114 and MGD 141.

JOU xxx explores techniques and approaches to the latest delivery methods for internet-based journalism. Students explore digital media concepts such as blogs, microblogs audio and video podcasting, e-zines and social networking. Students create journalistic pieces for internet based media, focusing on best journalistic practices, ethics of internet media, and technology emergence effecting digital journalism. Concepts in video production, photography, writing, sourcing, editing and additional relevant skills necessary for the citizen journalist are introduced. Students create all components for the online dissemination of news, documentary and infotainment.

## **JPN – Japanese**

**WWW.RRCC.EDU/LANGUAGES**

### **JPN 101 CONVERSATIONAL JAPANESE I 3 CREDITS**

JPN 101 introduces beginning students to conversational Japanese and focuses on understanding and speaking Japanese. It covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

### **JPN 102 CONVERSATIONAL JAPANESE II 3 CREDITS**

Prerequisite: JPN 101 or instructor permission.

JPN 102 continues the sequence for beginning students who wish to understand and speak Japanese. It covers basic conversational patterns, expressions, and grammar.

### **JPN 111 JAPANESE LANGUAGE I 5 CREDITS**

JPN 111 introduces a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the Japanese language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

### **JPN 112 JAPANESE LANGUAGE II 5 CREDITS**

JPN 112 continues Foreign Language I in the development of functional proficiency in listening, speaking, reading and writing the Japanese language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

## **LIT – Literature**

**WWW.RRCC.EDU/ENGLISH**

### **LIT 115 INTRODUCTION TO LITERATURE I 3 CREDITS**

LIT115 introduces you to fiction, poetry, and drama. The course emphasizes active and responsive reading.

### **LIT 127 STUDY OF THE NOVEL 3 CREDITS**

LIT127 focuses on careful reading and interpretation of selected novels representing types and periods of literature. You will examine formal as well as thematic elements of longer fiction. Critical thinking, discussion, and writing about novels will enhance perceptive reading skills and heighten awareness of the human condition.

### **LIT 145 WOMEN IN LITERATURE AND SOCIETY 3 CREDITS**

LIT 145 reviews significant world literature from the standpoint of depiction of women in literature as a reflection of women's roles in society.

### **LIT 201 MASTERPIECES OF LITERATURE I 3 CREDITS**

LIT 201 examines significant writings in world literature from the ancients through the Renaissance. The course emphasizes careful readings and understanding of the works and their cultural backgrounds.

### **LIT 202 MASTERPIECES OF LITERATURE II 3 CREDITS**

LIT 202 examines significant writings in world literature from the seventeenth century to the present. The course emphasizes careful reading and understanding of the works and their cultural backgrounds.

### **LIT 205 ETHNIC LITERATURE 3 CREDITS**

LIT 205 focuses on significant texts by ethnic Americans, including African-American, Native American, Latino/a, and Asian American. The course emphasizes careful reading and understanding of the cultural and literary elements of the works.

### **LIT 211 SURVEY OF AMERICAN LITERATURE I 3 CREDITS**

LIT 211 provides an overview of American literature from the Native American through the nineteenth century Romantics and explores ideas, historical and social contexts, themes, and literary characteristics of works in various genres by major writers.

### **LIT 212 SURVEY OF AMERICAN LITERATURE II 3 CREDITS**

LIT 212 provides an overview of American literature from the mid-nineteenth century to the present and explores ideas, historical and social contexts, themes, and literary characteristics of works in various genres by major writers.

### **LIT 221 SURVEY OF BRITISH LITERATURE I 3 CREDITS**

LIT 221 provides an overview of British literature from the Anglo-Saxon period through the seventeenth century. The course explores ideas, historical and social contexts, themes, and literary characteristics of works in various genres by major writers.

### **LIT 222 SURVEY OF BRITISH LITERATURE II 3 CREDITS**

LIT 222 provides an overview of British literature from the eighteenth century to the present. The course explores ideas, historical and social contexts, themes, and literary characteristics of works in various genres by major writers.

**LIT 225 INTRODUCTION TO SHAKESPEARE  
3 CREDITS**

LIT 225 explores a selection of works by William Shakespeare. The course focuses on careful reading and interpretation of the plays and poems, includes pertinent information about Elizabethan England, and examines formal as well as thematic elements of the selected works.

**LIT 232 GOTHIC LITERATURE  
3 CREDITS**

LIT 232 provides an overview of Gothic literature from the 1750's to the present. The course work emphasizes careful reading, analysis, interpretation, and understanding of the work, and their cultural and historical backgrounds. Critical thinking, discussion, and writing about significant works of Gothic literature will be used as tools to develop discriminating reading skills for lifetime enjoyment.

**LIT 235 SCIENCE FICTION  
3 CREDITS**

LIT 235 examines the techniques and issues of science fiction through a close reading of a variety of writers in the genre.

**LIT 255 CHILDREN'S LITERATURE  
3 CREDITS**

LIT 255 evaluates the criteria for selecting appropriate literature for children through exploration of genres, age levels, and values taught through literature and the literary and artistic quality of various texts.

**LIT 257 LITERATURE AND FILM  
3 CREDITS**

LIT 257 examines the relationship between literature and motion pictures, emphasizing the technique and interpretive function of filmmakers.

**LIT 285 INDEPENDENT STUDY  
3 CREDITS**

LIT 285 explores particular authors, topics, or themes in depth, such as Ibsen, Faulkner, Twain, or great fiction of the nineteenth century.

**MAC – Machining**

**MAC 101 INTRODUCTION TO MACHINE SHOP  
3 CREDITS**

MAC 101 covers safety procedures, use of bench tools, layout tools, power saws, drill presses, precision measurement tools, and various hand tools related to the machine shop. Also included are sharpening drill bits and general purpose turning tools for the lathe and determining speeds and feeds for both the lathe and the milling machine.

**MAC 102 BLUEPRINT READING  
3 CREDITS**

MAC 102 teaches you to read blueprints and interpret symbols, notes, dimensions, and tolerances.

**MAC 105 INTRODUCTION TO MACHINING TECHNOLOGY  
4 CREDITS**

MAC 105 introduces the student to the changing era of machining technology, emphasizing terminology, referencing and applications related to manufacturing environments. The fundamental use of bench tools, layout procedures, materials, precision measuring tools, machining processes, drilling and cut-off machines and other machining/manufacturing processes will be stressed. Skill competencies and standards will be identified. Use of the Machinery Handbook will be strictly required and particular competencies may require performance evaluations.

**MAC 110 INTRODUCTION TO ENGINE LATHE  
3 CREDITS**

MAC 110 introduces basic lathe applications which consist of identifying lathe components and controls, understanding turning safety, calculating speeds and feeds, using various tools and tool holders, identifying basic tool geometry, and the use of common lathe spindle tooling. You will perform basic lathe operations, which will consist of facing, center-drilling, chuck turning, turning between centers, boring, grooving, tapers, knurling, and single point threading. You also will be required to produce specified parts to a tolerance of +/- .004 in. and perform competencies set by manufacturing standards.

**MAC 111 INTERMEDIATE ENGINE LATHE  
3 CREDITS**

MAC 111 teaches you to prepare single point external and internal unified screw threads to a Class 3 fit, generate angles with the compound rest within one degree, ream holes concentric within .001 inches, determine cutting speeds, and perform facing and turning operations.

**MAC 112 ADVANCED ENGINE LATHE  
3 CREDITS**

MAC 112 prepares you to form radius, single-point isometric threads, turn spherical radius, use a radius gauge, and work within .0005 inches tolerance externally.

**MAC 120 INTRODUCTION TO MILLING MACHINE  
3 CREDITS**

MAC 120 teaches you to identify the major parts of the vertical mill; align a vise; use an indicator, edge finder, and boring head; determine speeds and feeds; perform simple indexing; mill flat, square surfaces and slots;

drill, bore, and tap holes; and work within a plus or minus .002 inch tolerance.

### **MAC 121 INTERMEDIATE MILLING MACHINE 3 CREDITS**

MAC 121 prepares you to determine hole locations by coordinates and degrees, use a rotary table, use a jig bore to drill holes by the coordinate method, and work within plus or minus .001 inch tolerance.

### **MAC 122 ADVANCED MILLING MACHINE OPERATIONS 3 CREDITS**

MAC 122 prepares you to indicate the head of a vertical mill, bore holes, drill holes at an angle, and work with tolerances of .0008 inches location and diameter.

### **MAC 123 HORIZONTAL MILL SET UP & OPERATIONS DESCRIPTION 3 CREDITS**

MAC 123 prepares you to identify the major parts and accessories for the horizontal mill, select cutters, mill slots, slab mill, square a workpiece, and work within a tolerance of plus or minus .002 inches.

### **MAC 130 CONVENTIONAL LATHE OPERATIONS 4 CREDITS**

MAC 130 includes calculation of speeds and feeds on various materials, identification and application of various work-holding techniques, tool forming, advanced machining practices and applications, and spindle tooling. You will learn how to calculate and turn tapers using the compound slide or taper attachment, offset work on a four-jaw chuck, turning between centers, boring, grooving, finishing, single point threading, knurling, tool grinding, drilling operations, and reaming.

### **MAC 141 ADVANCED MACHINING OPERATIONS 4 CREDITS**

MAC 141 teaches you the use of various conventional machine tools used in a machine shop environment. You will learn the use of engine lathes, horizontal and vertical milling machines, surface grinders, drill presses, pedestal grinders, power cut-off saws, and other machine tools commonly used to produce quality machined parts in today's manufacturing environments. Machining competencies will be stressed. You will be required to produce parts manufactured by local manufacturing companies with the consideration of ISO quality standards.

### **MAC 201 INTRODUCTION TO CNC TURNING OPERATIONS 3 CREDITS**

MAC 201 covers computer numerical control (CNC) lathe operations, control functions, the letter address system, the program format, and machine setup. G & M codes, control functions, the letter address system, and math issues related to CNC are included. This class is NOT offered on an open-entry, open-exit basis.

### **MAC 202 CNC TURNING OPERATIONS II 3 CREDITS**

MAC 202 prepares you to write basic computer numerical control (CNC) lathe part programs. G & M codes, math-related to CNC, setups, speeds and feeds, straight turning, spherical turning, threading, chamfering, tapering, drilling, tapping, boring, and grooving will be covered. Cutter compensations, sub-programming techniques, repetitive cycles, and both absolute and incremental will be incorporated into programs. You will proof and edit the programs to make them valid. This class is NOT offered on an open-entry, open-exit basis.

### **MAC 205 INTRODUCTION TO CNC MILLING OPERATIONS 3 CREDITS**

MAC 205 provides transitional information between conventional machining applications and the typical applications found in computer numerical control machining. Topics may consist of numerical control systems, the Cartesian coordinate system, high efficiency tooling applications, objectives of numerical control, calculating speed and feed rates, defining and calculating tool motion, fixturing requirements, basic program structure, programming codes, and basic conversational programming. Operation of NC machines will be required.

### **MAC 206 CNC MILLING OPERATIONS II 3 CREDITS**

MAC 206 covers the principle operations of both vertical and horizontal CNC milling machines via lecture instruction methods, multimedia instruction methods, and manufacturing hands-on methods. You will be exposed to the basic CNC machining center, principle operations, manual controls, programming methods, tool-offsets, G54-G59 work offsets, cutter radius compensation, and tool selection methods. General operator skills and basic setup skills will be stressed.

### **MAC 221 SURFACE GRINDER SETUPS AND OPERATIONS 3 CREDITS**

MAC 221 teaches you how to identify major parts and accessories of the surface grinder and grind flat, vertical, and angular surfaces to a tolerance of .0002 position and size.

### **MAC 223 TOOL & CUTTER GRINDER 3 CREDITS**

MAC 223 prepares you to identify the major parts and accessories of the tool and cutter to grind, sharpen two flute end mills, four flute end mills,

slab mills and form cutters, and work with a plus or minus .001 tolerance.

### **MAC 240 CAD/CAM 2D 3 CREDITS**

MAC 240 provides you with the essential concepts and techniques that are required to successfully create part geometry, generate tool path, verify tool path models, and post process the NC codes. You will be exposed to a 2-axis machining, 3-axis machining wire frame and surface modeling, lathe programming, and DNC systems. Programming projects and models will be demonstrated in the CNC manufacturing lab.

### **MAC 245 CAD/CAM 3D 3 CREDITS**

MAC 245 covers both the production and surfacing of three-dimensional geometry in a self-paced setting. Topics will be covered related to the production of wire frames, solids, surfaces, the joining of surfaces, joining of solids, managing construction planes, sweeping, rotating, and controlling parameter settings. A familiarity with Mastercam, CNC programming techniques, and CNC operations is recommended.

### **MAC 250 ADVANCED INSPECTION TECHNIQUES 3 CREDITS**

MAC 250 addresses the principles of dimensional metrology. You will learn how to use common measuring instruments relating to state-of-the-art manufacturing environments. You also will learn the importance of Quality Control, TQM, and SPC processes as they relate to manufacturing environments. Use of a coordinate measuring machine will be addressed.

### **MAC 252 PRACTICAL METALLURGY 3 CREDITS**

MAC 252 offers a study of metallurgical terms and definitions in an effort to understand both the behavior of metals and their service to industry. Characteristics during heating, cooling, shaping, forming, and the stresses related to their mechanical properties are covered. The theory behind the alloys, heat treatment processes, and the impact they have on strength, toughness, hardness, elasticity, ductility, malleability, wear resistance, and fatigue resistances is investigated.

### **MAC 258 INTERPRETING ENGINEERING DRAWINGS 3 CREDITS**

MAC 258 teaches you to interpret machine shop drawings starting with the simple and progressing to the more complex. All types of dimensioning, symbols, notes, and tolerances are interpreted.

## **MAN – Management**

[WWW.RRCC.EDU/BUSINESS](http://WWW.RRCC.EDU/BUSINESS)

### **MAN 116 PRINCIPLES OF SUPERVISION 3 CREDITS**

Prerequisite: BUS 115 suggested. MAN 116 introduces the principles and techniques of supervising and motivating personnel. The course is designed for students who are interested in supervising others or for those currently in supervision. Course content focuses on the human interaction in supervision.

### **MAN 117 TIME MANAGEMENT 1 CREDIT**

MAN 117 provides you with the conceptual knowledge and tools to make better use of your time in the management function. (fall semester only)

### **MAN 200 HUMAN RESOURCE MANAGEMENT I 3 CREDITS**

Prerequisite: BUS 115 suggested. MAN 200 provides a broad overview of the contemporary issues, theories, and principles used to effectively manage human resources. Topics include recruiting, hiring, compensation and benefits, training and development, employee relations, and legal issues.

### **MAN 212 NEGOTIATION AND CONFLICT RESOLUTION 3 CREDITS**

Prerequisite: BUS 115 suggested. MAN 212 presents proper techniques in negotiation and conflict resolution. Key practices that determine successful negotiation are explored. The course covers principles of conflict resolution, including business policies, accepted business practices, contracts, purchases, labor union contracts, pay raises, and starting salaries.

### **MAN 215 ORGANIZATIONAL BEHAVIOR 3 CREDITS**

Prerequisite: BUS 115 suggested. MAN 215 examines the behaviors of groups and individual members of organizations and how behavior can be influenced. Emphasis is placed on the tools managers use to achieve organizational effectiveness.

### **MAN 224 LEADERSHIP 3 CREDITS**

Prerequisite: BUS 115 suggested. MAN 224 focuses on the leadership skills necessary to bring about change in an organization. You will learn to develop and communicate a shared vision, to empower employees, to manage conflict, to negotiate, and to develop organizations so that all are working toward common goals.



**MAN 225 MANAGERIAL FINANCE**  
**3 CREDITS**

Prerequisites: BUS 115, ACC 121, ACC 122.

MAN 225 examines the concepts and techniques used to analyze financial accounting information for managerial planning, decision-making, and control. The focus of the course is on decision making relating to the areas of budgets, forecasts, cost volume production, ROI, and financial statements.

**MAN 226 PRINCIPLES OF MANAGEMENT**  
**3 CREDITS**

Prerequisite: BUS 115 suggested.

MAN 226 surveys the principles of management. Emphasis is placed on the primary functions of planning, organizing, leading, and controlling with a balance between the behavioral and operational approaches.

**MAN 275 SPECIAL TOPICS**  
**1-3 CREDITS**

MAN 275 provides a vehicle to pursue special topics of interest in business. The content of this course is designed on an as-needed basis to provide current, up-to-date information.

**MAN 285 INDEPENDENT STUDY**  
**1-3 CREDITS**

Prerequisite: Permission of instructor.

MAN 285 meets the individual needs of students who will engage in intensive study or research under the direction of a qualified instructor.

**MAN 287 COOPERATIVE EDUCATION/INTERNSHIP**  
**1-3 CREDITS**

Prerequisite: Permission of instructor.

MAN 287 provides you with the opportunity to supplement course work with practical work experience

related to your educational program and occupational objectives. You will be placed at approved workstations which are related to your program of study. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

**MAR – Marketing**

[WWW.RRCC.EDU/BUSINESS](http://WWW.RRCC.EDU/BUSINESS)

**MAR 111 PRINCIPLES OF SALES**  
**3 CREDITS**

Prerequisite: BUS 115 suggested. MAR 111 enables you to understand and develop ethical sales techniques and covers the role of selling in the marketing process. Areas of emphasis include behavioral considerations in the buying and selling process and sales techniques.

**MAR 117 PRINCIPLES OF RETAILING**  
**3 CREDITS**

Prerequisite: BUS 115 suggested. MAR 117 emphasizes the study of the basic principles and techniques of merchandising, operations, layout, store organization, site location, and customer service with an emphasis on retailing operations.

**MAR 216 PRINCIPLES OF MARKETING**  
**3 CREDITS**

Prerequisite: BUS 115 suggested. MAR 216 presents the analysis of theoretical marketing processes and the strategies of product development, pricing, promotion and distribution, and their applications to businesses and the individual consumer.

**MAR 220 PRINCIPLES OF ADVERTISING**  
**3 CREDITS**

Prerequisite: BUS 115 suggested. MAR 220 examines the principles and practices of advertising and its relationship to business in order to promote a business or organization. Areas of major emphasis include advertising principles, strategies, media, copy and layout, and ethical considerations.

**MAR 240 INTERNATIONAL MARKETING**  
**3 CREDITS**

Prerequisite: BUS 115 suggested. MAR 240 enables the student to explore the international marketing for U.S. products, and to explore the increasing competitive international environment and recent changes in the environment that have challenged U.S. business. The course is designed to make the reader an “informed observer” of the global market place as well as enabling him/her to develop skills to make marketing decisions in a global context.

**MAR 275 SPECIAL TOPICS**  
**1-3 CREDITS**

MAN 275 provides you with a vehicle to pursue special topics of interest in business. The content of this course is designed on an as-needed basis to provide current information.

**MAR 280 INTERNSHIP**  
**1-3 CREDITS**

Prerequisite: Permission of instructor.

MAR 280 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **MAR 285 INDEPENDENT STUDY 1-3 CREDITS**

Prerequisite: Permission of instructor.

MAR 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **MAT – Mathematics**

[WWW.RRCC.EDU/MATH](http://WWW.RRCC.EDU/MATH)

### **MAT 030 FUNDAMENTALS OF MATHEMATICS 2 CREDITS**

Prerequisite: appropriate math assessment score.

MAT 030 includes the vocabulary, operations, and applications of whole numbers, decimals and basic fractions and mixed numbers.

### **MAT 060 PRE-ALGEBRA 3 CREDITS**

Prerequisite: MAT 030 (grade C or better) or appropriate math assessment score.

MAT 060 furthers the study of fractions and mixed numbers. Also included are vocabulary, operations, and applications of ratio, proportion, percent, area, perimeter, US and metric measures, integers, an introduction to algebraic expressions, and the solution of basic first-degree equations.

### **MAT 090 INTRODUCTORY ALGEBRA 4 CREDITS**

Prerequisite: MAT 060 (grade C or better) or appropriate math assessment score.

MAT 090 includes first-degree equations, inequalities, formulas, polynomials, algebraic fractions, factoring polynomials, solving quadratic equations by factoring, and applications. Coordinate geometry, graphing linear equations and inequalities, and systems of linear equations may be included.

### **MAT 099 INTERMEDIATE ALGEBRA 4 CREDITS**

Prerequisite: MAT 090 (grade C or better) or appropriate math assessment score.

MAT 099 emphasizes problem-solving with further study of equations, slope, inequalities, systems of equations, polynomials, quadratic equations, rational expressions, rational exponents, radical expressions, graphing, and applications. A graphing calculator or equivalent software may be used.

### **MAT 107 CAREER MATH 3 CREDITS**

Prerequisite: MAT 060 (grade C or better) or appropriate math assessment score.

MAT 107 covers material designed for career technical students or general studies students who need to study particular mathematical topics that may include arithmetic review, calculator usage, algebra, geometry, trigonometry, graphs, and finance. These are presented on an introductory level, and the emphasis is on applications.

### **MAT 120 MATHEMATICS FOR THE LIBERAL ARTS 4 CREDITS**

Prerequisite: MAT 099 (grade C or better) or appropriate math assessment score.

MAT 120 develops mathematical and problem-solving skills. Appropriate technological skills are included. Content is selected to highlight connections between mathematics and the society in which we live. Topics include set theory and logic, mathematical modeling, probability and statistical methods, and consumer mathematics. Additional content will include one topic in geometry, numeration systems, decision theory, or management science.

### **MAT 121 COLLEGE ALGEBRA 4 CREDITS**

Prerequisite: MAT 099 (grade C or better) or appropriate math assessment score.

MAT 121 includes a brief review of intermediate algebra, equations and inequalities, functions and their graphs, exponential and logarithmic functions, and linear systems. Additional topics can include nonlinear systems, conic sections, introduction to sequences and series, permutations and combinations, the binomial theorem, and theory of equations. A graphing calculator is required for this course. You cannot receive credit for both MAT 166 and MAT 121. Contact the math department chair with questions.

### **MAT 122 COLLEGE TRIGONOMETRY 3 CREDITS**

Prerequisite: MAT 121 (grade C or better).

MAT 122 covers topics including trigonometric functions (with graphs and inverse functions), identities and equations, solutions of triangles, complex numbers, and other topics as time permits. This is a traditional prerequisite course to the calculus sequence. A graphing calculator is required for this course. You cannot receive credit for both MAT 166 & MAT 122. Contact the math department chair with questions about this.

### **MAT 123 FINITE MATHEMATICS 4 CREDITS**

Prerequisite: MAT 099 (grade C or better) or appropriate math assessment score.

MAT 123 covers topics including functions, matrix algebra, linear programming, and an introduction to probability and counting techniques. Emphasis is on applications. This course may include other topics such as statistics when time permits. This course is primarily

intended for business, life science, or social science majors. A graphing calculator is required for this course.

### **MAT 125 SURVEY OF CALCULUS** **4 CREDITS**

Prerequisite: MAT 121 or MAT 123 (grade C or better).

MAT 125 includes derivatives, integrals, and their applications, with attention restricted to algebraic, exponential, and logarithmic functions for business, life science and/or social science majors. A graphing calculator is required for this course.

### **MAT 135 INTRODUCTION TO STATISTICS** **3 CREDITS**

Prerequisite: MAT 099 (grade C or better) or appropriate math assessment score.

MAT 135 includes data presentation and summarization, introduction to probability concepts and distributions, statistical inference, estimation, hypothesis testing, and comparison of populations, correlation and regression. A graphing calculator is required for this course. You cannot receive credit for both MAT 135 and BUS 226.

### **MAT 155 INTEGRATED MATH I** **3 CREDITS**

Prerequisite: MAT 099 (grade C or better) or appropriate math assessment score.

MAT 155 covers topics including natural numbers, integers, rational numbers, relations, functions, and equations. This course is the first of a two course sequence particularly pertinent to prospective arithmetic teachers, presenting arithmetic and algebra from a modern approach.

### **MAT 156 INTEGRATED MATH II** **3 CREDITS**

Prerequisite: MAT 155 (grade C or better).

MAT 156 continues MAT 155.

The course includes the study of the fundamentals of probability, statistics, and informal Euclidean geometry suitable for K-8 curriculum, employing laboratory techniques where applicable.

### **MAT 166 PRE-CALCULUS** **5 CREDITS**

Prerequisite: Permission of Math Department Chair.

MAT 166 is a fast paced review of college algebra and college trigonometry intended for those planning to take calculus. Topics include algebraic manipulations, properties of algebraic and trigonometric functions and their graphs, trig identities and equations, conic sections, polar coordinates and parametric equations. A graphing calculator is required for this course. You cannot receive credit for both MAT 166 and MAT 121/122. Contact the math department chair with questions about this.

### **MAT 175 SPECIAL TOPICS** **1-4 CREDITS**

Prerequisite: Permission of instructor.

MAT 175 provides you with a vehicle to pursue in depth exploration of special topics of interest.

### **MAT 185 INDEPENDENT STUDY** **1-4 CREDITS**

Prerequisite: Permission of instructor.

MAT 185 provides an opportunity for the highly motivated student to engage in intensive study and research on a specified topic under direction of a faculty member.

### **MAT 201 CALCULUS I** **5 CREDITS**

Prerequisites: MAT 121 and MAT 122 (grade C or better) or Mat 166 (grade C or better).

MAT 201 introduces single variable calculus and analytic geometry. Topics for this course include limits, continuity, derivatives, and applications of derivatives as well as indefinite and definite integrals and some applications. A graphing calculator is required for this course.

### **MAT 202 CALCULUS II** **5 CREDITS**

Prerequisite: MAT 201 (grade C or better).

MAT 202 is a continuation of single variable calculus, which will include techniques of integration, polar coordinates, analytic geometry, improper integrals, and infinite series. A graphing calculator is required for this course.

### **MAT 204 CALCULUS III WITH ENGINEERING APPLICATIONS** **5 CREDITS**

Prerequisite: MAT 202 (grade C or better).

MAT 204 includes all the topics of a traditional Calculus III course with an additional emphasis on word problems and problem solving. This is the third course in the three-course calculus sequence. This course will additionally contain a thorough examination of multiple integration. This will include double and triple integrals, line integrals, Stokes' and Green's Theorems, and their applications. A graphing calculator is required for this course.

### **MAT 261 DIFFERENTIAL EQUATIONS WITH ENGINEERING APPLICATIONS** **4 CREDITS**

Prerequisite: MAT 204 (grade C or better).

MAT 261 introduces ordinary differential equations. The content of this course includes all the topics

of a traditional Introduction of ODE's course with an additional emphasis on applications and problem solving. A graphing calculator is required for this course.

### **MAT 285 INDEPENDENT STUDY**

#### **1-3 CREDITS**

Prerequisite: Permission of Instructor.

MAT 285 provides an opportunity for the highly-motivated student to engage in intensive study and research on a specified topic under direction of a faculty member

## **MET – Meteorology**

### **MET 150 GENERAL METEOROLOGY**

#### **4 CREDITS**

MET 150 provides an introduction to general meteorology and atmospheric sciences. It includes the composition and structure of the atmosphere and characteristics that affect the atmosphere, such as temperature, pressure and moisture. Additionally, the development of weather systems, such as storm systems, hurricanes, weather fronts and cloud development will also be examined. Finally, concepts of climatology will be stresses.

## **MGD – Multimedia Graphic Design**

[WWW.RRCC.EDU/MULTIMEDIA](http://WWW.RRCC.EDU/MULTIMEDIA)

### **PREREQUISITES: BASIC COMPUTER SKILLS**

Basic computer skills are defined as basic keyboarding; uploading and downloading files from the Internet and external devices; using the Web for basic research; sending e-mail and attachments; basic file management; the ability to save information to a CD/DVD, flash drive,

or external device; burning a CD/DVD; the ability to use the dock or start menu to open applications; create a new folder on the desktop or other location; and open files in an application. Students without these skills are required to take MGD 101 Introduction to Computer Graphics either concurrently or prior to taking other courses in the MGD/PHO department. If MGD 101 Introduction to Computer Graphics is not a requirement for your degree plan, it can be used as an elective.

### **MGD 101 INTRODUCTION TO COMPUTER GRAPHICS**

#### **3 CREDITS**

MGD 101 introduces computer systems developed for graphics. You will learn hardware and software components used in multimedia production and explore basic computer operations, file management, scanning techniques, archiving capabilities, and utilization of the multimedia department server and Internet connection.

### **MGD 102 INTRODUCTION TO MULTIMEDIA**

#### **3 CREDITS**

Recommended Prerequisite: MGD 101 and basic computer skills. MGD 102 introduces the equipment and software used in multimedia production and the multimedia professions focus on current technology and equipment, such as scanners, printers, digital cameras, and computers. You will gain hands-on skills using today's technology for input and output in multimedia and design projects. Overview of software for multimedia will be explored.

### **MGD 103 PRODUCTION DESIGN**

#### **3 CREDITS**

Recommended Prerequisites: MGD 101 or MGD 102 and basic computer skills. MGD 103 explores the use of tools, computer graphic techniques,

and design principles to produce professional quality designs. Topics include printing basics, typography, and digital color systems. You will use creative thinking to solve communication and design problems for the output process.

### **MGD 104 VIDEOGRAPHY**

#### **3 CREDITS**

Recommended Prerequisites: MGD 101 or MGD 102 and basic computer skills.

MGD 104 introduces to the principles and techniques of video production, including camera operation, basic script writing, lighting, basic sound, and basic digital editing. Examination of pre-production, production, and post-production processes, as well as aesthetics, are included.

### **MGD 111 ADOBE PHOTOSHOP I**

#### **3 CREDITS**

Recommended Prerequisite: MGD 101 or MGD 102 and basic computer skills.

MGD 111 concentrates on the high-end capabilities of Adobe's industry standard photo-editing software as an illustration, design, and photo retouching tool. You will explore a wide range of selection and manipulation techniques applied to photos, graphics, and videos. Design concepts also are explored in this class.

### **MGD 112 ADOBE ILLUSTRATOR I**

#### **3 CREDITS**

Recommended Prerequisites: MGD 101 or MGD 102 and basic computer skills.

MGD 112 acquaints you with the industry standard vector drawing program. You will learn to use vector-based tools to create digital artwork used in Web design, print media, and digital screen design. Design concepts also are explored in this class.

**MGD 114 ADOBE INDESIGN  
3 CREDITS**

Recommended Prerequisites: MGD 111 and MGD 112 and basic computer skills.

MGD 114 introduces you to InDesign, an industry standard page layout program which integrates seamlessly with other Adobe Creative Suite programs. InDesign delivers creative freedom and productivity to page layout and production. Class discussions and independent projects supplement hands-on classroom work.

**MGD 115 MULTIMEDIA TEAM  
DEVELOPMENT  
3 CREDITS**

MGD 115 further develops the relationships between various roles of multimedia development teams. Topics include the responsibilities of multimedia team members, various types of multimedia productions, managing project dimensions, applications of multimedia technologies and tools.

**MGD 116 TYPOGRAPHY  
3 CREDITS**

MGD 116 introduces the history and concepts of typography as applied to graphic communications. Explores appropriate use of typography in a variety of design applications, emphasizing the basic design principles of typographic compositions and typesetting. Covers type recognition and typographic terms.

**MGD 118 DIGITAL COLOR  
THEORY  
3 CREDITS**

Recommended Prerequisites: MGD 111 and MGD 112 and basic computer skills.

MGD 118 covers color theory as it relates to multimedia. The psychology of color is taught as well as effective design using color. You will learn to correct color photographs and create

color separations. Color scanning technology is also covered.

**MGD 119 AUTODESK MAYA I  
3 CREDITS**

Recommended Prerequisites: MGD 152 and MGD 153 and basic computer skills. MGD 119 introduces Autodesk Maya, a high-end 3D modeling and character animation tool. Emphasis is on constructing 3D models of various types. You will learn scene development and animation for render in movie format.

**MGD 121 COREL PAINTER FOR  
DIGITAL MEDIA  
3 CREDITS**

Recommended Prerequisites: MGD 101 or MGD 111 and basic computer skills. MGD 121 introduces to the digital illustration and paint software application Corel Painter. Color and relationships, repeat patterns, and fine art digitization are among the topics covered in the course as you explore the creation of visual fine art using computers. Assigned projects cover a wide range of visual approaches. Painter provides an extra competitive edge for you.

**MGD 122 SCULPTING FOR  
DIGITAL MEDIA  
3 CREDITS**

Recommended Prerequisites: MGD 152 and MGD 119 and Basic computer skills. MGD 122 introduces conceptualization of surface coloration, painting and manipulation of 3D digitizer and environments. You will construct sculptures using organic, inorganic, abstract, and realistic subject matter. You will learn to operate a 3D scanner, digitize a sculpture, and bring the electronic file into a computer animation application for manipulation.

**\*MGD 125 3D MODELING  
FOR GAMING: AUTODESK 3D  
STUDIO MAX  
3 CREDITS**

MGD xxx introduces basic 3D modeling and rendering features of a specific 3D modeling software. Students will understand 3D geometry, model management, creating materials, material editor effects, beginning photo-realistic rendering, project management, basic rendering concepts and archiving projects.

**\*MGD 129 HISTORY OF  
ANIMATION  
3 CREDITS**

MGD xxx presents students with a descriptive overview of the advent and evolution of cinema animation from its earliest origins to the present day. Students examine important individuals and studios in the animation field. Students view, analyze and peer critique animation examples in film and media. Social, cultural, artistic movements, and influences on contemporary animation styles and techniques are examined.

**MGD 141 WEB DESIGN I:  
ADOBE DREAMWEAVER  
3 CREDITS**

Recommended Prerequisites: MGD 111 and/or MGD 112 and Basic computer skills. MGD 141 introduces web site planning, design and creation using industry-standards-based web site development tools. Screen-based color theory, web aesthetics, use of graphics editors and intuitive interface design are explored.

**\*MGD 142 2D ANIMATION  
PRODUCTION  
3 CREDITS**

MGD xxx provides students with an understanding of the fundamental principles and applications of traditional 2D character animation. Students broaden their awareness

and appreciation of the depth of skill and abilities required to create 2D animation and how these skills can and must be applied toward the creation of quality 3D animation as well. Students will develop specific 2D animation skills, such as pencil testing, ink and paint and compositing and will master the fundamental principles of character animation. Students will produce a finished piece of original animation that showcases the skills acquired in class.

### **MGD 143 MOTION GRAPHIC DESIGN I: ADOBE FLASH 3 CREDITS**

Recommended Prerequisites: MGD 111 and MGD 112 and basic computer skills.

MGD 143 uses the industry standard software for the creation of 2D animation and dynamic interactive media for Web and multimedia applications. You will create objects and symbols and assemble motion and animation tweens.

### **MGD 152 DIGITAL ANIMATICS 3 CREDITS**

Recommended Prerequisites: ART 149 or ART 121 and basic computer skills.

MGD 152 introduces the workflow used by professional animators and game designers to produce media in a digital environment. You will learn the foundation skills of planning, organizing, storyboarding, and pre-visualization techniques necessary to create animated stories. You also will study the history of animation and game design.

### **MGD 153 3D ANIMATION I: MAXON CINEMA 4D 3 CREDITS**

Recommended Pre/Co-requisites: MGD 152 and basic computer skills. MGD 153 encompasses all major aspects of creating 3D characters using animation software. Using developed characters, you will learn to animate for personality.

### **MGD 161 ADOBE DIRECTOR I 3 CREDITS**

Recommended Prerequisites: MGD 111, MGD 112, and MGD 143.

MGD 161 examines the leading authoring tool for interactive multimedia from the art director's perspective. You will learn the basics of 2D animation for computer presentations, multimedia, gaming, and the Web. Interface design and scene development are emphasized. Hands-on projects include lingo scripting, behaviors, and the addition of sound and digital video to your projects. This course focuses on using Adobe Director to create games for both entertainment and for serious gaming in training and education.

### **MGD 163 SOUND DESIGN I: APPLE LOGIC PRO 3 CREDITS**

Recommended Prerequisites: MGD 101 and basic computer skills. MGD 163 explores the use of sound in multimedia production and audio storytelling. You will examine principles of recording and how sound enhances interactive productions and improves computer presentations. You also will learn to use the computer as a full audio editing studio. This software is available only for the Mac Platform.

### **MGD 164 DIGITAL VIDEO EDITING I: APPLE FINAL CUT STUDIO PRO 3 CREDITS**

Recommended Prerequisites: MGD 101 and/or MGD 104 and basic computer skills. MGD 164 introduces digital, non-linear video editing. You will capture, compress, edit, and manipulate video images using a personal computer. Assembly techniques including media management, editing tools, titles, and motion control, transitions and filters, and special effects are explored. This software is available only for the Mac Platform.

### **MGD 165 ADOBE AFTER EFFECTS I 3 CREDITS**

Recommended Prerequisites: MGD 111 and/or MGD 104 and basic computer skills.

MGD 165 provides fundamental techniques for creating digital motion graphics, 2D animation, animated logos, video graphics, etc. This class covers relevant tools and techniques as well as industry standards, delivery methods, and output formats.

### **MGD 167 GAME DESIGN I: TORQUE GAMING ENGINE 3 CREDITS**

Recommended Prerequisites: MGD 143 or MGD 161 and basic computer skills.

MGD 167 introduces game design beginning with conceptual development and functionality through production of a virtual world prototype. You will examine character registration, in betweens, inking, and clean up used for creating real-time game environments. Storytelling and visual metaphor development are emphasized.

### **MGD 202 POINT OF PURCHASE AND PACKAGING DESIGN 3 CREDITS**

Recommended Prerequisites MGD 111 and MGD 112 and basic computer skills.

MGD 202 introduces the theories and principles that apply to three-dimensional design graphics for packaging and display; various dimensional marketing solutions to create dynamic visual effects concepts also will be developed. Work layout stages and mock-ups will use various methods of cutting, folding, and assembly to explore the design concepts and their visual effects.

**MGD 211 ADOBE PHOTOSHOP II  
3 CREDITS**

Recommended Prerequisite: MGD 111 or permission of instructor. MGD 211 develops and reinforces image composition techniques learned in Adobe Photoshop I. Fundamentals are continuously reinforced as new design techniques are introduced.

**MGD 212 ADOBE ILLUSTRATOR II  
3 CREDITS**

Recommended Prerequisite: MGD 112 or permission of instructor. MGD 212 continues the development of digital drawing and design skills through practice and use of state-of-the-art illustration software acquired in MGD 112 Adobe Illustrator I.

**MGD 213 ELECTRONIC PREPRESS  
3 CREDITS**

Recommended Prerequisites: MGD 111, MGD 112, MGD 114, and/or MGD 113 or permission of instructor. MGD 213 explores in detail the electronic prepress process. Students examine steps for preparing a digital file for trapping, output considerations and proofing techniques. Creating effective electronic designs and efficient use of today's software programs are also covered.

**MGD 216 ADOBE ACROBAT PROFESSIONAL  
3 CREDITS**

MGD 216 concentrates on the high-end capabilities of Adobe Acrobat Professional software as a document conversion, presentation, form generation, secure document delivery, and press production tool. Students explore a wide range of techniques that can be applied to the web, graphics, interactive and presentation multimedia, commenting workflows, and print media. Adobe Acrobat Professional allows students to bridge the paper-

to-digital divide—simply, powerfully, and securely.

**MGD 219 AUTODESK MAYA II  
3 CREDITS**

Recommended Prerequisite: MGD 119 or permission of instructor. MGD 219 explores Maya's animation techniques in depth. You are exposed to rigging characters for animation.

**MGD 241 WEB DESIGN II:  
ADOBE DREAMWEAVER  
3 CREDITS**

Recommended Prerequisites: MGD 111, MGD 112, and MGD 141 or permission of instructor. MGD 241 expands on previously learned fundamentals of HTML introducing cascading style sheets, DHTML, JavaScripts and CGI forms. Color usage and interface design principles are emphasized in this course. In this course we'll examine Web sites that employ more complex structures, optimal site architecture and navigation necessary for larger and more complex sites.

**MGD 243 MOTION GRAPHIC DESIGN II: ADOBE FLASH  
3 CREDITS**

Recommended Prerequisites: MGD 111, MGD 112, and MGD 143 or permission of instructor. MGD 243 stresses the complex creation of 2D animated motion graphics concentrating on prior skills learned in MGD 143 and the use of Action Scripting and behaviors. You will create motion graphics and apply motion graphics to Web sites and other multimedia projects.

**MGD 253 3D ANIMATION II:  
MAXON CINEMA 4D  
3 CREDITS**

Recommended Prerequisites: MGD 152 and MGD 153 or permission of instructor. MGD 253 addresses advanced aspects of creating computerized 3D characters. You will examine facial

animation, lip synchronization, scene design, and lighting set-ups.

**MGD 254 MULTIMEDIA DESIGN AND PRODUCTION I:  
ADOBE CAPTIVATE  
3 CREDITS**

Recommended Prerequisites: MGD 111, 112, 114, 216 and 143. MGD 254 provides an overview of the development of interactive, computer-based media for presentational or instructional use. Selection of appropriate media, screen design, user interfaces, branching techniques, and other design aspects will be illustrated using a hands-on approach. Basic multimedia concepts will be addressed, including: production, authoring and authoring tools, software and hardware selection, media preparation and presentation.

**MGD 257 ANIMATION PRODUCTION  
3 CREDITS**

Prerequisite: MGD 257 is a Capstone class, which students should take in their final semester prior to graduation. MGD 257 examines development of 3D animation from a production standpoint. The process of transforming conceptual designs into actual projects is explored. Students study the management function of those tasks associated with the business end of development. The student will produce a 3D animation project.

**MGD 261 ADOBE DIRECTOR II  
3 CREDITS**

Recommended Prerequisite: MGD 161 or permission of instructor. MGD 261 explores the interactive process within all areas of program design, courseware authoring, delivery techniques, and instruction strategies. You will be introduced to advanced Lingo scripting to provide more interactive capabilities. This course focuses on using Adobe

Director to create games for both entertainment and for serious gaming in training and education.

**MGD 263 SOUND DESIGN II: APPLE LOGIC PRO  
3 CREDITS**

Recommended Prerequisite: MGD 163 or permission of instructor. MGD 263 focuses on the application of sound with various multimedia software applications. Principles and techniques include MIDI orchestration and sequencing, digital multitrack recording and production, working with musicians and other talent, sound effects layering, integrated audio system production, and advanced audio mixing/sweetening. You will explore synchronization techniques of audio with moving pictures, graphics, and animation. This software is available only for the Mac platform.

**MGD 264 DIGITAL VIDEO EDITING II: APPLE FINAL CUT STUDIO PRO  
3 CREDITS**

Recommended Prerequisite: MGD 164 or permission of instructor. MGD 264 introduces complex and advanced techniques in digital video editing. Editing techniques such as masking, filtering, blue/green screening, track mattes, and image mattes are examined. You will produce a movie project in this class and discuss practical ways to distribute projects to various audiences.

**MGD 265 ADOBE AFTER EFFECTS II  
3 CREDITS**

Recommended Prerequisite: MGD 165 or permission of instructor. MGD 265 focuses on advanced skills and techniques in creating digital motion graphics. Relevant tools and techniques, industry standards, specialized techniques, and additional tools and resources are covered in this class.

**MGD 267 GAME DESIGN II: TORQUE GAMING ENGINE  
3 CREDITS**

Recommended Prerequisite: MGD 167 or permission of instructor. MGD 267 explores advanced features of game design. You will examine play-testing and quality assurance, design advanced character animation, game and backdrop lighting, texturing, and design real time 3D terrain rendering.

**MGD 269 MULTIMEDIA DESIGN AND PRODUCTION II: ADOBE CAPTIVATE  
3 CREDITS**

Recommended Prerequisite: MGD 254 or permission of instructor. MGD 269 is a Capstone class, which students should take in their final semester prior to graduation. MGD 269 develops in-depth multimedia training utilizing specific multimedia development software. Students will research and design a multimedia education product. An authoring application will then be used to develop and distribute a working program or instructional package to one or more forms of media distribution. Current industry trends and preferences will dictate which software will be covered in each course section.

**MGD 280 INTERNSHIPS  
1-3 CREDITS**

Prerequisite: Permission of MGD/PHO Department Advisor. MGD 280 provides an opportunity to experience on-the-job shadowing and interacting with experts in a field of interest. You will intern at local professional businesses to prepare for the transition from student to professional.

**MGD 285 INDEPENDENT STUDY  
1-3 CREDITS**

Prerequisite: permission of instructor. MGD 285 provides the opportunity to

independently learn new technology skills not offered in the classroom. Qualified instructors provide one-on-one outcome objectives and review and oversee student progress.

**MGD 289 CAPSTONE  
1-3 CREDITS**

A demonstrated culmination of learning within a given program of study.

**\*MGD XXX ADVANCED CHARACTER RIGGING: AUTODESK MAYA  
3 CREDITS**

MGD xxx explores advanced character rigging features of a specific 3D modeling and animation software in depth. Students will understand working with joints, forward kinematic (FK) and inverse kinematic (IK) blending and adding controls. Students create spines using nested constraints and expressions to subdivide vertebra poses (Isner Spines). Students create spine inverse kinematic curves, rig body movements and characteristics, blending specific joints or movement of bone using FK, IK or Isner Spines, pivots, switching and bonesets. Students create facial control systems based on phonemes (visual unit of sound in spoken language), morphing, and creation of eye movements. Students create muscle systems, bind and paint skin, and test a final animated character.

**\*MGD XXX ADVANCED 3D MODELING FOR GAMING: AUTODESK 3D STUDIO MAX  
3 CREDITS**

MGD xxx focuses on advanced skills and techniques in 3D modeling and rendering in a specific 3D modeling software. Relevant tools and techniques, industry standards, specialized techniques, and additional resources are introduced. Advanced 3D-geometry manipulation, external rendering,

\* Courses are pending and currently under review by RRCC Curriculum Committee.



post-processing and post-production rendering are stressed.

**MGD XXX BUSINESS FOR CREATIVES IN: GRAPHIC DESIGN, PHOTOGRAPHY, ANIMATION, WEB DESIGN, AND MULTIMEDIA**  
**3 CREDITS**

MGD xxx explores the important business practices and procedures of running a commercial, creative business. Topics include freelance opportunities, work for hire, self-promotion, creative representation, portfolio design, billing rates, client management, business forms, employee management, taxes, licenses, registration, bid processes, and copyright. Course may include visits by professionals in the field and discussion of career opportunities and professional organizations.

**MIL – Milwright**

**MIL 101 LIFTING DEVICES**  
**1 CREDIT**

MIL 101 introduces the student to the types of rigging/ lifting devices used in industry. Skills include the correct use of slings and common rigging hardware, including safe loading practices and the use of ANSI hand signals.

**MIL 106 MILLWRIGHT LUBRICATION**  
**1.5 CREDITS**

MIL 106 will introduce the foundational principles and important considerations involved in properly lubricating industrial machines, including key components such as: maintenance strategies; principles of surface protection; lubricant construction; lubricant selection for a variety of components, including: rolling element bearings, plain bearings, gear drives, reciprocating engines,

hydraulic systems, air compression systems, chains, cables and wire ropes; lubricant condition control; lubricant storage and handling.

**MIL 107 INSTALLING BELTS CHAIN DRIVES AND BEARINGS**  
**4 CREDITS**

MIL 107 covers the sizes, uses, and installation procedures of six types of drive belts and two types of chain drives. Methods to remove and troubleshoot, and install bearings will be explained.

**MOT – Medical Office Technology**

**[WWW.RRCC.EDU/HEALTH/MEDASST.HTML](http://WWW.RRCC.EDU/HEALTH/MEDASST.HTML)**

**MOT 110 MEDICAL OFFICE ADMINISTRATION**  
**4 CREDITS**

Corequisite: MOT 120.  
MOT 110 introduces the administrative duties specifically used in medical offices.

**MOT 120 MEDICAL OFFICE FINANCIAL MANAGEMENT**  
**3 CREDITS**

Corequisite: MOT 110.  
MOT 120 covers the practical uses of accounts and records with emphasis on accounting principles and analysis for use in a medical office.

**MOT 130 INSURANCE BILLING AND CODING**  
**3 CREDITS**

MOT 130 introduces outpatient coding with an ultimate goal to present a clear picture of medical procedures and services performed (CPT codes), correlating the diagnosis, symptom, complaint or condition (ICD-9 codes), thus establishing the medical necessity required for third party reimbursement.

**MOT 136 INTRODUCTION TO CLINICAL SKILLS**  
**2 CREDITS**

Prerequisites: HPR 178, BIO 106.  
MOT 136 provides hands on experience with the basic clinical skills required for assisting with patient care. The course delivers the theory behind each skill presented as well as proper technique for performing each skill. It includes knowledge and/or performance of blood borne pathogens/OSHA regulations, medical asepsis, procedural gloving, patient gowning, positioning and measurement of vital signs.

**MOT 138 MEDICAL ASSISTING LABORATORY SKILLS**  
**4 CREDITS**

Prerequisites: BIO 106, HPR 178.  
Corequisite: MOT 136.  
MOT 138 introduces students to basic routine laboratory skills and techniques for collection, handling, and examination of laboratory specimens often encountered in the ambulatory care setting. The course emphasizes hands-on experience.

**MOT 140 MEDICAL ASSISTING CLINICAL SKILLS**  
**4 CREDITS**

Prerequisites: BIO 106, HPR 178, MAT 060 or higher, MOT 136.  
Corequisite: MOT 138.  
MOT 140 provides hands on experience with the clinical skills required for assisting with patient care. The course delivers the theory behind each skill presented as well as proper technique for performing each skill.

**MOT 150 PHARMACOLOGY FOR MEDICAL ASSISTANTS**  
**3 CREDITS**

Prerequisites: BIO 106, HPR 178, MAT 060 or higher.  
MOT 150 provides an overview of pharmacology language, abbreviations, systems of measurement and conversions.

\* Courses are pending and currently under review by RRCC Curriculum Committee.

The Controlled Substances Act, prescriptions, forms of medications, patient care applications, drug classifications/ interactions, and safety in drug therapy and patient care are presented. Information regarding the measurement of medications, dosage calculations, routes of administration, and commonly prescribed drugs in the medical office is provided.

### **MOT 181 ADMINISTRATIVE INTERNSHIP 2 CREDITS**

Prerequisite: Successful completion of M.O. program requirements with a C or better in all core classes. Student must have completed the background check and permission of program coordinator to begin internship.

MOT 181 provides supervised placement in contracted facility for guided experience in application of knowledge and skill acquired in the classroom. Positions are non-paid due to CAAHEP requirement.

### **MOT 182 CLINICAL INTERNSHIP 3 CREDITS**

Prerequisite: Successful completion of M.A. program requirements with a grade of C or better in all core classes. Students must have a completed background check, all immunizations, a CPR card and permission of program coordinator to begin internship.

MOT 182 provides supervised placement in contracted facility for guided experience in applications of knowledge and skills acquired in the classroom. Positions are non-paid due to CAAHEP requirement.

### **MOT 183 MEDICAL ASSISTANT INTERNSHIP 5 CREDITS**

Prerequisite: successful completion of M.A. program requirements with a grade of C or better in all core classes. Students must have

a completed background check, all immunizations, a CPR card and permission of program coordinator to begin internship.

Same as MOT 181 and MOT 182  
MOT 183 provides supervised placement in a contracted facility for guided experience in application of knowledge and skill acquired in the classroom. The student assists with a variety of business and clinical procedures. Positions are non paid due to CAAHEP requirement.

## **MUS – Music**

[WWW.RRCC.EDU/MUSIC](http://WWW.RRCC.EDU/MUSIC)

### **MUS 100 FUNDAMENTALS OF MUSIC THEORY 3 CREDITS**

MUS 100 is designed to help the beginning music student, or the student with a limited background in music theory, to study the basic elements of music, including notation, rhythm, scales, key signatures, intervals and chords.

### **MUS 101 INTRODUCTION TO MUSIC THEORY 3 CREDITS**

Prerequisite: MUS 100 or permission of the instructor.

MUS 101 presents music fundamentals, diatonic four-part harmony, analysis and keyboard harmony for non-music majors.

### **MUS 105 INTRODUCTION TO ELECTRONIC/COMPUTER MUSIC 3 CREDITS**

MUS 105 explores the elements of electronic music and demonstrates some of the most popular music software for the Macintosh and IBM computers, including music notation and music sequencing programs. Achieving a fundamental working knowledge of setup and recording procedures on a personal computer

is stressed. Equipment is provided and beginner's knowledge on either the Macintosh or IBM computer is helpful, but not essential.

### **MUS 106 SONGWRITING 3 CREDITS**

MUS 106 examines the various processes and styles of songwriting and offers techniques and ideas for creating songs ranging from functional to original. Students will explore the common factors in all styles of songwriting, and use them to bring out creative song ideas whether the student has written songs before or has just always wanted to see if one could. A basic knowledge of music reading for any instrument and elementary music theory is recommended, but not required.

### **MUS 110 MUSIC THEORY I 3 CREDITS**

Prerequisite: MUS 100 or permission of the instructor.

Corequisite: MUS 112 Ear Training/ Sight-Singing I Lab.

MUS 110 presents music fundamentals, diatonic four-part harmony, analysis, ear training, and keyboard harmony. This course is appropriate for music majors transferring to a 4-year program.

### **MUS 112 EAR TRAINING/ SIGHT-SINGING I LAB 1 CREDIT**

Prerequisite: Follow sequence of MUS 100 or 101, or equivalent proficiency.

Corequisite: MUS 110 - Theory I.  
MUS 112 presents exercises in sight-singing with melodic and rhythmic dictation.

### **MUS 120 MUSIC APPRECIATION 3 CREDITS**

MUS 120 covers the basic materials of music, musical forms, media, genres and musical periods. This course emphasizes the development

of tools for intelligent listening and appreciation.

This course is one of the Statewide Guaranteed Transfer courses. GT-AH1

### **MUS 121 MUSIC HISTORY I 3 CREDITS**

MUS 121 studies the various periods of music history with regard to the composers, aesthetics, forms, and genres of each period. Music History I considers music from the Middle Ages through the Classical period. This course is one of the Statewide Guaranteed Transfer courses. GT-AH1.

### **MUS 122 MUSIC HISTORY II 3 CREDITS**

MUS 122 studies the various periods of music history with regard to the composers, aesthetics, forms, and genres of each period. Music History II considers music from the early Romantic period to the present. This course is one of the Statewide Guaranteed Transfer courses. GT-AH1

### **MUS 123 SURVEY OF WORLD MUSIC 3 CREDITS**

MUS 123 provides an overview of non-Western music from around the world. This course provides basic listening skills and the historical/cultural context for a variety of world music styles to enable an understanding and appreciation of non-Western musical expression. This course is one of the Statewide Guaranteed Transfer courses. GT-AH1

### **MUS 124 AMERICAN MUSIC SURVEY 3 CREDITS**

MUS 124 surveys American music as a panorama of distinct yet parallel streams of popular, folk, sacred, and classical music that reflect the uniquely diverse character of the United States. It emphasizes the

development of tools for intelligent listening and appreciation. Major topics will include comparing and contrasting American musical styles across regions and time, and examining the characteristics of music that has arisen from the history and musical traditions of the many immigrants to America's shores.

### **MUS 125 HISTORY OF JAZZ MUSIC 3 CREDITS**

MUS 125 provides an overview of the history of jazz in America, and provides basic listening skills for the understanding and appreciation of jazz music.

### **MUS 126 HISTORY OF AMERICAN POPULAR MUSIC 3 CREDITS**

MUS 126 provides a survey of the history and literature of American popular music from 1600 to the present. Through the study of the many ethnic influences that contribute to the diverse musical landscape of American popular music, the student acquires an appreciation of this rich musical heritage. These musical styles have evolved out of the diversity of America and are performed and enjoyed throughout the world.

### **MUS 141 PRIVATE INSTRUCTION I 2 CREDITS**

Prerequisite: Permission (not audition) of the department. An additional fee is required. MUS 141 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. First year, first term.

### **MUS 142 PRIVATE INSTRUCTION II 2 CREDITS**

Prerequisite: MUS 141 in same instrument. Permission (not audition) of the department. An additional fee is required.

MUS 142 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. First year, second term.

### **MUS 143 PRIVATE INSTRUCTION III 2 CREDITS**

Prerequisite: MUS 142 in same instrument. Permission (not audition) of the department. An additional fee is required.

MUS 143 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. First year, third term.

### **MUS 151 ENSEMBLE I 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 151 rehearses and performs various types of musical literature. First year, first term.

### **MUS 152 ENSEMBLE II 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 152 rehearses and performs various types of musical literature. First year, second term.

### **MUS 153 ENSEMBLE III 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 153 rehearses and performs various types of musical literature. First year, third term.

### **MUS 175 SPECIAL TOPICS 1-6 CREDITS**

Prerequisite: Permission of instructor.

MUS 175 covers specific topics in music. This course is offered as needed for credit appropriate to the topic. Each offering includes a description of the topic(s).

### **MUS 184 INTERNSHIP 1-3 CREDITS**

Prerequisite: Permission of instructor.

MUS 184 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **MUS 241 PRIVATE INSTRUCTION I 2 CREDITS**

Prerequisite: MUS 142 or MUS 143 in same instrument. Permission (not audition) of the department. An additional fee is required.

MUS 241 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. Second year, first term.

### **MUS 242 PRIVATE INSTRUCTION II 2 CREDITS**

Prerequisite: MUS 241 in same instrument. Permission (not audition) of the department. An additional fee is required.

MUS 242 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. Second year, second term.

### **MUS 243 PRIVATE INSTRUCTION III 2 CREDITS**

Prerequisite: MUS 242 in same instrument. Permission (not audition) of the department. An additional fee is required.

MUS 243 offers private instruction consisting of a half-hour lesson and a one-hour performance seminar each week. Participation in a student performance is required at least once each term. Second year, third term.

### **MUS 251 ENSEMBLE I 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 251 rehearses and performs various types of musical literature. Second year, first term.

### **MUS 252 ENSEMBLE II 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 252 rehearses and performs various types of musical literature. Second year, second term.

### **MUS 253 ENSEMBLE III 1 CREDIT**

Prerequisite: Permission of instructor.

MUS 253 rehearses and performs various types of musical literature. Second year, third term.

### **MUS 275 SPECIAL TOPICS 1-3 CREDITS**

Prerequisite: Permission of instructor.

MUS 275 covers specific topics in music. This course is offered as needed for credit appropriate to the topic and each offering includes a description of the topic(s).

### **MUS 284 INTERNSHIP 1-3 CREDITS**

Prerequisite: Permission of instructor.

MUS 284 provides you with the opportunity to supplement course

work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

## **NAT – Nail Technician**

**WWW.RRCC.EDU/  
WARRENTech**

### **NAT 110 INTRODUCTION TO MANICURES AND PEDICURES 3 CREDITS**

NAT 110 provides a basic introduction to the proper use of implements used in manicures and pedicures. Theory and practical application of proper set-up, safety, sanitation, nail shapes, anatomy, product knowledge, and terminology dealing with manicures and pedicures is covered. Training is done in a classroom or lab setting using models or other techniques.

### **NAT 111 INTERMEDIATE MANICURES AND PEDICURES 2 CREDITS**

NAT 111 presents theory and practical application dealing with different types of manicures, pedicures, nail art, and massage techniques. Theory and practical application of procedures, products, nail shapes, and maintenance of natural nails are covered. You will learn to recognize different nail disorders and their proper treatment. Training is done in a specialized class or in supervised salon (clinical) setting using models or customers. Proper sanitation and sterilization as it pertains to all aspects of manicures, pedicures, and nail art are taught.

## **NAT 210 ADVANCED MANICURES AND PEDICURES 2 CREDITS**

NAT 210 presents theory and practical application dealing with different types of manicures, pedicures, massage techniques, and nail art. Theory and practical application of procedures, products, nail shapes, and maintenance of the natural nails are covered. You will learn to recognize different nail disorders and their proper treatment. Training is done in a specialized class or in supervised salon (clinical) setting using models or customers.

## **NAT 211 APPLICATION OF ARTIFICIAL NAILS 5 CREDITS**

NAT 211 provides advanced theory and practical application of nail wraps, tip overlays, acrylics, and product knowledge to ready you for employment. Theory and practical application of removal techniques for artificial nails are covered. Instruction is provided in specialized classes or in a supervised salon (clinical) setting using models or customers. Student preparation for state board licensing examination pertaining to artificial nails is covered.

## **NUA – Nursing Assistant**

[WWW.RRCC.EDU/HEALTH](http://WWW.RRCC.EDU/HEALTH)

## **NUA 101 CERTIFIED NURSE AIDE HEALTH CARE SKILLS 4 CREDITS**

Prerequisite: HPR 102.

Corequisite: NUA 170 Nurse Aide Clinical 1 credit.

NUA 101 prepares the student to perform the fundamental skills of the nurse aide. Basic nursing skills, communication skills, restorative services, personal care skills, safety and emergency care issues are

covered. Includes knowledge and/or principles of asepsis, OSHA and HIPAA regulations. Ethical behaviors, cultural sensitivity and principles of mental health will be addressed, as well as patient/resident rights.

## **NUA 170 NURSE ASSISTANT CLINICAL EXPERIENCE 1 CREDIT**

Prerequisite: HPR 102.

Corequisite: NUA 101 Certified Nurse Aide Health Care Skills.

NUA 170 applies the knowledge gained from NUA 101 to patient care.

## **NUR – Nursing**

[WWW.RRCC.EDU/HEALTH](http://WWW.RRCC.EDU/HEALTH)

## **NUR 201 IV THERAPY FOR LPN 5 CREDITS**

NUR 201 provides LPNs with an opportunity to expand their nursing roles by learning appropriate procedures for intravenous therapy and venous blood withdrawal. The course includes lecture, laboratory practice and clinical experience. The course prepares the LPN for IV certification under the Colorado State Board of Nursing Guidelines.

## **NUR 290 REGISTERED NURSE REFRESHER 10 CREDITS**

Prerequisite: HPR 102.

Corequisite: NUR 291.

NUR 290 presents material that is designed for all RNs, regardless of time absent from nursing practice, to explore avenues of employment. Clinical experience is held in the hospital to refresh and update basic nursing skills. Other opportunities for clinical experience may include home health, long-term, rehabilitation, and hospice.

## **NUR 291 REGISTERED NURSE CLINICAL EXPERIENCE 2 CREDITS**

Prerequisite: HPR 102.

Corequisite: NUR 290.

NUR 291 applies the knowledge gained from NUR 290 in a clinical setting. Students will demonstrate skill attainment gained in NUR 290.

## **OSH – Occupational Safety Technician**

## **OSH 127 10-HR CONSTRUCTION INDUSTRY STANDARDS 1 CREDIT**

OSH 127 provides a 10-Hour OSHA certification course for the construction industry and participants will review the current OSHA standards contained in 29 CFR 1926. Participants that complete the course will receive a certificate of completion from the United States Department of Labor, Occupational Safety and Health Administration. The course is taught by instructors authorized by the Occupational Safety and Health Administration.

## **OSH XXX CONFINED SPACE SAFETY 1 CREDIT**

Covers the definition of confined space; OSHA considerations and permit requirements; monitoring instruments; Students experience confine space working conditions. Rescue methods and assistance expectations are reviewed.

## **OSH XXX PERSONAL CLIMBING AND RESCUE 1 CREDIT**

Introduces students to the use of Tracktel harnesses for ladder climbing. Outlines the definitions and procedures associated with safe rigging practices in the wind energy industry. This skills upgrade course will develop rigging competency

for apprentices or journeypersons working on an industrial site.

### **OSH XXX RIGGING AND LIFTING DEVICES 1 CREDIT**

Introduces the student to the types of rigging/ lifting devices used in industry. Skills include the correct use of slings and common rigging hardware, including safe loading practices and the use of ANSI hand signals.

## **PAP – Physician Assistant Program**

[WWW.RRCC.EDU/PA](http://WWW.RRCC.EDU/PA)

### **PAP 200 BIOCHEMISTRY AND CELL BIOLOGY 3 CREDITS**

PAP 200 introduces the major topics in modern biochemistry, cell biology, and human genetics through the study of the chemistry of proteins, carbohydrates, lipids, and nucleic acids, and covers how these components function and are involved in basic metabolic processes, such as cellular respiration, lipid metabolism, protein synthesis, and DNA replication. The basic conceptual background is provided to allow the PA student to understand disease mechanisms, clinical lab tests, and drug effects.

### **PAP 203 ROLE OF THE PA AND HEALTH CARE ISSUES 1 CREDIT**

PAP 203 reviews the history of the physician assistant profession and describes the physician assistant's responsibilities and functions within a variety of health care delivery systems and environments. The relationships between the physician assistant, the physician, and other health care providers are explored. The legal, ethical, social, and quality assurance issues involved in PA

practice are discussed through case studies.

### **PAP 205 HUMAN ANATOMY AND DEVELOPMENT 3 CREDITS**

PAP 205 presents functional and applied anatomy as it relates to common clinical findings. This course provides the PA student with a solid understanding of the structure of the human body with emphasis on normal versus abnormal findings involving the musculoskeletal, nervous, cardiovascular, urinary, respiratory, digestive, and reproductive systems.

### **PAP 207 HEALTH PROMOTION 1 CREDIT**

PAP 207 introduces clinical preventive services as part of primary care focusing on counseling interventions, screening tests, and immunizations emphasizing counseling patients about risk factors.

### **PAP 210 HUMAN PHYSIOLOGY 3 CREDITS**

PAP 210 provides an understanding of human physiology as it relates to clinical medicine. Students study the functional organization of the human body, membrane physiology, nerve and muscle tissue function, the cardiovascular system, the lymphatic system, the immune system, respiration, digestion, renal function, metabolism, temperature regulation, endocrinology, and human reproduction.

### **PAP 212 INTRODUCTION TO EMERGENCY MEDICINE 1 CREDIT**

PAP 212 introduces the etiology, evaluation, and initial treatment of common emergencies focusing on an understanding of PA utilization in an emergency department and defining the roles of other treatment team members. The course emphasizes recognition of life and

limb-threatening conditions and differentiation from non-emergent conditions.

### **PAP 217 INTRODUCTION TO CLINICAL MEDICINE 1 CREDIT**

PAP 217 teaches basic diagnostic testing used by practicing physician assistants emphasizing clinical correlations, indications for testing, normal values, and the sensitivity and specificity of diagnostic testing. Microscopic techniques and identification are covered using normal and abnormal specimens.

### **PAP 218 EVALUATION OF THE MEDICAL LITERATURE 1 CREDIT**

PAP 218 provides students with an approach to reading, critically analyzing, and understanding the medical literature while addressing the fundamental principles of epidemiology to enable PA students to develop the necessary skills to evaluate study design and execution. Methods in which data are analyzed and interpreted are described and evaluated.

### **PAP 219 HISTORY AND PHYSICAL EXAMINATION I 2 CREDITS**

PAP 219 teaches the techniques required to obtain a complete medical history and perform appropriate physical examinations. Students will develop the communication skills necessary for effective interactions with patients and professional colleagues.

### **PAP 220 HISTORY AND PHYSICAL EXAMINATION II 2 CREDITS**

PAP 220 teaches the techniques required to obtain a complete medical history and perform appropriate physical examinations. Students will develop the communication skills necessary for effective interactions with patients

and professional colleagues. This course is a continuation of PAP 219.

### **PAP 221 CLINICAL MEDICINE I 3 CREDITS**

PAP 221 provides a beginning understanding of how clinicians approach the diagnosis and treatment of specific disease states. Students learn to identify the signs and symptoms of common disorders, to further evaluate those disorders through appropriate testing, and to prepare a treatment plan to preserve health or mitigate suffering.

### **PAP 222 CLINICAL MEDICINE II 3 CREDITS**

PAP 222 provides a beginning understanding of how clinicians approach the diagnosis and treatment of specific disease states. Students will learn to identify the signs and symptoms of common disorders, to further evaluate those disorders through appropriate testing, and to prepare a treatment plan to preserve health or mitigate suffering. This course is a continuation of PAP 221.

### **PAP 223 PEDIATRICS 2 CREDITS**

PAP 223 emphasizes primary care of the child from birth through adolescence including preventive and acute care. The student is exposed to techniques of history taking and physical examination specific to the pediatric population.

### **PAP 224 INTRODUCTION TO SURGERY 1 CREDIT**

PAP 224 provides the student with an introduction to the etiology, evaluation, and initial treatment of common surgical conditions and emergencies and an understanding of PA utilization and the roles of other health care team members in surgical practice.

### **PAP 225 WOMEN'S HEALTH CARE 1 CREDIT**

PAP 225 provides an exposure to problems and issues associated with women's health care primarily in the ambulatory setting. Emphasis is placed on birth control, recognition and treatment of sexually transmitted disease, cancer detection, prenatal care, and the evaluation and management of common gynecologic problems.

### **PAP 226 CLINICAL PROCEDURES 1 CREDIT**

PAP 226 teaches students basic diagnostic and therapeutic clinical skills and procedures. Preparation of the patient, anatomical considerations, patient consent, potential complications, and clarification of therapeutic and diagnostic value of clinical procedures will be discussed.

### **PAP 227, 228, 229 PROBLEM BASED LEARNING I, II, II 1 CREDIT EACH**

PAP 227, 228, and 229 teaches a critical approach to clinical problems. Students learn to identify the signs and symptoms of common disorders, to further evaluate those disorders through appropriate testing, and to prepare a treatment plan to preserve health or mitigate suffering through the use of evidenced-based health care as it relates to clinical outcomes. Emphasis is placed on the problem-based learning format through the presentation of case studies in small groups facilitated by PA program faculty.

### **PAP 230 PHARMACOLOGY I 1 CREDIT**

PAP 230 introduces therapeutic pharmacology with an emphasis on pharmacokinetics and pharmacodynamics and the review

of the physiology that underlies drug contraindications, interactions, and adverse effects.

### **PAP 231 PHARMACOLOGY II 3 CREDITS**

PAP 231 applies the principles of pharmacology to the prevention and treatment of specific human disorders. Special emphasis is placed on dosage and the safe and appropriate use of medications.

### **PAP 235 PATHOPHYSIOLOGY OF DISEASE 2 CREDITS**

PAP 235 focuses on the clinical pathophysiology of human illness. Individual modules are devoted to an examination of the cellular and organ-based aspects of disease with attention on how the disease process begins and proceeds.

### **PAP 240 BEHAVIORAL SCIENCE FOR THE PA 3 CREDITS**

PAP 240 explores the relationship between physical illness and psychosocial issues in the medical setting. Interviewing and communication styles unique to behavioral medicine, and how they relate in the presentation and recognition of major psychiatric disorders, mood and anxiety disorders, and substance abuse are discussed.

### **PAP 261-272 CLINICAL ROTATIONS 3 CREDITS EACH**

PAP 261 thru 272 provides 48 weeks of highly structured off-campus supervised clinical experiences during which the student evaluates and treats patients of all ages. Clinical rotations are conducted in a variety of inpatient, outpatient, and long-term care settings.)

## **PED – Physical Education**

**WWW.RRCC.EDU/OUTDOOR**

### **PED 100 BEGINNING GOLF 1 CREDIT**

PED 100 introduces a basic course in golf designed for those who have had little or no formal instruction or for those with some experience who are interested in improving some aspect of their game. Includes driving range, putting green, and on-course play.

### **PED 102 VOLLEYBALL 1 CREDIT**

PED 102 is designed to introduce and improve student skill level in volleyball. The primary emphasis is on teaching you the elements of volleyball: rules, offensive and defensive play, passing, serving, setting, attacking, team play, and game strategies.

### **PED 104 RACQUETBALL 1 CREDIT**

PED 104 is designed to introduce and improve the skill level in racquetball. The primary emphasis is on teaching you the elements of racquetball, including rules, stroke technique, scoring, serving, the various shots, and offensive and defensive strategies.

### **PED 106 TENNIS 1 CREDIT**

PED 106 is designed to introduce and improve the skill level in tennis. The primary emphasis is teaching you the elements of tennis: rules of the game, ground strokes, serving, the various shots, and singles and doubles play and strategies.

### **PED 110 FITNESS CENTER ACTIVITY I 1 CREDIT**

PED 110 is designed for individuals interested in improving total fitness via an aerobic circuit training

program. The course will include an individual fitness evaluation, computerized analysis of results, and a prescribed exercise program.

All the basic components of fitness, including flexibility, muscular strength, muscular endurance, cardiovascular fitness, and body composition, will be addressed. Weight machines, stationary bicycles, and computerized cardiovascular equipment will be used to elicit improvements in fitness.

### **PED 111 FITNESS CENTER ACTIVITY II 1 CREDIT**

Prerequisite: PED 110.

PED 111 is an advanced course designed for individuals interested in reaching a higher level of total fitness via an aerobic circuit training program. The course will include an individual fitness evaluation, computerized analysis of results, and a prescribed exercise program. All the basic components of fitness, including flexibility, muscular strength, muscular endurance, cardiovascular fitness, and body composition, will be addressed. Weight machines, stationary bicycles, and computerized cardiovascular equipment will be used to elicit improvements in fitness.

### **PED 116 WEIGHT TRAINING 1 CREDIT**

PED 116 offers basic instruction and practice in weight training. You will use weight training equipment in accordance with your abilities and goals. Emphasis is placed upon weight training equipment orientation, correct lifting techniques, and basic program design for men and women.

### **PED 123 BICYCLE TOURING 1 CREDIT**

PED 123 introduces bicycle touring over a variety of terrains and distances. Selection and

maintenance of equipment, pre-tour conditioning, safety, and dietary factors will be covered.

### **PED 124 MOUNTAIN BIKING 1 CREDIT**

PED 124 is designed to introduce basic mountain biking skills and techniques. The primary emphasis is to gain an understanding of the basic principles of mountain biking. You will develop skills and techniques for all riding situations and review bicycle anatomy and basic maintenance and repairs.

### **PED 125 BOWLING 1 CREDIT**

PED 125 is designed to introduce and improve your skill level in bowling. The primary emphasis is on teaching you the elements of bowling rules and regulations, footwork, courtesies, delivery, selection of ball, scoring, and team and individual competition.

### **PED 127 INTRODUCTION TO FLYFISHING 1 CREDIT**

In PED 127 you will gain the knowledge and skill of the fine art of flyfishing, including the selection and use of appropriate equipment, fly-casting techniques, flyfishing entomology, and guiding techniques. This course includes several field trips to local flyfishing areas.

### **PED 128 BASIC SAILING 1 CREDIT**

PED 128 is designed for the beginning sailor taught by American Sailing Association certified instructors and meets the safety requirements of the U.S. Coast Guard. The class is divided into two parts: theory classes and sailing sessions. Classes will cover terminology, safety regulations, knots, sailing theory, and navigation. Sailing sessions will cover rigging, getting underway, safety rules, tacking, gibing, bearing away, boat handling in different weather



conditions, overboard rescue, returning to the dock, and anchoring. Course costs include all boating equipment, textbooks, handouts, class materials, and the use of a 21' day sailor.

### **PED 129 SCUBA DIVING 1 CREDIT**

PED 129 provides basic instruction in scuba diving. This course provides the knowledge and skills related to swimming and snorkeling, diving equipment, communications, the environment, safety, dive tables, and other pertinent information you need for safe scuba diving. This course prepares you for open-water (PADI) certification.

### **PED 131 NORDIC SKIING 1 CREDIT**

PED 131 provides you with the fundamental skills of Nordic skiing. The emphasis is on skiing technique, conditioning, safety, and equipment. The course has classroom and activity sessions. Conditioning in the fitness center and trips to local ski areas are part of this course.

### **PED 132 SNOWSHOEING 1 CREDIT**

PED 132 emphasizes the basic skills, equipment, clothing and techniques of snowshoeing. The course includes the objective dangers involved with winter recreation.

### **PED 136 ADVANCED WEIGHT TRAINING 1 CREDIT**

PED 136 offers guided instruction and independent practice in weight training for men and women. You will practice various weight-training techniques in accordance with your abilities. Emphasis is placed upon physiological considerations, equipment orientation, correct lifting techniques, program design, and nutrition.

### **PED 138 INTRODUCTION TO WINTER SPORTS 1 CREDIT**

PED 138 provides an overview of at least two of the following winter sports: alpine skiing, snowboarding, ice skating, telemark skiing, Nordic skiing, snowshoeing, or skate skiing. The primary emphasis is on gaining the knowledge and techniques necessary for winter sports on beginner to intermediate groomed or backcountry terrain. Multiple field trips to ski areas or other outdoor venues are required.

### **PED 143 TAI CHI I 1 CREDIT**

PED 143 is designed to introduce Tai Chi as an expression of understanding of self-control, exercise, and self-defense. The primary emphasis is to gain an understanding of the history (origins and changes) of Tai Chi, the movements and their names, application of movements, and terminology.

### **PED 144 TAI CHI II 1 CREDIT**

PED 144 will emphasize the instruction of Tai-Chi from a practical and scientific approach with illustrations of applications for each of the movements in daily life. Cardiovascular training, strength and flexibility training, and balance and coordination will be integral parts of the Tai-Chi training. In addition, psychosocial skills such as meditation, relaxation, and self-efficacy will be addressed.

### **PED 145 PILATES MATWORK I 1 CREDIT**

PED 145 focuses on Pilates matwork to increase core strength, overall muscle tone, and flexibility with focused and precise floor work techniques. This is a physical education class built upon the philosophies and exercises of Josef Pilates.

### **PED 146 MARTIAL ARTS 1 CREDIT**

PED 146 is designed to introduce basic martial arts techniques and forms designed to improve the physical and mental capacity of an individual. The primary emphasis is to gain an understanding of the basic philosophies and concepts around the martial arts and the approach to ethics and provides a clear-cut guide for developing a powerful sense of character and will.

### **PED 147 YOGA I 1 CREDIT**

PED 147 offers guided instruction in yoga. You will practice yoga according to your individual fitness levels and abilities. Emphasis is placed on enhancing general health and well-being through the performance of yoga strength, flexibility, balance, and relaxation techniques and exercises.

### **PED 148 YOGA II 1 CREDIT**

Prerequisite: PED 147 or permission of instructor.

PED 148 increases awareness of yoga and its physical and mental benefits.

The concepts of basic yoga are carried into additional areas.

### **PED 150 ROCK CLIMBING I 2 CREDITS**

PED 150 is designed to introduce basic rock climbing and to improve dexterity, problem-solving skills, and the physical work capacity of an individual. The primary emphasis will be to gain an understanding of the general principles of climbing, how equipment works and how it is used, basic climbing skills and techniques, and safety and climbing etiquette and terminology.

### **PED 151 ROCK CLIMBING II 2 CREDITS**

Prerequisite: PED 150 or permission of instructor.

PED 151 is designed to introduce lead climbing skills and techniques, problem-solving skills, and physical fitness. Emphasis is placed on the general principles of lead climbing, proper usage of climbing equipment, development of lead climbing skills and techniques, climbing ethics and safety, and terminology.

### **PED 153 HIKING 1 CREDIT**

PED 153 provides skills related to hiking and wilderness travel. This course emphasizes hiking skills, proper conditioning, route finding, equipment, and hiking hazards and ethics. The course involves conditioning in the fitness center and during weekend hikes.

### **PED 154 BACKPACKING 2 CREDITS**

PED 154 provides skills related to wilderness travel and outdoor adventure. This course will emphasize knowledge of backpacking skills, survival techniques, proper physical conditioning, route finding, equipment selection, and will encourage an understanding and respect for the environment. The course will involve lecture and discussion sessions followed by a weekend trip in the mountains.

### **PED 155 OUTDOOR EXPEDITION 3 CREDITS**

PED 155 is a group expedition covering seven to ten days combining hiking, backpacking, climbing, or paddling in remote North American regions. The course includes the rationale for organizing and conducting wilderness trips.

### **PED 157 BASIC MOUNTAINEERING 3 CREDITS**

PED 157 provides you with a combination of skills and practical experience in the fundamentals of mountaineering. Emphasis is placed on basic climbing skills and techniques, equipment usage, safety systems, mountain travel and awareness, problem-solving and decision-making, high altitude climate and weather, wilderness ethics, and physical fitness.

### **PED 159 COLORADO FOURTEENERS 2 CREDITS**

PED 159 presents an historical look into the naming and climbing of Colorado's 14,000-foot peaks. The course includes information on the current routes to ascend the peaks.

### **PED 162 MAP AND COMPASS FOR THE OUTDOORS PERSON 3 CREDITS**

PED 162 covers the reading of highway, forest service, and topographical maps which include symbols, legends, border information, and contour lines. The course includes the use of magnetic compasses in an outdoor environment and functions that plot a course on maps. Supplemental navigation skills are included.

### **PED 163 ORIENTEERING AND ROUTE FINDING 2 CREDITS**

PED 163 combines the topics of using different topographical maps and compasses in order to safely plan a route in the wilderness with orienteering (organized competitive cross-country land navigation). Orienteering rules, symbols, clues, and clubs will also be addressed. Field trips may include student participation in a scheduled Orienteering meet.

### **PED 165 WILDERNESS SURVIVAL SKILLS 3 CREDITS**

PED 165 emphasizes the physiological, psychological, and practical principles of survival. Survival equipment, wilderness improvising techniques, and wilderness dangers are included.

### **PED 166 WINTER WILDERNESS SURVIVAL SKILLS 2 CREDITS**

PED 166 will emphasize winter survival techniques in the nival environment at or near timberline. Winter ecology, basic snow science, and avalanche safety and rescue will also be presented in a backcountry setting. This course includes field days and an overnight in a snow cave.

### **PED 167 BASIC SEARCH AND RESCUE 3 CREDITS**

PED 167 covers the fundamentals required for search and rescue in a wilderness environment. The course includes tracking techniques and field trips.

### **PED 202 FENCING 1 CREDIT**

PED 202 is a beginning course in the art and skill of fencing. Topical discussions and practical uses of appropriate equipment, rules, safety, footwork, and defensive/ attack strategies will be covered.

### **PED 203 FENCING II 1 CREDIT**

PED 203 continues the course in the art and skill of fencing. Topical discussions and practical uses of appropriate equipment, rules, safety, footwork, and defensive/attack strategies will be covered. The focus of this course will be on the tactical wheel and bouting.

## **PER – Physical Education and Recreation**

**WWW.RRCC.EDU/OUTDOOR**

### **PER 113 INTRODUCTION TO PHYSICAL EDUCATION AND SPORT 2 CREDITS**

PER 113 enables you to study the field of physical education and sports, including trends, precedents, and their effects in the health and total wellness of those involved.

### **PER 128 INTRODUCTION TO RECREATION 2 CREDITS**

PER 128 studies the history, principles, philosophy, contemporary problems, and trends of recreation and their influence upon today's American society.

### **PER 150 WATER SAFETY INSTRUCTOR 3 CREDITS**

PER 150 prepares you to become certified by the American Red Cross as a Water Safety Instructor (WSI). It enables you to develop skills for teaching infant and preschool aquatics, Levels 1- 7, in the Learn to Swim Program and as a Community Water Safety and Water Safety Instructor Aide. The course focuses on teaching people with special needs and planning and conducting safe and effective swim lessons.

### **PER 151 LIFEGUARD TRAINING 2 CREDITS**

PER 151 provides you with the necessary minimum knowledge and skills training to qualify as a non-surf lifeguard. It prepares lifeguard candidates to recognize emergencies, respond quickly and effectively to emergencies, and to prevent drowning and other incidents. The course also teaches other skills needed to be a professional lifeguard.

### **PED 207 INTERMEDIATE CANOEING 1 CREDIT**

PED 207 emphasizes intermediate paddling technique and river reading skills for both tandem and solo boating. You will learn safety procedures and equipment hazard evaluation and how to minimize your impact on river and lake environments.

### **PED 210 FITNESS CENTER ACTIVITY III 1 CREDIT**

Prerequisite: PED 110 and PED 111. PED 210 is an advanced exercise course designed for individuals interested in attaining a high level of total fitness. The course will include an individual fitness evaluation, computerized analysis of results, and a prescribed exercise program. All the basic components of fitness, including flexibility, muscular strength, muscular endurance, cardiovascular fitness, and body composition, will be addressed. The primary mode of training will be Aerobic Circuit Training, which will be supplemented with additional work on the specialized weight machines, dumbbells, treadmills, rowers, stair climbers, cross trainers, Nordic track, versa climbers, and running track available in the Fitness Center.

### **PED 211 FITNESS CENTER ACTIVITY IV 1 CREDIT**

Prerequisite: PED 110, PED 111, and PED 210. PED 211 is an advanced course for individuals interested in attaining a high level of total fitness. The course includes an individual fitness evaluation, computerized analysis of results, and a prescribed exercise program. All the basic components of fitness, including flexibility, muscular strength, muscular endurance, cardiovascular fitness, and body composition, will be addressed. Aerobic Circuit Training

will be supplemented with additional work on the specialized weight machines, dumbbells, treadmills, rowers, stair climbers, cross trainers, Nordic track, versa climbers, and running track found in the Fitness Center.

### **PED 237 PADDLE SPORTS 2 CREDITS**

PED 237 focuses on the methods and skills of conducting and leading safe lake and river trips in various types of watercraft, such as canoes, kayaks, or rafts. You will learn modern river paddling techniques, trip planning and organization, basic river rescue and safety skills, federal and local permit systems, and minimal impact camping and boating techniques for a river corridor. The course includes a multi-day river expedition.

### **PED 280 INTERNSHIP 1-6 CREDITS**

PED 280 gives you a realistic work experience in the field. Work will be supervised by professionals currently employed in the outdoor education industry. These preceptors will ensure that you participate in relevant field work and that you perform to the standards expected of employees of the organizations in which the internship occurs.

### **PED 285 INDEPENDENT STUDY 1 CREDIT**

PED 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**PER 152 AVALANCHE SAFETY  
1 CREDIT**

PER 152 emphasizes the latest information available about the study of avalanches, snow science, rescue equipment, and rescue techniques. The course provides you with the knowledge and skills necessary to help instill good judgment and sound decision-making in day-to-day travel in the winter environment. This course fulfills the National Ski Patrol's Basic (Level 1) Avalanche course requirements.

**PER 153 WHITEWATER  
RAFTING GUIDE  
2 CREDITS**

PER 153 meets the requirements of Colorado Statute 33-32-105.5 which provides for the minimum qualifications of professional whitewater rafting guides. The classroom portion includes a review of the logistics, equipment, clothing, safety considerations, risk management, outdoor ethics, river reading fundamentals, and leadership skills. The remainder of the course will be spent with a licensed outfitter.

**PER 160 WILDERNESS ETHICS  
3 CREDITS**

PER 160 emphasizes the motivation, aesthetics, and ethics of wilderness. Viewpoints to be examined include Native American, Western, historic, and those of modern environmental writers.

**PER 161 BACKCOUNTRY  
COOKING  
1 CREDIT**

PER 161 covers menu planning, nutritional requirements for wilderness camping, and meal preparations. This course includes cooking a backcountry meal.

**PER 168 OUTDOOR  
EQUIPMENT AND FACILITIES  
2 CREDITS**

PER 168 acquaints you with wilderness equipment, programs

and facilities. The course includes field trips to local outdoor industry facilities.

**PER 175 SPECIAL TOPICS  
1-6 CREDITS**

PER 175 provides you with a vehicle to pursue in depth exploration of special topics of interest.

**PER 252 PRINCIPLES OF  
OUTDOOR RECREATION  
3 CREDITS**

PER 252 includes lectures and practical outdoor experiences relating to problems and trends in outdoor recreation.

**PER 253 OUTDOOR  
LEADERSHIP  
2 CREDITS**

PER 253 is an introduction to the development, acquisition, and application of outdoor leadership skills and knowledge. You are exposed to the latest information philosophy, and techniques necessary to safely conduct outdoor programs and expeditions as an outdoor leader. Skills are applied under actual field conditions.

Emphasis is on minimal impact camping, wilderness ecology, judgment and decision-making, group dynamics and trip logistics. These skills will enhance your effectiveness as an outdoor leader.

**PER 256 MOUNTAINEERING  
TEACHING CONCEPTS  
3 CREDITS**

PER 256 covers planning and methods required to teach mountaineering skills. You will give lectures and conduct field trips.

**PER 265 OFFICIATING HIGH  
SCHOOL FOOTBALL  
1 CREDIT**

PER 265 provides you with an opportunity to develop the skills and awareness of the duties of field officials during high school football contests including official playing rules, game management, general

philosophy of conducting a high school football contest, and safety management of the players, coaches, and spectators during the contest. The course includes required on-field participation during selected high school football games.

**PER 275 SPECIAL TOPICS  
1-12 CREDITS**

PER 275 provides you with a vehicle to pursue in-depth exploration of special topics of interest.

**PHI – Philosophy**

[WWW.RRCC.EDU/PHILOSOPHY](http://WWW.RRCC.EDU/PHILOSOPHY)

**PHI 111 INTRODUCTION TO  
PHILOSOPHY  
3 CREDITS**

PHI 111 introduces significant human questions and emphasizes understanding the meaning and methods of philosophy. It includes human condition, knowledge, freedom, history, ethics, the future, and religion.

**PHI 112 ETHICS  
3 CREDITS**

PHI 112 examines human life, experience, and thought in order to discover and develop the principles and values for pursuing a more fulfilled existence. Theories designed to justify ethical judgments are applied to a selection of contemporary personal and social issues.

**PHI 113 LOGIC  
3 CREDITS**

PHI 113 studies effective thinking using language-oriented logic. The course provides tools and develops skills for creative and critical thinking and emphasizes the development of decision-making and problem-solving.

**PHI 114 COMPARATIVE RELIGIONS  
3 CREDITS**

PHI 114 introduces you to the similarities and differences among concepts predominant in the major world religions, comparing sociological, philosophical, and phenomenological similarities between major world faiths. It is designed to transfer to any four-year college philosophy, religious studies or humanities department.

**PHI 115 WORLD RELIGIONS—WEST  
3 CREDITS**

PHI 115 introduces you to the common and different concepts predominant in the major world religions. It includes sociological, political, psychological, and philosophical aspects of a variety of belief systems. It focuses on the concept of religion as a cultural system, and a way that people make sense of a complex world. Particular emphasis is placed on how myths, legends, and folk tales reveal religious concerns.

**PHI 116 WORLD RELIGIONS—EAST  
3 CREDITS**

PHI 116 emphasizes the diversity and richness of Eastern Religions within a cross-cultural context. Concepts such as fate, reincarnation, enlightenment and morality are analyzed.

**PHI 117 PSYCHOLOGY OF RELIGION  
3 CREDITS**

PHI 117 emphasizes the application of psychological principles and theories to religious phenomena, including religious practices, beliefs, and rituals. As an introduction to the field, this course begins with an historical appreciation of psychologists' attempts to understand religion, continues with an exploration of select theories, and concludes with an analysis

of modern problems and future directions.

**PHI 120 APPLIED ETHICS  
3 CREDITS**

PHI 120 is an umbrella course which covers different applications of ethics in contemporary society and disciplines, including Business Ethics, Biomedical ethics, Genetic ethics, issues of dental ethics, and other valid applications.

**PHI 123 NATIVE AMERICAN RELIGION  
3 CREDITS**

PHI 123 is designed to introduce you to the primary beliefs and practices found in the Native North American tribes, and to trace the development of these religious systems from their oral beginnings through to modern religious revivals.

**PHI 124 INTRODUCTION TO ISLAM  
3 CREDITS**

PHI 124 introduces the Islamic religious tradition and considers its significance in the modern world. The course investigates the history of Islam, Islamic beliefs and practices, Islamic sects, Sufism, and contemporary issues of Islamic extremism, women in Islam, and Islam in the West.

**PHI 140 RELIGION IN AMERICAN CULTURE  
3 CREDITS**

PHI 140 will investigate the various ways in which religion and American culture interact. Beginning with the religion of Native Americans, which existed in a pre-modern society where religion went unchallenged as the pre-eminent organizing principles our post-modern era, where religion competes with a multiplicity of other belief systems in a complex societal matrix. This course will focus on the sundry ways in which religion and American culture interface.

**PHI 141 OLD TESTAMENT  
3 CREDITS**

PHI 141 surveys the literature produced by ancient Israel from its inception in the 10th century BCE to its absorption into the Roman Empire. The Hebrew Scriptures along with selected Apocryphal writings will be examined. The course will focus on the interpretation of these texts in light of the historical and cultural milieu from which they arose. Particular attention will be paid to the comparison of the literature of ancient Israel to that of its neighbors.

**PHI 142 NEW TESTAMENT  
3 CREDITS**

PHI 142 surveys the literature of the early Christian era, from its inception to approximately 150 C.E. The New Testament as well as selected non-canonical writings from the period are examined. The course focuses on the interpretation of these texts in light of the cultural milieu from which they arose. Particular attention is paid to the influence of ancient literary conventions upon the Christian writers of this time.

**PHI 201 SOCIAL AND POLITICAL PHILOSOPHY  
3 CREDITS**

PHI 201 addresses a single topic among those relevant to social and political philosophy such as political rights, political freedom, social obligations, or democracy.

**PHI 202 RELIGION AND FILM  
3 CREDITS**

PHI 202 introduces basic concepts to the academic study of religion and illustrates those concepts by examining the ways in which a number of contemporary films embody religious themes. Particular attention will be paid to the challenges modernity and post modernity poses to traditional religion.

## **PHI 203 INTRODUCTION TO BUDDHISM**

### **3 CREDITS**

PHI 203 introduces you to the history, philosophy and practices of Buddhist tradition. This course in no way intends to be comprehensive but rather surveys the many manifestations of Buddhism through an exploration of foundational aspects, the evolution and spread of Buddhist philosophical and spiritual ideals, and aspects of Buddhism as it exists in the modern world.

## **PHI 204 INTRODUCTION TO HINDUISM**

### **3 CREDITS**

PHI 204 provides you with a broad overview of the history, philosophy, and practices of Hindu tradition. Because of the vast complexity of the subject matter the course in no way intends to be comprehensive but rather to provide an introduction to the foundations of Indian cultural tradition, the evolution of Hindu philosophical and spiritual ideals, as well as, a cursory understanding of Hindu nationalism and modern Hindu religious practice.

## **PHI 214 PHILOSOPHY OF RELIGION**

### **3 CREDITS**

PHI 214 focuses on the critical examination of the fundamental concepts, ideas, and implications of religion. Specific topics will include: the nature of God, the varieties of religious experience, argument concerning God's existence, the Problem of Evil, faith and reason, religion and human destiny, and the connection between religion and ethics.

## **PHI 275 SPECIAL TOPICS IN PHILOSOPHY**

### **3 CREDITS**

PHI 275 provides you with a vehicle to pursue in depth exploration of special topics of interest.

## **PHO – Photography**

[WWW.RRCC.EDU/MULTIMEDIA](http://WWW.RRCC.EDU/MULTIMEDIA)

Photography classes reside under both the ART and PHO prefixes, and classes are held in the Multimedia Graphic Design Department.

## **PHO 143 PERCEPTION & PHOTOGRAPHY I**

### **3 CREDITS**

PHO 143 presents the fundamentals of visual perception and design and seeing in the photographic medium. Topics include the psychology of seeing, value exercises, conceptual and perceptual exercises, depth representation, figure/ground, organization, gestalt principles, quality of light, and the development of ideas.

## **PHO 159 DIGITAL ASSET MANAGEMENT**

### **2 CREDITS**

Recommended Prerequisite: ART 143 and 243 or permission of instructor. PHO 159 instructs you in the use of specialized programs to manage the large collection of digital captures you are likely to encounter as a professional. The large number of files created by a digital photographer requires a systematic method of cataloging and offers various means of presentation. This course will teach a workflow for the cataloging and various methods of presenting the images to the public and clients using digital asset management software and other supplemental programs.

## **PHO 201 PROFESSIONAL PHOTOGRAPHY III**

### **3 CREDIT**

Recommended Prerequisite: ART 138 and 139 or ART 143 and 243 or permission of instructor. PHO 201 explores photography technique with emphasis on history, theory, and assimilation of ideas into the students' creative work. Includes

the development of a comprehensive portfolio

## **PHO 204 COMMERCIAL STUDIO LIGHTING**

### **3 CREDITS**

Recommended Prerequisite: ART 138 or ART 143.

PHO 204 explores the creative uses of studio lighting from the perspective of fine art and commercial photography with an emphasis on three-dimensional object photography, including, lighting techniques, backgrounds, working with shadows and highlights, and photographing flat art.

## **PHO 205 PROFESSIONAL DIGITAL PHOTOGRAPHY I**

### **3 CREDIT**

Recommended Prerequisite: ART 143 or permission of instructor.

PHO 205 introduces the basic concepts of digital imaging as applied to photography. Using applicable technology and hands on experience, modern developments are presented leading to the present applications of digital imaging which combine traditional photographic ideas with electronic media. Enables the student to learn how to operate image manipulation software using a variety of scanning equipment, software tools and output devices by executing new assignments and applying these technologies to their photographic process.

## **PHO 221 DIGITAL COLOR PHOTOGRAPHY I**

### **3 CREDITS**

Recommended Prerequisite: ART 143 or permission of instructor.

PHO 221 introduces you to the production of color photographic images, including the technical reproduction of images and the effective use of color. The reproduction of color images will be done exclusively using digital print technology while an overview of

color reproduction systems; CMY (Film and Print), RGB, and CMYK will be covered. The use of color films, both color negative and color transparency, and the use of digital capture also will be topics for this class. Completion of exercises in the effective use of color and color reproduction techniques will be required.

### **PHO 222 DIGITAL COLOR PHOTOGRAPHY II** **3 CREDITS**

Recommended Prerequisite: ART 143 and PHO 221 or permission of instructor.

PHO 222 continues the development of technical and visual skills in the employment of color photography. Color transparency film is the primary medium for capturing images, and digital technology is used for print production. More sophisticated, aesthetic use of color, as well as more refined printing, is expected. The implementation of color management to create more predictable color print matching with the computer monitor is also covered in this class. Digital camera capture is used in some assignments as an alternative to film.

### **PHO 235 ARCHITECTURAL PHOTOGRAPHY** **3 CREDIT**

PHO 235 covers the more advanced aspects of commercial/ architectural photography. Students will explore photographing subjects ranging from products to buildings with an emphasis on meeting the design demands of commercial clients, stock agencies and publishers. Various film types, formats and print reproduction aspects will be explored in depth.

### **PHO 236 PRODUCT PHOTOGRAPHY** **3 CREDIT**

Recommended Prerequisite: ART 138 and 139 or ART 143 and 243 or permission of instructor. PHO 236 is a continuation of View Camera and Lighting Techniques, emphasizing studio product illustration using color transparency film and digital capture. Advance techniques in lighting and further development of proficiency with the view camera and advanced aspects of commercial illustration photography. The focus is on design requirements, exploration of various subject matter and printing reproduction requirements.

### **PHO 240 FIELD TECHNIQUES AND EXPLORATION** **1 CREDIT**

PHO 240 focuses on the exploration, personal inspiration and the development of an expressive style beyond the influence of the college local and its geographic confines. Lecture/demonstration topics will include film, exposure, care and use of equipment, light and composition as well as preparation for the field component of this course.

### **PHO 260 EVENT & WEDDING PHOTOGRAPHY** **3 CREDITS**

Prerequisite: ART 138 or ART 143. PHO 260 is designed for the intermediate/advanced photo student interested in learning professional techniques associated with venue photography. Topics covered include weddings, Barmitzvah/Basmitzvah, music concerts, sporting events, graduations, and similar occasions. You will gain hands-on knowledge and learn practical shooting skills. The course includes the business and planning aspects of ceremonial and event photography. Both film

and/or digital SLR cameras with manual settings may be used for this class.

### **\*PHO 266 PROFESSIONAL DIGITAL WORKFLOW (ADOBE LIGHTROOM)** **3 CREDITS**

Recommended Prerequisite: ART 143.

PHO xxx concentrates on developing a seamless professional workflow for digital photography, integrating all aspects of digital photography, including shooting Camera RAW in the field, conversion of files to digital negatives, color calibration, importing, sorting and developing images, to final print output. Students will understand the workflow associated with importing, processing, managing, and showcasing large volumes of digital photographs including the use of the Library module for importing and managing photos; the Develop module for fundamental photographic adjustments and processing of hundreds of photographs at a time; and using the Slideshow, Web, and Print modules to easily present photos onscreen, online, or in print.

### **\*PHO XXX FINISH AND DISPLAY/FRAMING** **1 CREDIT**

PHO xxx presents the proper execution and presentation of fine art images through the use of dry mounting, matting, and framing. Topics include measuring, matting, mounting, costing, supplies, professional techniques, simple framing, and basic archival processes.

\* Courses are pending and currently under review by RRCC Curriculum Committee.

### **\*PHO XXX MASTERING BLACK-AND-WHITE OUTDOOR PHOTOGRAPHY**

#### **1 CREDIT**

Prerequisites: ART 138 and ART 139 or ART 143 and ART 243 or permission of instructor.

PHO xxx explores advanced techniques used by Master Photographers in exposing and printing professional B&W outdoor photos. Types of film, cameras, exposure methods, film processing, and printing techniques are covered. Exposure methods include the Zone System, use of filters, and advanced techniques to achieve the best possible negative to maximize print quality. You must use a 35mm SLR film camera with manual settings for this class.

### **\*PHO XXX DARKROOM ALTERNATIVE PROCESSES**

#### **3 CREDITS**

Prerequisite: ART 138.

PHO xxx is designed for intermediate-to advanced-level students. You will explore specialized photo techniques, such as infrared photography, solarization, multiple exposures, time exposures, direct positive black and white, multiple and montage printing techniques, abstracts, and high contrast, as well as film reticulation. Topics include special filters, motion techniques, and "breaking all the rules." The primary emphasis is on personal creativity and the aesthetic value in using special effects in visual communication. A 35mm SLR film camera with manual settings is required for this class.

### **\*PHO XXX OUTDOOR PORTRAIT WORKSHOP**

#### **1 CREDIT**

Recommended Prerequisite: ART 138 or ART 143.

PHO xxx is designed to provide the serious photography student with hands-on tools and techniques to explore the art of outdoor portraits.

You will learn to control natural lighting, use backdrops to enhance the subject, and use format and lens selection to best fit the desired outcome. Both film and/or digital SLR cameras with manual settings may be used for this class.

### **\*PHO XXX CLOSE-UP AND MACRO PHOTOGRAPHY**

#### **3 CREDITS**

Recommended Prerequisite: ART 138 or ART 143 or permission of instructor.

PHO xxx explores the techniques, aesthetics, and equipment necessary to produce close-up and macro photographs. You will photograph both inanimate and natural objects indoors and outdoors using different approaches to these subjects. Both film and/or digital SLR cameras with manual settings may be used for this class.

\* Courses are currently under review by RRCC Curriculum Committee.

## **PHY – Physics**

### **WWW.RRCC.EDU/PHYSICS**

#### **PHY 105 CONCEPTUAL PHYSICS**

##### **4 CREDITS**

PHY 105 explores the physics of how things work, utilizing many activities and demonstrations. This course studies mechanics, heat, properties of matter, electricity and magnetism, light and modern physics. This course includes laboratory experience.

#### **PHY 111 PHYSICS: ALGEBRA- BASED I**

##### **5 CREDITS**

Prerequisite: MAT 121.

PHY 111 topics include: kinematics, force, circular motion, energy, momentum, torque, rotational dynamics, simple harmonic motion, temperature, heat and

thermodynamics. This is a general physics course that is recommended for all of the health sciences and all other interested students. Those entering engineering or one of the advanced sciences should register for PHY 211.

#### **PHY 112 PHYSICS: ALGEBRA- BASED II**

##### **5 CREDITS**

Prerequisite: PHY 111.

PHY 112 is the continuation of the PHY 111 course. Topics covered in this class include: sound waves, electric fields, electric circuits, magnetic fields, optics, and modern physics.

#### **PHY 211 PHYSICS: CALCULUS- BASED I**

##### **5 CREDITS**

Prerequisite: MAT 201.

PHY 211 topics include: kinematics, force, gravity, energy, momentum, torque, rotational dynamics, fluids and waves. This first semester calculus-based physics course is recommended for students entering engineering or one of the advance sciences.

#### **PHY 212 PHYSICS: CALCULUS- BASED II**

##### **5 CREDITS**

Prerequisite: PHY 211.

PHY 212 is the continuation of the PHY 211 course. Some of the topics covered in this class include: electric fields, electric circuits, magnetic fields, electromagnetic induction, light, and optics.

## **PLU – Plumbing**

### **WWW.RRCC.EDU/PLUMBING**

#### **PLU 100 INTRODUCTION TO PLUMBING**

##### **4 CREDITS**

Corequisite: OSH 127.

PLU 100 introduces the student to the plumbing trade, providing them

\* Courses are pending and currently under review by RRCC Curriculum Committee.



with the opportunity to learn basic skills needed to work in the plumbing industry. The course includes work in the classroom and shop. Students will work with plastic, copper, steel and cast iron pipe. Students will be able to identify and apply common DWV, copper and threaded fittings. Job safety and introduction to isometric drawing are also included in this course.

### **PLU 101 PIPING SKILLS 4 CREDITS**

Corequisite: OSH 127.  
PLU 101 teaches the installation of common piping materials in plumbing and HVAC/R systems. Pipe math, terminology, common piping materials and application, figuring offsets and common pipe joints are also covered. Shop projects including pipe support and hanging, center to center measurements and a variety of pipe joining methods are explored.

### **PLU 104 PLUMBING SERVICE 4 CREDITS**

PLU 104 allows you to learn how to diagnose and repair common problems associated with plumbing components and systems. Topics will include faucet repair, water heater replacement and repair, drain cleaning, water closet repair, piping repairs, finding the source of leaks and evaluating problems for repair or replacement. Students will learn customer relations and communication skills.

### **PLU 105 BASIC ELECTRICITY 4 CREDITS**

Corequisite: OSH 127.  
PLU 105 is a combination lab/lecture course covers fundamentals of electricity, measuring instruments and electrical safety practices. Students will learn Ohm's Law and its practical application. Students will work with electric motors, basic electrical components and learn their application to the trade.

### **PLU 108 SOLDERING AND BRAZING SKILLS 0.5 CREDITS**

PLU 108 allows you to learn proper soldering and brazing skills when joining copper tube and fittings. Topics include safety, proper soldering and brazing skills, how to assess joint quality and basic center-to-center measurement.

### **PLU 111 PLUMBING APPRENTICE YR1 SEM1 5 CREDITS**

PLU 111 introduces the apprentice to the plumbing profession. This course is the first year, first semester, of an eight semester, four year apprenticeship. It is based on the PHCC national curriculum. Students are introduced to current Colorado Plumbing Regulations and Laws, basic application of tools and materials, application of mathematics skills and the importance of the plumbing profession in our society.

### **PLU 112 PLUMBING APPRENTICE YR1 SEM2 5 CREDITS**

PLU 112 continues to train the plumbing apprentice. This course completes the first year of a four year apprenticeship. It is based on the PHCC national curriculum. Students study science related to the plumbing profession, learn about common plumbing fixtures, start working with building plans and drawings, apply specific pipe installation requirements.

### **PLU 120 RESIDENTIAL PLUMBING 4 CREDITS**

Prerequisites: PLU 100, PLU 101, OSH 127 or permission of the instructor.  
PLU 120 students will learn how to design and install residential plumbing systems. (Course does not cover DWV systems: see PLU 130.) Students will work in the shop installing systems and in the classroom designing systems. Topics

include the application of code requirements, fuel piping systems, water piping systems, rough-in measurements and installation practices. Students will also learn to install components, such as water heaters, tub/shower valves, a variety of shower enclosures and other fixtures.

### **PLU 121 PLUMBING APPRENTICESHIP YR 2 SEM 1 5 CREDITS**

PLU 121 continues the education from the first year. The main emphasis of the course is the design and installation of water distribution systems, including water heaters, and their code requirements. Other topics include job safety, additional plumbing mathematics, and science related to plumbing systems.

### **PLU 122 PLUMBING APPRENTICESHIP YR 2 SEM 2 5 CREDITS**

PLU 122 completes the second year of the PHCC national apprenticeship curriculum. The emphasis of this course is the design and installation of DWV systems that meet code requirements. Other topics include code and design requirements for: storm drainage systems, sewage and sump pumps and installation of plastic and cast iron DWV systems.

### **PLU 130 BASIC DRAIN, WASTE AND VENT 4 CREDITS**

Prerequisites: PLU 100, PLU 101, OSH 127 or permission of the instructor.  
PLU 130 gives the students the opportunity to learn how to design drain, waste and vent systems. Chapters 7 and 9 of the plumbing code will be discussed in the classroom and applied in the shop. Other topics include DWV materials, sizing systems, terminology, and practical application of code tables, traps and interceptors. Students will design DWV systems in the classroom and build the system in

the shop, thereby developing their isometric drawing skills.

### **PLU 150 CODE AND PIPING CALCULATIONS** **2 CREDITS**

PLU 150 reviews and applies code and piping calculation. Topics include calculations for the following: pipe and cylindrical area and volume, pipe circumference, rectangular area and volume, offsets, water volume and weight grade, fall, and run. The knowledge gained by students completing this course can be applied to all plumbing systems, fuel gas appliance piping and critical calculations for other mechanical and piping systems.

### **PLU 202 INTERNATIONAL RESIDENTIAL CODE – PLUMBING** **2 CREDITS**

PLU 202 covers the plumbing requirements of the IRC. Students will be given the opportunity to learn and apply the general requirements of this code. The course will review and apply the sizing requirements of part VII of this code

### **PLU 205 BACKFLOW PREVENTION CERTIFICATION TRAINING** **3 CREDITS**

PLU 205 prepares students with information and procedures for the development, implementation, maintenance and enforcement of back-flow prevention practices pursuant to federal and state regulation pertaining to cross connection control. The information in this course also prepares students to take the back-flow, ASSE cross-connection test.

### **PLU 206 UNIFORM PLUMBING CODE** **4 CREDITS**

PLU 206 will assist students in passing the plumbing licensing examinations for the State of

Colorado. This course reviews and interprets the Uniform Plumbing Code and the Colorado State Plumbing code. The course also reviews the need for enforcement of the Uniform Plumbing Code.

### **PLU 207 INTERNATIONAL PLUMBING CODE** **4 CREDITS**

PLU 207 helps plumbers working in jurisdictions where the International Plumbing Code has been adopted. This course will review the IPC and help the plumber apply the requirements of this code to the installation of plumbing systems. This Code has been adopted by the State Of Colorado effective July 1, 2005.

### **PLU 208 INTERNATIONAL FUEL GAS CODE** **4 CREDITS**

PLU 208 reviews the general requirements of applicable chapters of the IFGC. Students are given the opportunity to learn system sizing which includes: fuel gas piping, gas appliance venting, and combustion air.

### **PLU 215 BACKFLOW PREVENTION RE-CERTIFICATION** **1 CREDIT**

Prerequisite: Students must have a current Colorado Cross Connection Control Technician Certification. PLU 215 is designed for those technicians who have a current Colorado Cross Connection Control Certification and need to renew the certification. The course will review current state and federal regulations applicable to technician recertification and prepare for the current ASSE certification.

### **PLU 216 COLORADO PLUMBING CODE UPDATE** **2 CREDITS**

Prerequisites: PLU 207 or valid Colorado plumbing license.

PLU 216 is for those students that need to be updated on the Colorado Plumbing Code. The instructor will meet with you and schedule the necessary attendance.

### **PLU 227 MEDICAL GAS CERTIFICATION** **2 CREDITS**

Prerequisites: PLU 101, 207, or Colorado Journeyman Plumber License or permission of the instructor.

PLU 227 pursues medical gas certification and brazing testing. Specialty training includes anesthesia, respiratory and inhalation therapies. Medical gas system components, medical gas compressors and NFPA standards are examined. This course includes the training time required to meet the Colorado Examining Board of Plumbers requirements.

### **PLU 231 PLUMBING APPRENTICESHIP YR 3 SEM 1** **5 CREDITS**

PLU 231 continues the PHCC plumbing apprenticeship. The main emphasis of this semester is the introduction to gas appliances, heat, basic electricity and controls. Students will spend time building, operating and troubleshooting electromechanical devices.

### **PLU 232 PLUMBING APPRENTICESHIP YR 3 SEM 2** **5 CREDITS**

PLU 232 continues the PHCC plumbing apprenticeship. Instruction in this course includes: the use of builder's levels and transits, measuring slope and grade of plumbing excavations, installation and operation of residential and commercial fixtures, application of tank volume and capacities, planning and profitability in the plumbing profession.

**PLU 240 COMMERCIAL PLUMBING SYSTEMS  
4 CREDITS**

Prerequisites: OSH 127, PLU 100, 101, 120, 130.

PLU 240 reviews code requirements of plumbing systems typically found in commercial structures. Students will design and install systems meet these requirements.

**PLU 242 PLUMBING APPRENTICESHIP YR 4  
5 CREDITS**

PLU 242 completes the four year PHCC apprenticeship. The main emphasis of this course is to apply the requirements of the plumbing code and the specifications of structural blueprints to the design of plumbing systems including material take-off and estimation of labor. Other topics include solar heating and aspects of "green plumbing", basics of steam and forced air heating systems, pump theory and industrial repair. (This course is pending approval).

**PLU 244 COMMERCIAL PLUMBING SERVICE  
4 CREDITS**

Prerequisites: PLU 100, 105, 104, 120, and OSH 127.

PLU 244 covers the aspects of maintenance and repair of typical plumbing equipment, fixtures and associated systems found in commercial structures.

**PLU 247 HOT WATER HEATING SYSTEMS  
4 CREDITS**

Prerequisites: OSH 127, PLU 101, PLU 105, HVA 110, HVA 162 or permission of the instructor.

PLU 247 covers the theory of operation behind these systems, as well as installation, maintenance and repair. The course also examines air elimination, circulator pump and pipe sizing. Boiler and heat convactor sizing are also discussed.

**PLU 250 PLUMBING ESTIMATING AND COSTING  
4 CREDITS**

Prerequisites: PLU 207, CON 105 and CON 230, Journeyman Plumber's License or permission of the instructor.

PLU 250 will review and apply the information required to estimate and cost of the installation of plumbing and fixtures. Topics include labor, material take-off, overhead costs and running a profitable plumbing business.

**PLU 267 RADIANT HEATING SYSTEMS  
4 CREDITS**

Prerequisites: OSH 127, PLU 101 or HVA 110, HVA 105 or PLU 105, HVA 247, or permission of the instructor. PLU 267 is a combination lab/lecture course and covers the theory of operation, installation and maintenance of warm water radiant heating systems. Different methods of zoning, controls, piping methods, piping types and system components are discussed. Students are able to design, install, document, maintain and trouble-shoot all conventional residential warm water, radiant panel heating systems.

**PLU 275 SPECIAL TOPICS  
1-6 CREDITS**

PLU 275 provides students with a vehicle to pursue in depth exploration of special topics of interest

**PLU 280 TECHNICAL PROJECT  
1-12 CREDITS**

Prerequisite: Permission of instructor.

PLU 280 enables students to participate in individual study on a special project which is related to the plumbing program. This technical project consists of a written and approved proposal and scheduled progress reports.

**PLU 282 INTERNSHIP  
0.5-12 CREDITS**

Prerequisite: Permission of instructor.

PLU 282 will give students with prior course work in a specific area are eligible for internship. The internship will give you an opportunity to apply your course studies.

**PLU 285 INDEPENDENT STUDY  
0.5-12 CREDITS**

Prerequisite: Permission of instructor.

PLU 285 allows the student to work with the instructor on a specific area with specific objectives and a predetermined project completion date.

**POS – Political Science**

**WWW.RRCC.EDU/POLITICAL**

**POS 105 INTRODUCTION TO POLITICAL SCIENCE  
3 CREDITS**

POS 105 surveys the discipline of political science, including political philosophy and ideology, democratic and non-democratic processes, and international relations.

**POS 111 AMERICAN GOVERNMENT  
3 CREDITS**

POS 111 includes the background of the U.S. Constitution; the philosophy of American government; general principles of the U.S. Constitution; federalism; civil liberties; public opinion and citizen participation; political parties; interest groups and the electoral process; and the structure and functions of the national government.

**POS 125 AMERICAN STATE AND LOCAL GOVERNMENT  
3 CREDITS**

POS 125 is a study of the structure and functions of state, county, and

municipal governments including their relations with each other and with national government. Colorado government and politics are emphasized.

**POS 205 INTERNATIONAL RELATIONS**  
**3 CREDITS**

POS 205 examines the relationships among modern nation states. Topics include diplomacy, nationalism, ideologies, power and influence, conflict and cooperation, the role of non-state actors, the international economy, and theoretical attempts to understand international behavior.

**POS 215 CURRENT POLITICAL ISSUES**  
**1-3 CREDITS**

POS 215 is an in-depth analysis of critical issues in political science. Topics will be determined each term.

**POS 225 COMPARATIVE GOVERNMENT**  
**3 CREDITS**

POS 225 is a comparison of the basic features of selected developed and developing countries. Topics include ideologies, political parties, interest groups, and government institutions.

**POS 280 INTERNSHIP**  
**1-6 CREDITS**

POS 280 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

**PPT – Power Plant Technology**

**PPT 215 POWER GENERATION TECHNOLOGY**  
**3 CREDITS**

PPT 215 introduces the basic elements of electrical generator design, protection, and operation. Students are introduced to the theoretical aspects of reactive power in power systems by analyzing the inductive and capacitive components of the system, with an emphasis on megavar loading as it is affected by the excitation system. The generator's auxiliary systems and controls are introduced and the function and types of exciters commonly found in power plants are examined.

**PRA – Park Ranger**

[WWW.RRCC.EDU/PARK](http://WWW.RRCC.EDU/PARK)

**PRA 102 INTRODUCTION TO PARK RANGER TECHNOLOGY**  
**3 CREDITS**

PRA 102 is an introductory course covering the development of public lands in the U.S., the various agencies controlling these lands, multi-use doctrine, wilderness, public services provided in parks, and the various roles of the park ranger in different settings. Career planning and park ranger responsibilities will be discussed, such as law enforcement, natural resource management, protection, and interpretation, such as geologic, biologic, and historic or cultural resources. Visitor services, emergency response, management, and training are also covered.

**PRA 175 SPECIAL TOPICS**  
**1-6 CREDITS**

PRA 175 provides you with a vehicle to pursue in depth exploration of special topics of interest.

**PRA 178 PARK RANGER SKILLS SEMINAR**  
**2 CREDITS**

PRA 178 is a skills seminar that presents necessary information regarding specialized training related to the park ranger field. Handling of livestock, fence design, building and repair, vehicle driving, park maintenance, budgeting and planning, and trail design, construction, and maintenance are some of the topics that can be covered. This is a hands-on course for development and application of skills.

**PRA 203 NATURAL RESOURCE MANAGEMENT**  
**3 CREDITS**

Prerequisite: PRA 102.  
PRA 203 is an introductory course covering the various scientific disciplines and complex issues associated with natural resource management. Ecosystem management, wildlife management, plant ecology, agricultural management, career planning, public land acquisition, visitor use, natural resource law enforcement, and public policy are introduced and discussed in detail.

**PRA 205 NATURAL RESOURCE INTERPRETATION**  
**3 CREDITS**

PRA 205 is a basic course in natural and cultural resource interpretation. The philosophy, techniques, and skills necessary to produce exciting and relevant resource interpretation projects are discussed and practiced. Interpretive plans are discussed in detail as well as various techniques used in the field of resource interpretation and public education. The history and development of environmental education and natural/cultural resource interpretation are discussed. Multi-use conflict resolution of public education and resource interpretation are emphasized.

### **PRA 218 OUTDOOR LEADERSHIP 3 CREDITS**

PRA 218 is an introduction to the development, acquisition, and application of outdoor leadership skills and knowledge. You will be exposed to the latest information, philosophy, and techniques necessary to safely conduct outdoor programs and expeditions as an outdoor leader. Skills will be applied under actual field conditions.

Emphasis will be on minimum impact camping, wilderness ecology, judgment, decision-making, group dynamics, and trip logistics. These skills will enhance your effectiveness as a professional outdoor leader.

### **PRA 230 PARK RANGER LAW ENFORCEMENT TRAINING 3 CREDITS**

Prerequisite: PRA 102 or recent seasonal park employment/permission of the instructor.

PRA 230 is an intensive academy for non-armed park rangers who work in local government parks and open space districts. The focus is on ranger safety, regulation enforcement, incident command, limitations of authority, visitor contact, communications, and situational control techniques. Topics will vary depending upon the class needs.

### **PRA 255 ADVANCED RESOURCE INTERPRETATION 3 CREDITS**

Prerequisite: PRA 205.

PRA 255 is an advanced course in natural and cultural/historic resource interpretation. The course provides you with the skills to plan, prepare, and present exciting and relevant interpretation programs for special visitors and situations using a variety of personal and non-personal techniques. Examples of the types of skills offered are writing and design of site produced publications and exhibit labels; producing basic audio-visual programs; and

preparing and presenting special activities, such as demonstrations, living history, storytelling, costumed interpretation, and dramatic/creative arts. Techniques for resource interpretation for the physically or mentally challenged, sensory impaired, the elderly, and international visitors will be discussed. The sensitive handling of controversial/sensitive educational issues will also be discussed.

### **PRA 280 PARK RANGER INTERNSHIP 1-6 CREDITS**

Prerequisite: PRA 102.

PRA 280 gives you a realistic work experience in the field. All work will be supervised by park rangers currently employed by land management agencies at various levels of government. These preceptors will ensure that you participate in relevant field work and perform to the standards expected of employees of the agencies in which the internship occurs.

## **PRO – Process Technology**

[WWW.RRCC.EDU/ISOD](http://www.rrcc.edu/isod)

### **PRO 100 INTRODUCTION TO PROCESS TECHNOLOGY 4 CREDITS**

PRO 100 provides an overview or introduction into the field of Process Operations within the process industry. The course will introduce the roles and responsibilities of process technicians, the environment in which they work, and the equipment and systems in which they operate.

### **PRO 110 SAFETY, HEALTH AND ENVIRONMENT 3 CREDITS**

PRO 110 provides an introduction to the field of safety, health, & environmental concerns within the process industry. Within this course, you will be introduced to various types of plant hazards, safety and environmental systems and equipment, and the regulations under which processing plants are governed.

### **PRO 120 PROCESS TECHNOLOGY I: EQUIPMENT 4 CREDITS**

Prerequisite: PRO 100 and PRO 110 or permission of instructor.

PRO 120 provides an overview or introduction into the field of equipment within the process industry. This course will introduce many process industry-related equipment concepts including purpose, components, operation, and the Process Technician's role for operating and troubleshooting the equipment.

### **PRO 125 PROCESS EQUIPMENT II 4 CREDITS**

PRO 125 will familiarize the student with nomenclature, maintenance, safety and operations in relation to the stationary equipment utilized in the oil and gas and other process industries. This course provides an overview or introduction into the field of equipment and maintenance within the process industry. The course also provides an overview or introduction into the field of stationary equipment utilized in many of the process industries. This course will introduce many process industry-related equipment concepts including purpose, components, operation, and the Process Technician's role for operating and troubleshooting the equipment.

### **PRO 130 INSTRUMENTATION 3 CREDITS**

Prerequisite: PRO 100 and PRO 110 or permission of instructor.

PRO 130 provides an introduction to the field of Instrumentation and covers process variables and the various instruments used to sense, measure, transmit and control these variables. This course also introduces control loops and the elements that are found in different types of loops, such as controllers, regulators and final control elements. The course concludes with a study of instrumentation drawings and diagrams and a unit on troubleshooting instrumentation.

### **PRO 131 INSTRUMENTATION II 3 CREDITS**

PRO 131 introduces the student to switches, relays and annunciator systems and moves on to discuss signal conversion and transmission. Controllers, control schemes and advanced control schemes are covered at a level appropriate for the process technician. The student then moves on to learn about digital control, programmable logic control and distributed control systems before ending the course with a discussion of instrumentation power supplies, emergency shutdown systems and instrumentation malfunctions.

### **PRO 175 SPECIAL TOPICS 0.5 – 6 CREDITS**

Prerequisite: Permission of instructor.

PRO 175 provides students with a vehicle to pursue in depth exploration of special topics of interest.

### **PRO 185 INDEPENDENT STUDY 0.5 – 6 CREDITS**

Prerequisite: Permission of instructor.

PRO 185 meets the individual needs of students. Students engage in

intensive study or research under the direction of a qualified instructor.

### **PRO 210 PROCESS TECHNOLOGY II: SYSTEMS 4 CREDITS**

Prerequisite: PRO 120 and PRO 130 or permission of instructor.

PRO 210 studies the interrelationship of process equipment and process systems: arranging process equipment into basic systems; describing the purpose and function of specific process systems; explaining how factors affecting process systems are controlled under normal conditions; and recognizing abnormal process conditions. In addition, it introduces the concept of system and plant economics.

### **PRO 220 PROCESS TECHNOLOGY III: OPERATIONS 4 CREDITS**

Prerequisite: PRO 120 and PRO 130 or permission of instructor.

PRO 220 provides an introduction to the field of operations within the process industry. Students will use existing knowledge of equipment, systems, and instrumentation to understand the operation of an entire unit. Students study concepts related to commissioning, normal startup, normal operations, normal shutdown, turnarounds, and abnormal situations, as well as the Process Technician's role in performing the tasks associated with these concepts within an operating unit.

### **PRO 230 QUALITY IN PROCESS TECHNOLOGY 3 CREDITS**

Prerequisite: PRO 100 and PRO 110 or permission of instructor.

PRO 230 provides an introduction to the field of Quality within the Process Industry. This course will introduce many process industry-related quality concepts including operating consistency, continuous

improvement, plant economics, team skills and statistical process control (SPC).

### **PRO 240 PROCESS TROUBLESHOOTING 4 CREDITS**

Prerequisite: PRO 220 or permission of instructor.

PRO 240 provides instruction in the different types of troubleshooting techniques, procedures, and methods used to solve process problems. Topics include application of data collection and analysis, cause-effect relationships, and reasoning.

### **PRO 275 SPECIAL TOPICS 0.5 – 6 CREDITS**

Prerequisite: Permission of instructor.

PRO 275 provides students with a vehicle to pursue in depth exploration of special topics of interest.

### **PRO 280 INTERNSHIP 4 CREDITS**

Prerequisite: Permission of instructor.

PRO 280 provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **PRO 285 INDEPENDENT STUDY 0.5 – 6 CREDITS**

Prerequisite: Permission of instructor.

PRO 285 meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

## PSY – Psychology

**WWW.RRCC.EDU/  
PSYCHOLOGY**

### **PSY 101 GENERAL PSYCHOLOGY I 3 CREDITS**

PSY 101 is the scientific study of behavior including motivation, emotion, physiological psychology, stress and coping, research methods, consciousness, sensation, perception, learning and memory.

### **PSY 102 GENERAL PSYCHOLOGY II 3 CREDITS**

PSY 102 focuses on the scientific study of behavior including cognition, language, intelligence, psychological assessment, personality, abnormal psychology, therapy, sexuality, life span development, and social psychology.

### **PSY 110 CAREER DEVELOPMENT 3 CREDITS**

PSY 110 assists you in recognizing your career potential, and provides tools for making realistic decisions concerning educational and occupational objectives.

### **PSY 116 STRESS MANAGEMENT 3 CREDITS**

PSY 116 identifies the physiological, emotional and behavioral aspects of stress. Techniques of stress reduction and management are explored and applied, including nutrition, exercise, assertiveness, time management, and financial management. This course is not designed to transfer.

### **PSY 117 PARENTING 1 CREDIT**

PSY 117 focuses on effective techniques for parenting children, with emphasis on setting expectations, consideration of

individual differences, satisfactory communication, and effective parent-child relationships.

### **PSY 175 SPECIAL TOPICS 1-3 CREDITS**

PSY 175 provides you with a vehicle to pursue in-depth exploration of special topics of interest.

### **PSY 180 INTERNSHIP 1-3 CREDITS**

PSY 180 provides you with the opportunity to supplement course work with practical work experience related to your educational programs. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **PSY 204 RELATIONSHIPS: CHALLENGES AND CHOICES 1 CREDIT**

PSY 204 enables you to preserve and enhance couple relationships by understanding the role of gender differences, conflict patterns, communication skills, problem solving, and the meaning of commitment, fun, and friendship.

### **PSY 205 PSYCHOLOGY OF GENDER 3 CREDITS**

PSY 205 examines gender comparisons in work, dating, family life, and sexual behavior throughout the life span. What is the interplay between biology and environment when looking at these gender differences?

### **PSY 215 PSYCHOLOGY OF ADJUSTMENT 3 CREDITS**

PSY 215 emphasizes personal growth and the development of interpersonal skills. Focus is on the practical application of psychological principles in achieving understanding of the

self and identity, interpersonal communication, and close relationships.

### **PSY 217 HUMAN SEXUALITY 3 CREDITS**

PSY 217 surveys the physiological, psychological, and psychosocial aspects of human sexuality. Some of the topics include anatomy, relationships, sexual identity, sexual health, and sex in the media.

### **PSY 226 SOCIAL PSYCHOLOGY 3 CREDITS**

PSY 226 covers the behavior of humans in social settings including attitudes, aggression, conformity, cooperation and competition, prejudice, and interpersonal attraction.

### **PSY 227 PSYCHOLOGY OF DEATH AND DYING 3 CREDITS**

PSY 227 examines the philosophies of life and death, emphasizing dying, death, mourning, and the consideration of one's own death.

### **PSY 235 HUMAN GROWTH AND DEVELOPMENT 3 CREDITS**

PSY 235 is an overview of human development from conception, childhood, adolescence, adulthood, through the end of life. Material emphasizes physical, cognitive, emotional, and psychosocial factors.

### **PSY 238 CHILD GROWTH AND DEVELOPMENT 3 CREDITS**

PSY 238 covers growth and development of the individual from conception through childhood, emphasizing physical, cognitive, emotional, and psychosocial factors.

**PSY 249 ABNORMAL  
PSYCHOLOGY  
3 CREDITS**

PSY 249 examines abnormal behavior and its classification, causes, treatment, and prevention. Focuses on how psychology views mental illness and how people experience various emotional and cognitive issues.

**PSY 250 DYNAMICS OF  
RACISM AND PREJUDICE  
3 CREDITS**

PSY 250 focuses on early race relations in the United States, the development of prejudicial attitudes, and the social impact and strategies for positive change.

**PSY 258 INTRODUCTION TO  
NEUROPSYCHOLOGY  
3 CREDITS**

PSY 258 focuses on introduction to basic neuropsychological terms and concepts with emphasis on application of thinking and behavior in humans.

**PSY 265 PSYCHOLOGY OF  
PERSONALITY  
3 CREDITS**

PSY 265 examines the structure, function, and development of personality. It also investigates the major contemporary theories of personality and covers psychodynamic, behavioral, cognitive-social learning, humanistic, trait, and, optionally, neurobiological, existential, and/or Eastern perspectives. The underlying assumptions and research support for these theories are appraised. The course enables you to gain an appreciation of the value of alternative theoretical approaches to this study of psychology.

**REA – Reading**

**REA 030 BASIC READING  
SKILLS  
2 CREDITS**

Prerequisite: Appropriate ACCUPLACER score.  
REA 030 focuses on strategies for word attack, vocabulary development, stages of reading and basic reading comprehension.

**REA 060 FOUNDATIONS OF  
READING  
3 CREDITS**

Prerequisite: REA 030 or appropriate ACCUPLACER score.  
REA 060 focuses on strategies for vocabulary development, improved reading comprehension and enrichment.

**REA 090 COLLEGE  
PREPARATORY READING  
3 CREDITS**

Prerequisite: REA 060 or appropriate ACCUPLACER score.  
REA 090 applies strategies for improving comprehension, developing vocabulary, and increasing rate for reading college textbooks.

**REE – Real Estate**

**WWW.RRCC.EDU/BUSINESS**

**REE 119 15-HOUR NATIONAL  
USPAP COURSE  
1 CREDIT**

Corequisites: REE 120 and REE 121.  
REE 119 satisfies the 16-hour continuing education requirement (standard) for licensed real estate appraisers including one hour of state appraisal rules and regulations.

**REE 120 BASIC APPRAISAL  
PRINCIPLES  
2 CREDITS**

Corequisites: REE 119 and REE 121.  
REE 120 provides a basic understanding of the principles and concepts for the trainee level

of appraisal also known as the registered appraiser. The course provides a basic understanding of real estate concepts and characteristics, legal considerations, the economic principles of value, and types of value. It includes an overview of Real Estate markets and analysis and the application of ethnics in appraisal practice.

**REE 121 BASIC APPRAISAL  
PROCEDURES  
2 CREDITS**

Corequisites: REE 119 and REE 120.  
REE 121 offers the second half of the Real Estate Appraisal Course. It provides basic valuation procedures and concepts for the trainee level of appraisal also known as the registered appraiser. The course provides a basic understanding of real estate property characteristics and description, and the appraisal process including the application and reconciliation of the approaches to value.

**REE 201 REAL ESTATE  
BROKERS I  
6 CREDITS**

Corequisite: REE 202.  
Prerequisite: A grade of C or higher in Reading 090 or appropriate SAT, ACT or Accuplacer score that indicates college reading ability, or permission of instructor.  
REE 201 enables you, in conjunction with REE 202 - Real Estate Brokers II, to meet the educational requirements of the Colorado Real Estate Commission for a Colorado Real Estate Broker's license. This course includes Real Estate Law and Practice, Practical Applications, and Current Legal Issues.

**REE 202 REAL ESTATE  
BROKERS II  
6 CREDITS**

Corequisite: REE 201.  
Prerequisite: A grade of C or higher in Reading 090 or appropriate SAT, ACT or Accuplacer score that



indicates college reading ability, or permission of instructor.  
REE 202 enables you, in conjunction with REE 201 - Real Estate Brokers I, to meet the educational requirements of the Colorado Real Estate Commission for a Colorado Real Estate Broker's license. This course includes Colorado Contracts and Regulations, Closings, and Recordkeeping and Trust Accounts.

**REE 275 SPECIAL TOPICS  
1-3 CREDITS**

REE 275 provides you with a vehicle to explore special topics of interest in depth.

**REE 280 INTERNSHIP  
1-3 CREDITS**

Prerequisite: Permission of instructor.

REE 280 provides you with the opportunity to supplement course work with practical work experience related to your educational program and occupational objectives. You will be placed at approved workstations related to your program of study. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

**REE 285 INDEPENDENT STUDY  
1-3 CREDITS**

Prerequisite: Permission of instructor.

REE 285 meets your individual needs through intensive study or research under the direction of a qualified instructor.

## RTE – Radiologic Technology

**WWW.RRCC.EDU/  
MEDICALIMAGING**

You must be accepted into the Radiology Program to take any RTE course other than RTE 101 or RTE 255.

**RTE 101 INTRODUCTION TO  
RADIOGRAPHY  
2 CREDITS**

RTE 101 provides an introduction to radiology including equipment, exposure, positioning and the knowledge necessary for the radiography student to provide safe patient care including communication skills, body mechanics, patient transfer, and radiography as a profession.

**RTE 111 RADIOGRAPHIC  
PATIENT CARE  
2 CREDITS**

RTE 111 expands the information presented in RTE 101, and includes diversity, universal precautions, legal considerations and ethics. This course consists of lecture and laboratory experience in the patient care areas of asepsis, vital signs, venipuncture, medical emergencies, assistance with drug administration, patients with special needs, and death and dying.

**RTE 121 RADIOLOGIC  
PROCEDURES I  
3 CREDITS**

RTE 121 introduces fundamentals of radiographic positioning including use of radiographic equipment and safety, positioning, terminology, anatomy, pathology, and skills necessary to perform radiographic procedures of the chest, abdomen, upper extremity, gastrointestinal and urinary systems.

**RTE 122 RADIOLOGIC  
PROCEDURES II  
3 CREDITS**

RTE 122 introduces additional material covered in RTE 121 including the knowledge of anatomy, pathology, and skills necessary to perform radiographic procedures of the lower extremity, pelvis, spine, and bony thorax.

**RTE 131 RADIOGRAPHIC  
PATHOLOGY & IMAGE  
EVALUATION I  
1.5 CREDITS**

RTE 131 provides a detailed discussion of pathological conditions of the skeletal, respiratory, digestive, urinary, and reproductive systems. Related medical terminology will be discussed, along with assessment of exposure adjustment for pathologic conditions and evaluation of radiographs for appropriate anatomy, positioning exposure and pathology.

**RTE 132 RADIOGRAPHIC  
PATHOLOGY & IMAGE  
EVALUATION II  
1.5 CREDITS**

RTE 132 expands on the information in RTE 131 with a focus on pathology of the skull, vascular system, central nervous system, endocrine system. Related medical terminology will be discussed along with the continued assessment of image quality.

**RTE 141 RADIOGRAPHIC  
EQUIPMENT/ IMAGING I  
3 CREDITS**

RTE 141 introduces the fundamental aspects of radiographic equipment including a basic review of physics fundamentals pertaining to x-ray production, the x-ray machine, image receptors, and control of scatter radiation.

**RTE 142 RADIOGRAPHIC EQUIPMENT/IMAGING II  
3 CREDITS**

RTE 142 expands information covered in RTE 141 and provides in-depth knowledge of radiographic exposure and the factors that effect radiographic film quality and assurance.

**RTE 181 RADIOGRAPHIC INTERNSHIP I  
5 CREDITS**

RTE 181 introduces the clinical education experience at the clinical education center. You will apply knowledge learned in the classroom to the actual practice of radiography.

**RTE 182 RADIOGRAPHIC INTERNSHIP II  
5 CREDITS**

RTE 182 introduces additional concepts and more complex radiographic procedures than those learned in Radiographic Internship I.

**RTE 183 RADIOGRAPHIC INTERNSHIP III  
7 CREDITS**

RTE 183 reinforces the basic concepts of Radiographic Internship I and II.

**RTE 221 ADVANCED MEDICAL IMAGING  
3 CREDITS**

RTE 221 introduces advanced imaging techniques including radiography of the cranium, facial bones and special radiographic procedures. These concepts are combined with the basic oral communication techniques necessary for the professional radiographer.

**RTE 231 RADIATION BIOLOGY/ PROTECTION  
2 CREDITS**

RTE 231 provides the basic knowledge and understanding of the biologic effects of ionizing radiation and radiation protection and safety.

**RTE 255 MULTIPLANAR SECTIONAL IMAGING  
2 CREDITS**

RTE 255 offers a course designed to increase knowledge in multi-planar/ multi-modality sectional anatomy for imaging professionals, radiologic technology students, and other interested health care professionals. Correlative studies of line drawings, cadaverous photographs, MRI, and CT images are thoroughly studied.

**RTE 281 RADIOGRAPHIC INTERNSHIP IV  
8 CREDITS**

RTE 281 introduces you to the radiographic specialty areas of Pediatrics, Geriatrics, the out-patient clinic, as well as increasing proficiency in general radiography.

**RTE 282 RADIOGRAPHIC INTERNSHIP V  
8 CREDITS**

RTE 282 introduces you to the radiographic specialty areas of portable and trauma radiography as well as increasing proficiency in general radiography.

**RTE 289 CAPSTONE COURSE  
3 CREDITS**

RTE 289 prepares the radiology technology student to effectively search for a job in radiography and sit for the American Registry of Radiologic Technologists examination.

**RUS – Russian**

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

**RUS 101 CONVERSATIONAL RUSSIAN I  
3 CREDITS**

RUS 101 introduces you to beginning conversational Russian and focuses on understanding and speaking Russian. This course covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

**RUS 102 CONVERSATIONAL RUSSIAN II  
3 CREDITS**

Prerequisite: RUS 101 or permission of instructor.

RUS 102 continues the sequence for students who wish to understand and speak Russian. This course covers basic conversational patterns, expressions, and grammar.

**RUS 111 RUSSIAN LANGUAGE I  
5 CREDITS**

RUS 111 begins a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the Russian language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

**RUS 112 RUSSIAN LANGUAGE II  
5 CREDITS**

RUS 112 continues Russian I in the development of functional proficiency in listening, speaking, reading and writing the Russian language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

**RUS 275 SPECIAL TOPICS  
0.5-6 CREDITS**

RUS 275 provides you with a vehicle to pursue in depth exploration of special topics of interest.

**SBM – Small Business Management**

[WWW.RRCC.EDU/BUSINESS](http://WWW.RRCC.EDU/BUSINESS)

**SBM 101 STARTING A SMALL BUSINESS  
1 CREDIT**

SBM 101 provides a brief overview of various topics related to starting a small business. Some topics are types of businesses, location, image, insurance, permits, and licenses.

## **SBM 103 LEGAL ASPECTS OF A SMALL BUSINESS**

### **1 CREDIT**

SBM 103 provides a brief overview of the legal issues involved in starting and managing a small business. The course focuses on business organization, contracts and agreements, and protecting the business.

## **SBM 106 RECORDKEEPING FOR A SMALL BUSINESS**

### **1 CREDIT**

SBM 106 provides an overview of recordkeeping for a small business. You will learn basic bookkeeping skills and recordkeeping requirements.

## **SBM 108 MARKETING FOR A SMALL BUSINESS**

### **1 CREDIT**

SBM 108 provides a brief overview of the marketing functions applied to a small business. Topics include planning a marketing strategy, promoting a business, competitive analysis, and customers and prospects.

## **SBM 110 MANAGING A SMALL BUSINESS**

### **1 CREDIT**

SBM 110 provides a brief overview of the management process as it applies to the small business. Concepts covered in the course include setting goals, conducting evaluations, and analyzing financial records.

## **SBM 112 FINANCING A SMALL BUSINESS**

### **1 CREDIT**

SBM 112 provides a brief overview of the basics of financing a small business. Topics include sources of capital, types of business loans, and maintenance of cash flow.

## **SBM 113 WRITING A BUSINESS PLAN**

### **1 CREDIT**

Prerequisites: SBM 101, 103, 106, 108, 110 and 112 or permission of instructor.

SBM 113 is the final course in the small business certificate program. You will write a business plan from the material you have developed in the other courses.

## **SBM 175 SPECIAL TOPICS 1-3 CREDITS**

SBM 175 provides you with a vehicle to pursue in depth exploration of special topics of interest.

## **SBM 185 INDEPENDENT STUDY**

### **1 CREDIT**

Prerequisite: Permission of instructor.

SBM 185 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **SCI – Science**

### **WWW.RRCC.EDU/SCIENCE**

## **SCI 155 INTEGRATED SCIENCE I 4 CREDITS**

Prerequisite: MAT 099.

SCI 155 examines the nature of energy and matter, their interactions and changes. This course integrates the fundamental concepts and ideas about the nature of physics and chemistry with the natural world.

## **SCI 156 INTEGRATED SCIENCE II 4 CREDITS**

Prerequisite: MAT 099.

SCI 156 examines earth and biological systems, living and non-living environments, through the application and refinement of fundamental energy and matter concepts. Topics covered include the origins of the planet and the life upon it, interactions between

climatology and life, how to interpret land forms and the implications for ecoregions, basic mineralogy, basic biological chemistry, cell structure and metabolism, and other areas of interface between biology and geology.

## **SOC – Sociology**

### **WWW.RRCC.EDU/SOCIOLOGY**

## **SOC 101 INTRODUCTION TO SOCIOLOGY I 3 CREDITS**

SOC 101 examines the basic concepts, theories and principles of sociology, as well as human culture, social groups, the role of society in the development of self, deviance, and the social issues of age, gender, class, race and ethnicity in contemporary society.

## **SOC 102 INTRODUCTION TO SOCIOLOGY II 3 CREDITS**

SOC 102 is a continuation of introduction to Sociology 101. This course is devoted to examining "social institutions" and their representative organizations from a macro-micro perspective. It critically explores issues of social change, demography, social movements, and conflicts and trends within political, economic, educational, religious, and familial structures.

## **SOC 105 SOCIO-HISTORY US RACE/ETHNICITY 3 CREDITS**

SOC 105 explores the Socio-Historical context by which the US developed its diverse racial and ethnic make-up. Theories of Integration and Segregation will be explored across the eras. Changing US immigration, naturalization, prejudice and discrimination across the centuries will be addressed.

**SOC 158 MEN'S ROLES IN FAMILIES AND SOCIETY: AN INTRODUCTION TO FATHERHOOD**  
**3 CREDITS**

SOC 158 examines men as fathers as well as their role in the wider culture. It seeks to enhance the personal, historical, professional and behavioral awareness of fathers and the professionals who serve them.

**SOC 201 INTRODUCTION TO GERONTOLOGY**  
**3 CREDITS**

SOC 201 acquaints you with the major issues and concepts pertinent to the field of gerontology. The course introduces various theoretical perspectives on aging, the changing trends in life expectancy and other demographic considerations, and the interrelationship between elders and key social institutions. It provides an overview of physical, cognitive, and socioemotional factors associated with aging.

**SOC 203 URBAN-SOCIO ANTHROPOLOGY**  
**3 CREDITS**

SOC 203 examines how cities and city life are shaped by cultural, social, political, and economic forces operating at many different levels. Additionally, SOC 203 examines the history and theoretical roots of urban anthropology and sociology, ethnographic fieldwork in urban environment, and urban social organization in cross-cultural perspectives.

**SOC 205 SOCIOLOGY OF FAMILY DYNAMICS**  
**3 CREDITS**

SOC 205 develops an understanding of marriage, family and kinship. The course examines the family as an institution and how social, cultural and personal factors influence family relations. The stability and diversity of the family will be explored, along with current trends and some alternative lifestyles.

**SOC 207 ENVIRONMENTAL SOCIOLOGY**  
**3 CREDITS**

SOC 207 is the examination of humans and the environment from an ecological perspective. SOC 207 focuses on industrial and economic growth versus sustainability, natural resources development and management, environmental values and social movements, and comparative perspectives on people's relationship to the environment. Review of the "Green" movement and other environmental movements and their impacts upon social dynamics, the environment, and the evolution of social movements.

**SOC 212 RESEARCH IN SOCIAL SCIENCES**  
**3 CREDITS**

SOC 212 introduces social research methods with an emphasis on the scientific method and the role of empirical inquiry into sociology. This course will include the study of methodologies of data collection and analysis, the logic of research, the role of theory, measurement, sampling and research designs. Field research and the professional norms and ethics of social research will also be covered.

**SOC 215 CONTEMPORARY SOCIAL PROBLEMS**  
**3 CREDITS**

SOC 215 critically explores current social issues that result in societal problems. This course adopts a social constructionist perspective to focus on such issues as civil liberties, gender discrimination, substance abuse, crime, poverty and social change.

**SOC 216 SOCIOLOGY OF GENDER**  
**3 CREDITS**

SOC 216 gives you the theoretical and factual background necessary to understand the phenomenon of gender stratification in American and

other cultures. You will be exposed to a history of gender stratification in human societies, theoretical explanations for this and insights into the consequences of gender differentiation in our world today.

**SOC 218 SOCIOLOGY OF DIVERSITY**  
**3 CREDITS**

SOC 218 explores the variety of intergroup relations regarding race, nationality, ethnicity, gender, sexual orientation, and other diversity issues. Patterns of prejudice, discrimination and possible solutions to these issues will be addressed.

**SOC 220 SOCIOLOGY OF RELIGION**  
**3 CREDITS**

SOC 220 provides an introduction to the sociology of religion, including a comparative and critical examination of world religions, by focusing on sociological interpretation and explanation of the role of religion in human culture. The interaction between society and religion is thus examined as are a wide variety of religious beliefs and practices.

**SOC 222 AGEING IN A DIVERSE SOCIETY**  
**3 CREDITS**

SOC 222 examines the present and future roles of the aged in the family, the community, and the workplace. Economic, political, health, and retirement systems will be studied.

**SOC 223 CHICANOS IN A CHANGING SOCIETY**  
**3 CREDITS**

SOC 223 explores the lives and roles of Chicanos and Chicanas (Americans of Mexican descent). It introduces students to the Chicano community, its historical, political and social development. It explores the ways in which Chicano communities interrelate with Anglo and multicultural societies as well as its future prospects.

**SOC 231 SOCIOLOGY OF  
DEVIANT BEHAVIOR  
3 CREDITS**

SOC 231 examines the nature, identification, and explanation of deviant categories. Theories, and philosophies as well as methods of treatment related to deviancy will also be considered. The course will study society's attempts to control, change, and institutionalize those acts, individuals or groups that a population may deem unacceptable.

**SOC 237 DEATH AND DYING  
3 CREDITS**

SOC 237 provides an opportunity to familiarize you and professionals with the needs and issues surrounding dying and death. This course will provide sociological, psychological, religious, historical and anthropological perspectives for interpreting contemporary American customs dealing with dying, death and bereavement. We will examine the professions associated with death and dying, such as hospice, funeral and crematory institutions, and medical care.

**SOC 265 VIOLENCE AND  
CULTURE  
3 CREDITS**

SOC 265 examines the concepts, relationships, organizations, and research as they relate to violence in multiple cultural settings. This course assists in developing an understanding of societal and institutional causes of violence; explores resources for intervention and treatment; and provides service learning applications in violence assessment, treatment, and victim assistance.

**SOC 275 SPECIAL TOPICS IN  
SOCIOLOGY  
3 CREDITS**

SOC 275 provides you with a vehicle to pursue in depth exploration of special topics of interest.

**SOC 280 INTERNSHIP  
1-3 CREDITS**

SOC 280 provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

**SOC 285 INDEPENDENT  
STUDY  
3 CREDITS**

SOC 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

**SOC 289 CAPSTONE  
3 CREDITS**

SOC 289 studies and applies the theories and techniques of leadership and group processes. In addition, SOC 289 introduces leadership skills and experiences with applications in group and community settings.

**SOC 292 SERVICE LEARNING  
1-3 CREDITS**

SOC 292 allows the student to provide a service to the community utilizing knowledge and skills acquired from a course in which the student is currently enrolled or has previously taken at the student's respective college.

**SPA – Spanish**

[WWW.RRCC.EDU/LANGUAGES](http://WWW.RRCC.EDU/LANGUAGES)

**SPA 101 CONVERSATIONAL  
SPANISH I  
3 CREDITS**

SPA 101 provides beginning students with the skills necessary to understand and speak Spanish. The material includes basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

**SPA 102 CONVERSATIONAL  
SPANISH II  
3 CREDITS**

Prerequisite: SPA 101 or permission of instructor.

SPA 102 provides you with the skills necessary to understand and speak Spanish. The material continues to cover basic conversation patterns, expressions, and grammar.

**SPA 109 SPANISH FOR  
TRAVELERS  
2 CREDITS**

SPA 109 introduces the basic vocabulary and expressions useful to travelers in the Spanish speaking countries. The course will concentrate on the customs, traditions and cultural attitudes to be discovered by visitors to the destination country. Cultural diversity and global awareness are integral to this course of study. This course does not fulfill Humanities area requirements and is not intended for transfer.

**SPA 111 SPANISH LANGUAGE I  
5 CREDITS**

SPA 111 deals with the development of functional proficiency in listening, speaking, reading and writing the Spanish language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

**SPA 112 SPANISH LANGUAGE II  
5 CREDITS**

Prerequisite: SPA 111 or permission of instructor.

SPA 112 continues Spanish Language I in the development of functional proficiency in listening, speaking, reading and writing the Spanish language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **SPA 114 FAST-TRACK SPANISH I AND II 5 CREDITS**

SPA 114 is designed to bridge beginning SPA courses with intermediate SPA courses. It is designed for students who have studied two years of the target language in high school and possess linguistic and cultural knowledge that true beginners do not, but are not ready yet to move to the intermediate level because they need an in-depth review of essential structures.

### **SPA 115 SPANISH FOR THE PROFESSIONAL I 3 CREDITS**

SPA 115 is designed as an introduction to working knowledge of the target language, cultural behaviors and values useful in various professional fields such as health care, law enforcement, bilingual education, business, and others.

### **SPA 211 SPANISH LANGUAGE III 3 CREDITS**

Prerequisite: SPA 112 or permission of instructor.

SPA 211 continues Spanish Language I and II in the development of increased functional proficiency in listening, speaking, reading and writing the Spanish language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **SPA 212 SPANISH LANGUAGE IV 3 CREDITS**

Prerequisite: SPA 211 or permission of instructor.

SPA 212 continues Spanish Language I, II and III in the development of increased functional proficiency in listening, speaking, reading and writing the Spanish language. Note: The order of the topics and the methodology will vary according to individual texts and instructors.

### **SPA 215 SPANISH FOR THE PROFESSIONAL II 3 CREDITS**

SPA 215 continues Spanish 115 in the development of a working knowledge of the target language, cultural behaviors and values useful in various professional fields such as health care, law enforcement, bilingual education, business, and others.

### **SPA 275 SPECIAL TOPICS 1- 6 CREDITS**

SPA 275 provides you with a vehicle to pursue indepth exploration of special topics of interest.

### **SPA 285 INDEPENDENT STUDY 1-6 CREDITS**

Prerequisite: Permission of Instructor.

SPA 285 meets the individual needs of students. You will engage in intensive study or research under the direction of a qualified instructor.

## **TEC – Technical**

### **TEC 205 GEOMETRIC DIMENSIONING AND TOLERANCING 3 CREDITS**

TEC 205 enables you to interpret geometric dimensioning and tolerancing (GDT) in machining or drafting. The course covers math formulas, tolerancing systems, modifiers, symbols, datums, and tolerances of form, profile, orientation, runout, and location. You will learn that the generation of a working drawing is a team effort among design, drafting, manufacturing, and quality control.

## **THE – Theatre Arts**

[WWW.RRCC.EDU/THEATRE](http://WWW.RRCC.EDU/THEATRE)

### **THE 100 TECHNICAL THEATRE LAB 1-3 CREDITS**

THE 100 provides you with safety training for working with equipment used for technical theatre, as well as hands-on experience in one or all of the following areas: stage lighting, set construction, stage properties, costuming, and makeup.

### **THE 104 BASIC COSTUME AND APPAREL CONSTRUCTION 3 CREDITS**

THE 104 provides you with training in cutting and sewing techniques, as well as knowledge of fabric types, qualities, uses, and cleaning.

### **THE 105 THEATRE APPRECIATION 3 CREDITS**

THE 105 includes discussions, workshops, and lectures designed to discover, analyze, and evaluate all aspects of the theatre experience: scripts, acting, directing, staging, history, criticism, and theory.

### **THE 109 BASICS OF PATTERN DRAFTING 3 CREDITS**

Prerequisite: THE 104 or permission of instructor.

THE 109 provides you with basic techniques in pattern drafting. Techniques will include exploring computer design as well as traditional drafting methods.

### **THE 111 ACTING I 3 CREDITS**

THE 111 covers basic acting techniques and approaches including scene study, improvisation, and script analysis. The course includes practical application through classroom performance.

### **THE 112 ACTING II 3 CREDITS**

Prerequisite: THE 111 or permission of instructor.

THE 112 continues to explore basic acting techniques and approaches including scene study, improvisation, and intermediate script analysis. The course includes practical application through classroom performance.

### **THE 115 – STAGE MOVEMENT FOR ACTORS 3 CREDITS**

THE 115 introduces the vocabulary of human movement, techniques of physical training, and anatomy and kinesiology for the actor. The course includes forms of basic dance and the coordination of movement with vocal delivery.

### **THE 116 TECHNICAL THEATRE 3 CREDITS**

THE 116 introduces hands-on methods of constructing and painting scenery and properties and operating stage lighting. You will also learn the proper procedures of using shop equipment and serving on stage crews.

### **THE 118 ACTING SKILLS TRADES/BUSINESS 3 CREDITS**

THE 118 incorporates acting skills that are useful for everyday interactions and public presentations. You can improve your personality habits through acting exercises to become more effective in your daily relationships and communication skills and also in presenting yourself in public. This class is especially for those who don't want to be actors but who would like to learn how to be more comfortable on the "stage" of life.

### **THE 120 DRAFTING FOR THE PERFORMING ARTS 3 CREDITS**

Prerequisite: THE 116 or permission of instructor.

THE 120 teaches you to apply basic drafting techniques to various performing arts applications and venues such as ground and lighting plots for stage, film, dance, and music. Other projects will include design layouts, working, and detailed isometric drawings. Attention will be given to drawing symbols, notations, dimensions, and blueprint reading.

### **THE 125 INDIVIDUAL SINGING LESSONS FOR MUSICAL THEATER 0.5 CREDITS**

THE 125 focuses on basic vocal technique including breath support, belt technique, diction, body alignment, expressive communication, stage presence, and microphone techniques. Various repertoire and styles are explored. The course includes a final performance before an invited audience.

### **THE 126 AUDITIONING FOR MUSICAL THEATER 3 CREDITS**

THE 126 builds a confident, talented, and exciting audition. The course includes a mock video taped audition, and covers résumés, head shots, repertoire choices, stage fright, 16-bar audition, and dressing for success. This course is presented in conjunction with producers from regional theaters, providing valuable feedback for the participants.

### **THE 131 THEATRE PRODUCTION I 3 CREDITS**

Prerequisite: THE 111, THE 112, or permission of instructor.

THE 131 allows you to put into practice theories of theatre production. Participation in set construction, scenic artistry,

costuming, lighting, sound, acting, stage managing, and administration is available.

### **THE 132 THEATRE PRODUCTION II 3 CREDITS**

Prerequisites: ENG 060, REA 090, THE 111, THE 112, or permission of instructor.

THE 132 allows you to put into practice theories of theatre production. Participation in set construction, scenic artistry, costuming, lighting, sound, acting, stage managing, and administration is available.

### **THE 135 STAGE MAKEUP I 2 CREDITS**

THE 135 covers makeup design and application techniques. Techniques include basic corrective, character, old age, and fantasy application.

### **THE 136 STAGE MAKEUP II 2 CREDITS**

Prerequisite: THE 135.

THE 136 continues to explore theatrical makeup design and application techniques. In addition, prosthetics, hair design, and other more advanced applications will be explored.

### **THE 140 STAGE DIALECTS 1 CREDIT**

THE 140 teaches you to develop skills in nine dialects and accents.

### **THE 141 IMPROVISATION I 1 CREDIT**

THE 141 helps you learn improvisation skills for performance and character development. Emphasis is placed on the "Second City" style of improvisation.

### **THE 142 IMPROVISATION II 1 CREDIT**

Prerequisite: THE 141, THE 111, or permission of instructor.

THE 142 helps you continue developing improvisation skills learned in THE 141. Exercises are more advanced and difficult. Level of instruction is appropriate for experienced and/or advanced actors.

### **THE 143 BASIC ACTING TECHNIQUE 1 CREDIT**

THE 143 offers scene work and acting exercises for people with little or no training or experience in the theatre. The Stanislavski System of character analysis and development is stressed.

### **THE 144 SCENE STUDY 1 CREDIT**

Prerequisite: THE 143, THE 111, or permission of instructor.

THE 144 emphasizes the Stanislavski approach. You will explore acting skills through advanced material, including avant garde and classical.

### **THE 151 STAGECRAFT I 3 CREDITS**

Prerequisite: THE 116 or permission of the instructor.

THE 151 focuses upon fundamental theories and construction of flats, platforms, stair units, soft scenery, and other aspects of stagecraft.

### **THE 152 PRODUCTION STAGE MANAGEMENT I 3 CREDITS**

Prerequisite: THE 116 or permission of the instructor.

THE 152 focuses on the basics of stage management, including making a stage manager's book, organizational methods and protocols of production, calling cues in production, and personnel relationships and responsibilities.

### **THE 175 SPECIAL TOPICS 1 CREDIT**

Prerequisite: THE 143 or THE 144, or THE 111 or permission of instructor.

THE 145 focuses on the selection and preparation of audition materials, including prepared monologues, cold readings, and improvisation techniques. The basics of résumé preparation are also discussed.

### **THE 200 PAINT/ DRAW/ RENDER MODELING TECHNIQUES 3 CREDITS**

THE 200 introduces art techniques that are needed specifically in Theatrical Design. Techniques will include painting, rendering of scenic, lighting, costume designs, and model construction techniques.

### **THE 210 SINGING FOR ACTORS 3 CREDITS**

THE 210 allows you to explore and perform musical theatre songs. You will use a pedagogical approach to evaluate your vocal structure and formulate a systematized series of vocal and whole body exercises to develop and enhance your self-confidence and vocal instrument through in-class performance and variety show presentation.

### **THE 211 DEVELOPMENT OF THEATRE I 3 CREDITS**

THE 211 surveys the history and evolution of drama from Ancient Greece to the Renaissance, emphasizing all aspects of the art from period values to analysis of dramatic literature and performance.

### **THE 212 DEVELOPMENT OF THEATRE II 3 CREDITS**

THE 212 surveys the history and evolution of drama from the Renaissance to the present, emphasizing all aspects of the art from period values to the analysis of dramatic literature and performance.

### **THE 213 INTERMEDIATE ACTING I 3 CREDITS**

THE 213 continues THE 112. Emphasis is on artistic concentration of voice and movement. A detailed character biography is required.

### **THE 214 INTERMEDIATE ACTING II 3 CREDITS**

THE 214 emphasizes artistic concentration of voice and movement. Detailed character biography is required. This course is a continuation of THE 213.

### **THE 215 PLAYWRITING 3 CREDITS**

THE 215 gives you the opportunity to learn and practice playwriting techniques, thereby improving creative writing skills. Elements of dramatic structure dialogue, styles, and theatrical practices are emphasized.

### **THE 216 THEATRE LIGHTING AND DESIGN 3 CREDITS**

Prerequisite: THE 116 or permission of the instructor.

THE 216 focuses on the theory and practice of stage lighting. Topics include basic electrical theory, color theories, rigging and design of lighting for the performing arts.

### **THE 220 DIRECTING I 3 CREDITS**

Prerequisite: THE 111 or permission of instructor.

THE 220 covers basic techniques for stage directing in contemporary theatre. Topics to be covered



include stage composition, script analysis, work with actors, and the collaborative role of the director.

### **THE 221 SET DESIGN 3 CREDITS**

Prerequisite: THE 116 or permission of instructor.

THE 221 emphasizes two- and three-dimensional drawings and designs and color theory. Basic methods of artistic analysis and coordinating with other creative personnel are included. You will construct 3-D models and a theatrical stage set.

### **THE 225 SOUND OPERATION AND DESIGN 2 CREDITS**

THE 225 is designed for you to understand and apply fundamental processes required to create a conceptual sound design for a stage play.

### **THE 230 DIRECTING II 3 CREDITS**

Prerequisite: THE 220 or permission of the instructor.

THE 230 continues to explore basic technique for stage directing in contemporary theatre. Subjects to be covered are stage composition, script analysis, work with actors, and the collaborative role of the director. You will direct a one-act theatre piece for the final project.

### **THE 231 THEATRE PRODUCTION III 3 CREDITS**

THE 231 allows you to continue to put into practice the theories of theatre production. Participation in set construction, scenic artistry, costuming, lighting, sound, acting, stage-managing, and administration are available.

### **THE 232 THEATRE PRODUCTION IV 3 CREDITS**

Prerequisites: THE 111, THE 112 or permission of the instructor.

THE 232 allows you to put into

practice theories of theatre production. Participation in set construction, scenic artistry, costuming, lighting, sound, acting, stage managing, and administration is available.

### **THE 237 HISTORY OF COSTUMES AND FASHION 3 CREDITS**

THE 237 provides an examination of the clothing and accessories used by humans around the world from Prehistoric to Modern times.

### **THE 240 THEATER VOICE AND DICTION 3 CREDITS**

THE 240 provides you with individual tutorials which define design and apply specific vocal techniques to abate singing and speech difficulties. Master class performances provide the opportunity to conjure the energy, charisma, and stage command necessary for presentations.

### **THE 241 STAGE PROPERTIES 3 CREDITS**

Prerequisite: THE 116 or permission of the instructor.

THE 241 offers the fundamentals of set dressing/stage properties theory and practice, including plot design, period style, set props, hand props, production paperwork, and scene changes.

### **THE 245 BASIC COSTUME DESIGN AND CONSTRUCTION 3 CREDITS**

Prerequisites: THE 106 and THE 108.

THE 245 explores the basics of costume design and color theory. Construction techniques using regular and industrial sewing machines will be applied in constructing costumes and accessories. You will be introduced to pattern drafting.

### **THE 260 EMPLOYMENT SKILLS FOR TECHNICAL THEATRE 1 CREDIT**

THE 260 provides you the opportunity to assemble a portfolio and résumé for classroom presentation and job applications.

### **THE 275 SPECIAL TOPICS: THEATRE 1-6 CREDITS**

THE 275 explores current topics, issues, and activities related to one or more aspects of the named discipline.

### **THE 280 INTERNSHIP 1-6 CREDITS**

THE 284 provides you with the opportunity to supplement course work with practical work experience related to your educational program. You will work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

### **THE 285 INDEPENDENT STUDY 1 CREDIT**

THE 285 emphasizes structured and guided individualized study that is organized and tailored around the interests and needs of the individual student.

## **WEL – Welding**

### **WEL 100 SAFETY FOR WELDERS 1 CREDIT**

WEL 100 covers the hazards of welding on health and safety, locating essential safety information from a code or other standard, and identifying and applying shop safety procedures.

**WEL 101 ALLIED CUTTING PROCESSES**  
**4 CREDITS**

WEL 101 covers setting up equipment and performing cutting and gouging operations utilizing the oxyacetylene, air carbon arc, and plasma arc cutting processes. This course will also provide an introduction to blueprint reading.

**WEL 102 OXYACETYLENE JOINING PROCESSES**  
**4 CREDITS**

WEL 102 introduces safety inspections, minor repairs, operating parameters, oxyacetylene welding equipment, and oxyacetylene welding, brazing, and soldering operations. Blueprint reading skills will be practiced in this course.

**WEL 103 BASIC SHIELDED METAL ARC I**  
**4 CREDITS**

WEL 103 covers performing safety inspections, making minor repairs, adjusting operating parameters, and operating SMAW equipment utilizing E-6010 and E-7018 electrodes. Layout procedures and practices will also be introduced.

**WEL 110 ADVANCED SHIELDED METAL ARC I**  
**4 CREDITS**

WEL 104 covers safety inspections, minor repairs, operating parameters, operation of SMAW equipment, and SMAW operations on groove and fillet welds utilizing E-6010 and E-7018 electrodes. Layout procedures will be practiced during this course.

**WEL 124 INTRODUCTION TO GAS TUNGSTEN ARC WELDING**  
**4 CREDITS**

WEL 124 covers welding in all positions and on various joint configurations using the GTAW (tig) welding process on carbon steel, stainless steel and aluminum. Student should be familiar with

basic metallurgy pertaining to the weldability of metals, structural joints, and safety in the welding industry.

**WEL 130 MAINTENANCE WELDING**  
**4 CREDITS**

Prerequisites: Permission of the instructor.

WEL 130 provides the student a basic understanding of the Oxyacetylene cutting and Arc welding processes, and introduction to the skills and techniques used to develop fillet and groove welds. Students will be introduced to oxyacetylene, shielded, gas metal arc welding equipment set up, and various welding techniques. Safety will be stressed during the course.

**WEL 201 GAS METAL ARC WELDING I**  
**4 CREDITS**

WEL 201 covers safety inspections, minor repairs, operating parameters, operation of GMAW equipment on plain carbon steel utilizing short circuit and spray transfer, and fundamental metallurgy principles.

**WEL 202 GAS METAL ARC WELDING II**  
**4 CREDITS**

WEL 202 covers safety inspections, minor repairs, operating parameters, operation of GMAW equipment utilizing a variety of electrodes and base metals, and fundamental principles of welding metallurgy to welding, fabrication, and inspection.

**WEL 203 FLUX CORED ARC WELDING I**  
**4 CREDITS**

WEL 203 covers safety inspections, minor repairs, operating parameters, operation of FCAW equipment utilizing self shielded wire, and principles of joint design, preparation, and material selection to welding operations.

**WEL 204 FLUX CORED ARC WELDING II**  
**4 CREDITS**

WEL 204 covers safety inspections, minor repairs, operating parameters, operating FCAW equipment utilizing gas shielded wire, and applying fundamentals of welding applications and cost estimating to welding, fabrication, and inspection.

**WEL 224 ADVANCED GAS TUNGSTEN ARC WELDING**  
**4 CREDITS**

WEL 224 covers welding in all positions on carbon steel, stainless steel and aluminum plate and carbon steel pipe with the GTAW process. Student should be familiar with basic metallurgy pertaining to the weldability of metals, structural joints, and safety in the welding industry.

**WEL 250 LAYOUT AND FABRICATION**  
**4 CREDITS**

WEL 250 develops welding and associated skills in the use of drawings and blueprints in planning. Includes designing and layout projects.

**WQM – Water Quality Management Technology**

[WWW.RRCC.EDU/WQM](http://WWW.RRCC.EDU/WQM)

All courses are approved for OCPO training units (TU's).

**WQM 100 INTRODUCTION TO WATER QUALITY MANAGEMENT**  
**3 CREDITS**

WQM 100 introduces the water and wastewater treatment field and acquaints the prospective technicians with the applied science concepts that are used

to operate, maintain and monitor water quality. Topics include hydrological cycle, water sources, hydraulics, ecosystems, pollution, water chemistry, water calculations, microbiological aspects of water and water quality control.

### **WQM 105 SPECIFIC CALCULATIONS FOR WATER QUALITY MANAGEMENT 4 CREDITS**

WQM 105 provides you with an in-depth study of the calculations associated with water and wastewater treatment. Topics include dimensional analysis, detention time, surface loading, filtration and backwash rates, settleable solids, volatile solids, mean cell residence times, settleability, disinfection, and chemical dosage as relating to trickling filters, ponds, RBC and activated sludge.

### **WQM 109 WATER DISTRIBUTION SYSTEMS 3 CREDITS**

WQM 109 covers the purpose, selection and location of water storage facilities and the operation and maintenance of related equipment. Topics include storage facilities and capabilities, booster pumps, water mains and appurtenances, joints, pipe protection and installation, valves, fittings, and hydrants. Water quality standards, contaminants and degradation inspection and monitoring, system troubleshooting, are also covered.

### **WQM 118 WASTEWATER COLLECTION SYSTEMS 3 CREDITS**

WQM 118 covers the purpose, components and design of collection systems. Topics include safety procedures, inspection and testing, pipeline cleaning and maintenance, underground repair, lift stations and sewer rehabilitation. Additionally,

students gain knowledge on industrial pre-treatment, design and flow patterns within a hydraulic flow system

### **WQM 119 BASIC WATER QUALITY ANALYSIS 4 CREDITS**

WQM 119 relates the results of laboratory control tests to the chemistry of water and wastewater treatment. You will gain the skills and techniques to operate within a laboratory. Topics include laboratory equipment and instrumentation identification, written reports and laboratory tests. Laboratory testing includes hardness, alkalinity, dissolved oxygen, biochemical oxygen demand, inorganic chemicals, pH and disinfectant residuals.

### **WQM 120 WATER QUALITY EQUIPMENT MAINTENANCE 4 CREDITS**

WQM 120 provides an in-depth understanding of mechanical and electrical equipment maintenance. Topics include correct use of power and hand tools, preventive and repair maintenance of pumps, motors, chlorinators, motor control units, and other treatment plant equipment and safety procedures.

### **WQM 121 ENVIRONMENTAL SAMPLING AND VOLUME MEASUREMENT 3 CREDITS**

WQM 121 is designed to provide you with the knowledge and skills to collect contaminant samples for laboratory analysis, to select and prepare appropriate sample containers; to keep accurate sampling records; access sampling sites and do composite sampling. This course also provides sampling safety skills and sampling quality control and assurance methods.

### **WQM 122 INSTRUMENTATION AND ELECTRICAL CONTROL 3 CREDITS**

WQM 122 provides an understanding of electrical theory, various types of electrical instrumentation equipment found in treatment facilities, operation, troubleshooting electrical problems and safety procedures.

### **WQM 123 WATER REUSE SYSTEMS 3 CREDITS**

WQM 123 discusses the new and developing area in the industry known as Reuse. Topics include, development, treatment techniques, operations, equipment, source and application uses for wastewater Reuse systems as well as future planning for long term use in the industry.

### **WQM 124 WATER CERTIFICATION REVIEW FOR CLASS C AND D 3 CREDITS**

WQM 124 helps prepare you for the operators certification test in water at the C or D level. Topics include water principles, mathematics, hydraulics, water filtration, chemical treatment, source control, basic operations, Colorado Primary Drinking Water Regulations, housekeeping and laboratory analysis.

### **WQM 125 WASTEWATER CERTIFICATION REVIEW FOR CLASS C AND D 3 CREDITS**

WQM 125 helps you prepare for the operators certification test in wastewater at the C or D level. Topics include wastewater principles, mathematics, hydraulics, conventional treatment of wastewater, wastewater sedimentation, Colorado Water Quality Control Act, biological treatment of wastewater, effluent standards for wastewater, sludge

handling and disposal, disinfection, pumps, safety, housekeeping, and laboratory analysis.

### **WQM 126 SAFETY AND SECURITY SYSTEMS IN THE WATER QUALITY INDUSTRY** **3 CREDITS**

WQM 126 covers the safety aspects in the water and wastewater industry. Topics include development of safety policies and programs, job safety orientation, driving practices, CPR/first aid, confined spaces, hazardous communication, safety with energy electrical, mechanical, thermal and pressure, trenching, street work, laboratory, treatment equipment, construction vehicles/equipment and chlorine and other chemicals, security and safety standards.

### **WQM 150 TROUBLESHOOTING** **3 CREDITS**

WQM 150 provides you with troubleshooting practices and procedures for chemical adjustments, equipment failures; electrical, mechanical, pneumatic and hydraulic, source contamination, system control procedures and redundancies.

### **WQM 160 MANAGING THE GLOBAL WATER SUPPLY** **3 CREDITS**

WQM 160 provides the student with the opportunity to study water resources in the industry. This course is designed to aid with future planning strategies with source water management practices including both ground water and surface water sources. Topics include, demand forecasting, water rights, alternative sources, storage, injection and hydraulic modeling, watershed management and integrated resource planning.

### **WQM 165 - WATER LAW** **3 CREDITS**

WQM 165 introduces the student to legal requirements within the water and wastewater industries. Topics include groundwater water rights, non tributary water supplies, geothermal resources, water decrees and rights, water court operations, building and maintaining water utilities, absolute and conditional water rights and water ownership resumes. The student also is introduced to augmentation systems water right exchange processes.

### **WQM 169 - INTERNATIONAL DEVELOPMENT** **3 CREDITS**

WQM 169 exposes the student to typical water and wastewater development plans for international communities. This includes health studies, environmental impact studies, system design considerations, sustainability and funding programs. Topics also include basic design templates as well as development systems for operations and maintenance programs through research of available resources in remote communities.

### **WQM 200 HYDRAULICS FOR WATER QUALITY MANAGEMENT** **4 CREDITS**

WQM 200 introduces the mathematical principles of density, specific gravity, pressures horsepower and energy costs, velocities, weirs, Parshall flumes, venturi meters, California pipe method, flows from open-end pipes, settling velocities and classification of flow, distribution system friction losses.

### **WQM 206 DESIGN INTERPRETATIONS OF WATER QUALITY SYSTEMS** **4 CREDITS**

WQM 206 provides an in-depth study and interpretation of blueprints, scale drawings, contour maps, profile drawings and symbols application to treatment facilities. The course also includes basics in HVAC, lighting, construction techniques, building materials and energy conservation.

### **WQM 207 OPERATIONS AND CONTROL OF ACTIVATED SLUDGE SYSTEMS** **4 CREDITS**

WQM 207 provides a basic engineering overview of the activated sludge process and develops all process control activities around the biology of the treatment system. Topics include: settle-o-meters, flow concentrations, and oxygen uptake, turbidity, microscopic examination of organisms, trend charting, process control strategies. Classroom activities are reinforced by field trips to various treatment facilities.

### **WQM 212 DRINKING WATER REGULATIONS** **4 CREDITS**

WQM 212 instructs you on application, interpretation and implementation of the Colorado Primary Drinking Water Regulations as they apply to all types and sizes of public water systems and their source water.

### **WQM 216 BIOLOGICAL AND BACTERIOLOGICAL WATER QUALITY ANALYSIS** **4 CREDITS**

Prerequisite: WQM 119  
WQM 216 studies microorganisms associated with all phases and concerns of water and wastewater treatment including bacteria, protozoa and algae. Topics include: microorganisms used in treatment,

as indicators and the pathogens; regulations, health hazards and laboratory safety. Laboratory work involves media preparation, coliform testing, standard plate count, and biomonitoring.

### **WQM 217 DISINFECTION TECHNIQUES IN WATER QUALITY SYSTEMS**

#### **4 CREDITS**

WQM 217 provides an understanding of disinfection alternatives used in treatment systems such as chlorine, ozone, ultraviolet light and bromine chloride. Topics include chemistry, equipment/maintenance, startup/shutdown procedures, hazards, safety and troubleshooting.

### **WQM 224 WATER TREATMENT CERTIFICATION REVIEW FOR A AND B**

#### **3 CREDITS**

WQM 224 prepares the student for the water operations certification exam at the A and B level. Topics include water treatment principles, water filtration, chemical treatment, Colorado Primary Drinking Water Regulations, calculations, instrumentation, equipment operation and maintenance, utility management, laboratory analysis, and water quality control.

### **WQM 225 WASTEWATER TREATMENT CERTIFICATION REVIEW FOR A AND B**

#### **3 CREDITS**

WQM 225 prepares the student for the wastewater operations certification at the A and B level. Topics include activated sludge, nutrient removal, digestion, solids handling, effluent removal, odor control, wastewater reclamation, discharge permit regulations and reporting, calculation, instrumentation, equipment operations and maintenance, laboratory analysis and utility management.

### **WQM 230 INDUSTRIAL MONITORING AND TREATMENT**

#### **3 CREDITS**

WQM 230 provides an understanding of industrial treatment. Various types of treatment systems are reviewed. Also included are safety, collection and preserving of samples, establishing an industrial monitoring program, operational strategies, interpretation of laboratory results, startup/shutdown of systems, maintenance, plans and specification, various types of industrial wastes, and troubleshooting.

### **WQM 280 INTERNSHIP**

#### **1-6 CREDITS**

Contact the Water Quality Management Technology department for information about this course at 303.914.6325.

### **WQM 285 INDEPENDENT STUDY**

#### **1-6 CREDITS**

Contact the Water quality management Technology department for information about this course at 303.914.6325.

# NOTES

# STAFF & FACULTY DIRECTORY

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# CATALOG INDEX

---

## A

AAA-Academic Achievement 132  
About Red Rocks 8  
Academic Achievement 38  
Academic Calendar 2  
Academic Integrity 23  
Academic Probation 24  
Academic Programs 45  
Academic Renewal 24  
ACC-Accounting 132  
Accelerated Courses 36  
Accounting 46  
ACE-Architectural 133  
ACT-Automotive Collision Technology 133  
Admission Procedures 27  
Admissions 27  
Advisors 4  
Affirmative Action/Equal Opportunity 42  
Air Conditioning, Heating and Refrigeration 47  
ANT-Anthropology 136  
Application Deadlines for International Students 34  
Applied Technology 50  
ARA-Arabic 137  
ARM-Military Science (U.S. Army ROTC) 137  
Art 50  
ART-Art 137  
ASE-Automotive Service Technology 142  
ASL-American Sign Language 144  
Assessment 28  
Associate of Applied Science Career-Oriented Degree 9  
Associate of Applied Science Degree (AAS) 17  
Associate of Applied Science Programs 19  
Associate of Arts Degree (AA) 10  
Associate of Arts Transfer Degree 9  
Associate of General Studies Generalist Career-Oriented Degree 9  
Associate of General Studies-Generalist Degree (AGS) 15  
Associate of General Studies Specialist Articulated Transfer Degree 9  
Associate of General Studies-Specialist Degree (AGS) 14  
Associate of Science Degree (AS) 12  
Associate of Science Transfer Degree 9  
AST-Astronomy 144  
Attendance 23  
Audit (AU) 4  
Auto Collision Technology 50  
Automotive Service Technology 52

## B

BIO-Biology 145  
Biology 53  
Bookstore 38  
BTE-Business Technology 146  
Building Codes. **See** Construction Management and Technology  
Building Maintenance. **See** Construction Management and Technology  
BUS-Business 146  
Business 54  
Business Technology 56

## C

CAD-Computer-Aided Design 147  
Cafeteria 38  
Calendar. **See** Academic Calendar  
Campus Police 38  
CAR-Carpentry 149  
Career Resources 29  
Carpentry 56  
Catalog Terms 4  
CCCOOnline Courses 36  
CCCS-Common Courses 30  
Certificates 20  
CHE-Chemistry 150  
Chemistry 57  
Child Care 38  
CIS-Computer Information Systems 151  
CLEP-College-Level Examination Program 4  
CMD-Communication Disorders 153  
CNG-Computer Networking 154  
Coffee Bar 38  
College Opportunity Fund (COF) 32  
College Success for All Students 38  
Colorado Residents 32  
COM-Communication Studies 155  
Common Course Numbering System-Colorado Community College System (CCCS) 30  
Communication 57  
Communication Disorders 57  
Communication Lab 39  
Computer Information Systems 58  
Computer Science 64  
CON-Construction Technology 156  
Connect to Success 38  
Construction Management and Technology 65

# CATALOG INDEX

Construction Management and Technology Programs 65  
COS-Cosmetology 158  
Cosmetology 69  
Course Descriptions 131–262  
Course Load 23  
Credit for Prior Learning (CPL) 29  
Criminal Justice 70  
CRJ-Criminal Justice 160  
CSC-Computer Science 164  
CUA-Culinary Arts 165  
Culinary Arts 72  
CWB-Computer Web 168

## D

DAN-Dance 169  
Degrees/Degree Requirements 9  
Diagnostic Medical Sonography. **See** Sonography  
DMS-Diagnostic Medical Sonography 170  
Drug and Alcohol Abuse Information 42

## E

Early Childhood Education 73  
ECE-Early Childhood Education 173  
ECO-Economics 175  
Economics 75  
EDU-Education 176  
EGT-Engineering Graphics Technology 177  
EIC-Electricity/Industrial/Commercial/Residential 178  
Electricity Commercial/Industrial/Residential 75  
Elementary Education. **See** Teacher Education  
Emergency Management and Planning 79  
Emergency Medical Services 80  
EMP-Emergency Management and Planning 182  
EMS-Emergency Medical Services 183  
Energy and Environmental Technology Programs 81  
Energy Efficiency 47, 56, 65, 117  
Energy Maintenance 75, 92, 128  
Energy Operations 75, 115  
ENG-English 184  
Engineering Graphics Technology 82  
Engineering (Pre-Engineering) 81  
English 84  
English Language/Intercultural Services 39  
ENT-Engineering Technology 185  
Entrepreneurship. **See** Business  
ENV-Environmental Science 186  
Environmental Technology 125

Environmental Technology - Natural Resource Management 84, 188  
ENY-Energy Technology 186  
ESL-English as a Second Language 187  
ESL/Foreign Language Lab 39  
EST-Esthetician 188  
Esthetician (skin). **See** Cosmetology  
Exemptions to the Assessment Requirement 29

## F

Financial Aid 32  
Financial Obligations of Students 32  
Fine Woodworking 86  
Fire Protection Technology. **See** Electricity Commercial/Industrial/Residential  
Fire Science Technology 88  
Fitness Education Center 38  
FIW-Fine Woodworking 189  
Flex Courses 36  
Foreign Languages 90  
Former Students 28  
FRE-French 192  
FST-Fire Science Technology 192

## G

GED-General Education 197  
GED Pre-test and Preparation 39  
GEO-Geography 197  
Geology 90  
GER-German 197  
GEY-Geology 197  
GIS-Geographic Information Systems 198  
Grade Point Average (GPA) Calculation 24  
Grades 23  
Grading Symbols 23  
Graduation 26

## H

Hairstylist. **See** Cosmetology  
Health Professions 90  
Heating. **See** Air Conditioning, Heating and Refrigeration  
HHP-Holistic Health Professional 199  
High School Students 28  
HIS-History 203  
History 91  
Holistic Health Professional. **See** Health Professions

# CATALOG INDEX

Honors Program 25  
HPR-Health Professional 204  
HUM-Humanities 206  
HVAC/R. **See** Air Conditioning, Heating and Refrigeration  
HVA-Heating Ventilation and Air Conditioning 206  
HWE-Health and Wellness 210  
Hybrid Courses 36

## I

IMA-Industrial Maintenance Technology 210  
Independent Study 36  
IND-Interior Design 211  
Industrial Maintenance Technology - Energy  
Maintenance 92  
Intensive English Program 35  
Interior Design 82  
International Students 28, 34  
Internships 40  
ITA-Italian 211

## J

JOU-Journalism 212  
JPN-Japanese 213

## L

LARC-Learning and Resource Center 38  
Library 39  
LIT-Literature 213

## M

MAC-Machining 214  
Management/Marketing. **See** Business  
Manicurist. **See** Cosmetology  
MAN-Management 216  
MAR-Marketing 217  
Mathematics 95  
MAT-Mathematics 218  
Medical Imaging 95  
Medical Office Technology 96  
MET-Meteorology 220  
MGD-Multimedia Graphic Design 220  
Military Science (U.S. Army ROTC) 30  
MIL-Milwright 225  
MOT-Medical Office Technology 225  
Multimedia Graphic Design 97  
MUS-Music 226

## N

NAT-Nail Technician 228  
Natural Resource Management 84  
Non-resident Students 32  
Notification of Rights Under FERPA for Postsecondary  
Institutions 43  
NUA-Nursing Assistant 229  
NUR-Nursing 229

## O

Office of Special Services 39  
Online Courses 36  
Online Writing Center 40  
OSH-Occupational Safety Technician 229  
Outdoor Recreation 107

## P

PAP-Physician Assistant Program 230  
Paraeducator 121  
Park Ranger Technology 109  
PED-Physical Education 232  
PER-Physical Education and Recreation 235  
Petitioning for Waivers/Program Substitutions 25  
Philosophy 110  
PHI-Philosophy 236  
Phi Theta Kappa 26  
Phlebotomy. **See** Health Professions  
PHO-Photography 238  
Photography. **See** Multimedia Graphic Design  
PHY-Physics 240  
Physical Education/Outdoor Education 110  
Physician Assistant 110  
Physics 112  
Plagiarism 6  
Plumbing 112  
PLU-Plumbing 240  
Political Science 113  
POS-Political Science 243  
PPT-Power Plant Technology 244  
PRA-Park Ranger 244  
Precision Machining Technology 114  
Pre-Nursing 113  
Prerequisite 6  
Priority Dates to Receive Financial Aid 32  
Privacy Notification 43  
Process Technology - Energy Operations 115

---

# CATALOG INDEX

---

PRO-Process Technology 245  
Psychology 116  
PSY-Psychology 247

## R

Radiologic Technology 116  
Real Estate and Small Business Start-Up. **See** Business  
REA-Reading 248  
Recognition of Achievement 25  
Red Rocks Options. **See** Scheduling Options  
REE-Real Estate 248  
Refrigeration. **See** Air Conditioning, Heating and Refrigeration  
Renewable Energy Technology 117  
Repeating Courses 25  
Resident 32  
RN Refresher Program. **See** Health Professions  
Rocky Mountain Education Center (RMEC) 22  
ROTC. **See** Military Science (U.S. Army ROTC)  
RRCC Foundation 33  
RRCC Guiding Principles 8  
RRCC Online Courses 36  
RTE-Radiologic Technology 249  
RUS-Russian 250

## S

SBM-Small Business Management 250  
Scheduling Options 36  
SCI-Science 251  
Secondary Education. **See** Teacher Education  
Self-Paced Courses 37  
Service Learning 41  
Sociology 120  
SOC-Sociology 251  
Solar Photovoltaic 117  
Solar Thermal 117  
Sonography 120  
SPA-Spanish 253  
Speech and Communication. **See** Communication  
Staff & faculty Directory 268  
State-guaranteed General education Courses 10  
State-guaranteed General Education Courses 12  
Student Center 40  
Student Employment and Internship Services 40  
Student Rights 42  
Student Services 38  
Students with Disabilities 42

Student Voice 41  
Student Success 38

## T

Teacher Education 121  
TEC-Technical 254  
Theatre Arts 123  
Theatre Technology 125  
THE-Theatre Arts 254  
Transcripts 30  
Transfer of Credits 30  
Transferring from RRCC to Four-Year Colleges and Universities 31  
Tuition Payment 33  
Tutoring 40

## V

Vascular Technology 120  
Veterans Progress 26

## W

Waivers 25  
WarrenTech 31  
Water Quality Management Technology 125  
Weekend College 37  
Welding 127  
WEL-Welding 257  
Wind Energy Technology 128  
Withdrawal (W) 24  
Woodworking. **See** Fine Woodworking  
WQM-Water Quality Management Technology 258  
Writing Center 40

## X

XXX 6

NOTES

# NOTES