



red rocks community college

2004-2005 general catalog

**RED
ROCKS
COMMUNITY
COLLEGE**

*Where Learning
Is For Life*



opportunities, options, excellence

www.rccc.edu

Degree programs, courses and transfer agreements are constantly under review, and subject to periodic changes. Check the Red Rocks website for the latest updates to catalog and schedule information.

www.rrcc.edu

Red Rocks reserves the right, whenever it judges necessary to meet changing academic, instructional, student or fiscal needs, to modify without notice the information contained in the college catalog or class schedule.



Contents

This catalog applies to students beginning their Red Rocks studies from spring semester 2004 through spring semester 2005.

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General Information

Learn facts about Red Rocks, how to apply, tuition and financial aid, services for students, flex and distance learning, academics and graduation.



Welcome



Hello and welcome to the book that could change your life.

Enclosed is an overview of Red Rocks Community College – who we are, the principles that guide us every day, how we operate, and most important of all, the wealth of classes and learning options we offer to help you achieve your educational goals.

Since 1969, when we opened as a campus of Community College of Denver, Red Rocks has changed in many ways in response to changes in our student body and the educational needs of our communities. What has remained constant for us is a strong commitment to providing students with an excellent educational opportunity to fit their needs – retraining for a changing job market, a close-to-home and affordable beginning of a four-year degree, new skills to enhance performance at work, or simply the joy of learning something new.

If you know exactly what you want to learn, you'll find easy-to-access information in this catalog. If you are uncertain where you want to go, leaf through and explore the possibilities at Red Rocks. Need a knowledgeable guide? Use the catalog as a tool, as one of our advisors helps you discover the direction that's right for you.

We have hundreds of outstanding certificate and two-year degree programs. Because our students have busy lives beyond their education, we offer classes day, night and weekend, online and self-directed study. Those seeking a challenge can sign up for our honors classes or Learning Communities, explore our international education opportunities, get involved in Service Learning and take advantage of Student Life activities and leadership opportunities.

Through my years as an educator, it has been my great pleasure to see thousands of community college students take that first step toward their individual definition of success (a community college was my first step in realizing my personal and professional goal).

Let Red Rocks help you onto your path to success.

Sincerely,

Eric E. Reno, Ed.D.

**Opportunities
Options
Excellence**

Opportunities

- Transfer programs to all Colorado public four-year colleges and universities, and institutions throughout the country, including a unique agreement with the Colorado School of Mines
- Agreements with many private colleges
- Technical and vocational degrees and certificates
- Workforce development initiatives
- Avocational opportunities
- Institutional financial support through our Foundation and Financial Aid programs

Options

- Courses available at all times and in a variety of delivery formats
- More than 80 courses offered online each semester
- Honors Program
- International education and study abroad
- Learning Communities
- Service Learning
- Student organizations, leadership opportunities and activities

Excellence

- Top-ranked chapter of Phi Theta Kappa, the honor society for two-year colleges
- Impressive faculty qualifications, work experience and achievements
- Student, employer and employee satisfaction
- Commitment to continuous improvement
- Sustained record of RRCC student success at four-year colleges and universities



About RRCC

Red Rocks 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.

We also offer an affordable start for students who plan to earn a four-year degree.

Lakewood Campus

The Lakewood campus is located on a 140-acre site on a hillside with sweeping views of the Front Range.

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

The building's long main hallway is filled with students from around the metro area, the state, the country and 40 foreign countries.

The full range of services for students includes academic advising, tutoring, financial aid, a cafeteria and coffee shop, recreational facilities and a fitness center, library, a project center and student employment center.

Arvada Campus

The Arvada campus is known for its innovative schedule options and its friendly, helpful atmosphere. The campus, which lies just northwest of the intersection of I-70 and Kipling, has "smart" state-of-the-art classrooms and offers courses in computer technology. We also offer general education core courses and basic-skills courses in math and English.

The LARC (Learning and Resource Center) is the centerpiece of the building, housing the Computer Commons, assessment, online support, library services, tutorial services in math and basic skills, free computerized Pre-GED testing, career resources, study areas and access to the Internet. Students can receive advising, register and pay for classes, and receive financial aid information in one convenient location.

The Arvada Campus also offers a series of free business seminars. For a complete listing, visit www.rrcc.edu/arvada.

Guiding Principles

Vision: RRCC is a leader in learning and a valued partner in transforming lives and building communities.

Mission: RRCC develops and supports lifelong learners so that they may live fuller lives and add value to the communities in which they live and work.

Values: RRCC values diversity, integrity, honesty, innovation, communication and teamwork.

Purpose: RRCC gives students opportunities for lifelong learning as a foundation for full participation in the global community. To do this, we provide:

- The first two years of baccalaureate education for transfer to four-year colleges and universities
- Occupational and business education designed to meet individual, local and regional employer needs
- Customized training and consulting for the public and private sector
- Basic skills education to give under-prepared students access to post-secondary education, entry-level employment or job upgrades
- Student support services ranging from financial aid to childcare that assist students with diverse backgrounds, needs and educational objectives
- Community services including cultural programs, noncredit offerings, and forums designed to encourage diversity of thought about public issues

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**



Admissions

*Four steps
and you're in:*

- 1. Apply**
- 2. Test your skills**
- 3. See an advisor**
- 4. Pick your classes**

Red Rocks Community College welcomes anyone who can benefit from our instructional programs and courses, including high school graduates, nongraduates and students 16 years old or older who are currently enrolled in high school.

Admission does not assure acceptance into a particular course or program. Some programs have limited space and special admissions procedures; applicants for these programs must contact the appropriate division. Although you may enroll in any course in which you have a reasonable expectation for completion, if you have a learning deficiency, you may be required to enroll in courses designed to correct it.

The college may review your enrollment if you do not appear to be profiting from instruction or if your enrollment poses a hazard to yourself or others. The director of Enrollment Services reviews questions of admissibility. Admission based on false statements or documents may be reversed, and credits completed under these circumstances may be revoked.

Admission Procedures

First-time students entering degree programs within the Colorado state system of community colleges are assessed in reading, writing and mathematics. Those who do not meet basic-skills standards must complete appropriate basic-skills instruction. Students who begin classes and later enroll in a certificate or degree program must participate in assessment at the time they enroll in the program. International students should contact the International Education Office at **303.914.6416** to begin their admission process.

1. Submit an Application for Admission, including the declaration of program, major or area of study. Applications are in the schedule and online at www.rrcc.edu.
2. Take the COMPASS basic-skills assessment or show proof of ACT/SAT qualifying scores before registration to assist in making appropriate educational plans. This is not an entrance exam. Assessment times are listed in the current schedule under "Assessment." No appointment is required. Students whose assessment scores are below college level are responsible for enrolling in basic-skills courses during their first 30 credit hours of attendance. Information: **303.914.6720**
3. See an academic advisor and complete the registration process.

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

High School Students: Red Rocks Community College welcomes high school students who are at least 16 years old and can benefit from our instructional programs. To get started, follow these simple steps:

1. Talk to your high school counselor. Upon approval from your 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. Fill out paperwork, available in your career/counseling center.
 - Complete a Red Rocks Community College Application for Admission
 - Complete a Statewide Agreement form (for high school concurrent enrollment).
 - Depending on the program through which you enter Red Rocks, you may need additional forms.
3. Complete the Assessment Process. Submit qualifying ACT or SAT scores (www.rrcc.edu/assessment/minimum.htm) or complete the free COMPASS assessment at the college. The COMPASS measures your readiness for college-level course work; it is not a test of whether or not you can attend Red Rocks, but a tool to help advisors place you in appropriate college courses. Call, **303.914.6720** or visit www.rrcc.edu/assessment/timecomp.htm for more information on where and when to take the COMPASS test.
4. Visit a Red Rocks advisor. Call the High School Relations Office at **303.914.6350** to schedule an appointment for academic advising and registration.

Advising

After completing the assessment process, visit the Advising Center. Academic advisors can help you select and schedule courses, identify course prerequisites, obtain specific program information, prepare for graduation and evaluate assessment results. Advisors can also help with specific program planning if you intend to transfer to a four-year college or university.

Information: **303.914.6255**



Admissions – 2

Armed Forces Recruiting

ROTC is offered in conjunction with Colorado School of Mines. For Armed Forces recruiting information and ROTC information, please come to Room 1200.

Information: 303.914.6353

Assessment

At RRCC we assess the basic-skills proficiency of all new students who plan to enroll in courses leading to a degree. If you previously enrolled at the college while still attending high school, you are considered a new student when you enter the college after graduation.

The COMPASS (Computerized Assessment) takes approximately ninety minutes and is available on a walk-in basis. Test times are listed in the current schedule. The test is free for new students. Retesting is available for a fee of \$5 per test section.

You may satisfy assessment requirements by submitting qualifying ACT or SAT score reports to the Assessment Center, or by providing evidence of a college degree (two-year or four-year). You must meet one of the assessment requirements described above to determine your need for basic-skills remedial coursework and/or to determine appropriate course placement.

Information: 303.914.6720

Career Planning and Workplace Experience

If you are planning for your first career, a career change, or want to enhance your existing job skills, RRCC Career Development specialists can help. Using career and personal interest inventories and computerized information, they can help you select from among hundreds of options. They can also help you take advantage of our Career Development Seminar and the Colorado Career Information System

latest information: www.rrcc.edu

(COCIS). Finally, Career Development specialists can help with referrals through consultation with faculty and community resources as well as other colleges and universities. There is a charge for some Career Development services.

Information: 303.914.6255 or 303.914.6258

ESL/Foreign Language Lab

The ESL/Foreign Language Lab offers CD-ROM, videotape and audio-cassette 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). The lab also maintains a resource library of world beat music CDs, foreign-language movies with English subtitles and a world news radio program online.

Information: 303.914.6416

Inter-institutional Registration

Admissions can assist you with concurrent registration at the University of Colorado at Denver or Metropolitan State College of Denver. International students must meet the host institution's English proficiency requirements.

Information: 303.914.6355

Transcripts

If you need your Red Rocks transcript forwarded to a third party, a Transcript Request form is available in Admissions, or on the Red Rocks website. There is a \$3 charge per transcript. Transcripts will not be released for students who have not fulfilled all financial obligations to the college.

Information: 303.914.6352

Transfer of Credits

The Colorado Community College System launched a common course-numbering and competency project to improve transfer and to ensure curriculum quality across our system. It will not jeopardize your credit and transfer. Information will be posted online at www.rightchoice.com and www.cterc.edu/ccns as tasks are completed.

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

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 student is enrolled. If you are a veteran using VA benefits, you must submit transcripts of all previous post-secondary education and training within 30 days after beginning your first class. Course numbers and descriptions are subject to change.

Information: 303.914.6355



Admissions – 3

Transferring to Four-Year Colleges and Universities

Red Rocks Community College has established transfer agreements with the following institutions:

Adams State College
Colorado School of Mines
Colorado State University, Fort Collins
Colorado State University, Pueblo
Colorado Technical University
Fort Lewis College
Fort Wayne State University
Franklin University
Mesa State College
Metropolitan State College of Denver
Regis University
St. Francis University
University of Colorado, Boulder
University of Colorado, Colorado Springs
University of Colorado at Denver
College of Business and Administration
College of Engineering and Applied Science
College of Liberal Arts and Sciences
University of Colorado Health Sciences Center
University of Denver
University of Northern Colorado
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**

Warren Tech

Students at RRCC and Warren Tech, Jefferson County schools' technical center for high school students, may take selected classes at either institution. The following programs, described more fully in the Warren Tech program catalog, are available to Red Rocks students:

Auto Collision Repair
Auto Technology
Business Services and Technology I, II, III, IV
Construction I, II, III, IV
Cosmetology I, II
Culinary Arts I, II, III
Computer Technology I, II
Dental Assisting I, II
Drafting I, II, III, IV

Early Childhood Professions I, II
Graphic Communications I, II, III, IV
Graphic Design/Computer Art I, II, III, IV
Horticulture I, II, III, IV
Hospitality, Travel and Tourism I, II
Industrial and Design Technology
Masonry Arts I, II, III, IV
Multimedia I, II, III, IV
Nail Technology I
Network Technology I, II
Small Engine and Motorcycle Tech I, II, III, IV
Welding I, II, III, IV

Warren Tech students and other high school students wishing to enroll in a technical program should call **303.982.8603** or **303.914.6543** for registration information.



Jamie Werth
Engineering graphics major
Pueblo, CO



Tuition

Tuition at Colorado's community colleges is about half that charged at state four-year colleges.

If cost is a problem, we have many scholarships and other financial aid options that will help.

Financial Aid

About one-third of our students benefit from 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. Neither scholarships nor grants require repayment, whereas loans must be repaid. Work-study agreements allow you to work for the college while you are enrolled.

The Financial Aid Office can provide details for the following:

- Colorado Scholars, Red Rocks Foundation Scholarships, Governor's Opportunity Scholarships
- Federal Pell Grants, Colorado Student Grants, Colorado Leveraging Educational Assistance Partnership Grants, Federal Supplemental Educational Opportunity Grants, Federal Stafford Student Loans, Federal Parent Loans (PLUS)
- Federal and Colorado Work Study Program

Once you have applied for financial aid, it may take eight to ten weeks to process your request. Although the application for financial aid may 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. For complete financial aid information see the Financial Aid Handbook, contact the Financial Aid Office, or visit us on the web at www.rrcc.edu/finaid.

Information: 303.914.6256

Priority Dates to Receive Financial Aid

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

Financial Obligations of Students

Payments for tuition, fees and materials are due on the specified date published in the schedule or at the time the obligations are incurred. You are not officially registered until tuition and fees are paid. If you are in any way financially obligated to the college or have failed to account for college property in your possession, you may be denied a transcript and registration for subsequent semesters until you have made a satisfactory arrangement with the college.

Nonresident Students

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

To change from nonresident to resident status, obtain a petition form for in-state status from Admissions. A copy of the regulations governing residency classification is a part of the petition. Deadlines for submission of the petition are published each semester. 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.



Tuition – 2

Tuition and Fees

Tuition rates are set annually by the State Board for Community Colleges and Occupational Education, and are subject to change without notice. Tuition rates listed may be estimates at the time of printing.

Resident				
Credits	Tuition (estimated)	Registration Fee	Student Fees	Total
1	\$66.05	\$10.25	\$8.15	\$84.45
1.33	\$87.85	\$10.25	\$10.84	\$108.94
2	\$132.10	\$10.25	\$16.30	\$158.65
2.67	\$176.35	\$10.25	\$21.76	\$208.36
3	\$198.15	\$10.25	\$24.45	\$232.85
4	\$264.20	\$10.25	\$32.60	\$307.05
5	\$330.25	\$10.25	\$40.75	\$381.25
6	\$396.30	\$10.25	\$48.90	\$455.45
7	\$462.35	\$10.25	\$57.05	\$529.65
8	\$528.40	\$10.25	\$65.20	\$603.85
9	\$594.45	\$10.25	\$73.35	\$678.05
10	\$660.50	\$10.25	\$81.50	\$752.25
11	\$726.55	\$10.25	\$89.65	\$826.45
12	\$792.60	\$10.25	\$97.80	\$900.65

Tuition charge of \$66.05 per credit hour over 12 credits

Nonresident				
Credits	Tuition (estimated)	Registration Fee	Student Fees	Total
1	\$345.15	\$10.25	\$8.15	\$363.55
1.33	\$459.05	\$10.25	\$10.84	\$480.14
2	\$690.30	\$10.25	\$16.30	\$716.85
2.67	\$921.55	\$10.25	\$21.76	\$953.56
3	\$1,035.45	\$10.25	\$24.45	\$1,070.15
4	\$1,380.60	\$10.25	\$32.60	\$1,423.45
5	\$1,725.75	\$10.25	\$40.75	\$1,776.75
6	\$2,070.90	\$10.25	\$48.90	\$2,130.05
7	\$2,416.05	\$10.25	\$57.05	\$2,483.35
8	\$2,761.20	\$10.25	\$65.20	\$2,836.65
9	\$3,106.35	\$10.25	\$73.35	\$3,189.95
10	\$3,451.50	\$10.25	\$81.50	\$3,543.25
11	\$3,796.65	\$10.25	\$89.65	\$3,896.55
12	\$4,141.80	\$10.25	\$97.80	\$4,249.85

Tuition charge of \$345.15 per credit hour over 12 credits.

RRCC Online tuition: \$120 per credit (resident and nonresident)

CCOnline tuition: \$134.90 per credit (resident and nonresident)

Physician Assistant Program tuition: \$270.55 per credit (resident) \$393.90 per credit (nonresident)



Foundation

The RRCC Foundation has provided more than \$1.3 million in institutional support and scholarships to help RRCC students achieve their dreams.

If you are a student needing assistance or a donor wishing to participate, call us at 303.914.6425.

The Red Rocks Community College 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 came to be because of individuals who believed 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 loyal board of directors and the Foundation staff, who all aspired to assist students and make a difference in their lives. Now, more than 10 years later, we have hundreds of donors who help us each year. The Foundation has raised more than \$4.5 million, awarded more than \$800,000 in scholarships to nearly 1,400 students and provided close to \$500,000 to the college for the Learning and Resource Centers at the Lakewood and Arvada campuses, 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 \$250,000 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**.

Foundation Board

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

Dr. Agneta Albinsson
Cinthia R. Andrews
Robert E. Barber
Kevin J. Bervik
Timothy K. Bradley
John G. Brant
Tim Campbell
Tom Clark
Fred F. Emich, III
Kristen M. Fiala
Jacquie Haughton
Darrel Lathrop
Dan Leach
Thomas W. Lemcke
Cris Mathews
Al Meiklejohn
Bert Mizke
Aldo G. Notarianni
Jane Petrie
Dr. Eric Reno
Bob Short
Shirleen Tucker
Duane Youse
Paulann Doane, executive director



LARC

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

The Learning and Resource Center (LARC) is a welcoming place where students can meet with a tutor, a study group or their instructor. The LARC is equipped with state-of-the-art computer technology.

Information: 303.914.6700

Tutoring

Tutoring is provided by professional and peer tutors. Walk-in tutoring in a wide variety of subjects is free to RRCC students. Tutoring is offered in:

- Grammar, composition, literature
- Basic math, algebra, calculus, statistics
- Sciences

Check the pillar by the entrance to the LARC for other subjects. One-to-one tutoring is available to students having difficulty with their classes and to transfer majors whose grades fall below average in selected content areas.

GED Pre-test and Preparation

A free practice test for the GED (General Education Development) allows students to determine if they are ready for the official GED. Preparation courses for GED are open-entry, so students may begin at any time. Courses are self-paced, so students learn based on their individual needs with personalized help from friendly, supportive tutors. The free practice test and preparation classes are also offered in Spanish.

Assessment

Credit for Prior Learning (CPL)

You may receive academic credit for education attained through earlier schooling, work, experiential learning or other nontraditional means, as long as it is comparable to courses offered at RRCC and related to your current program. Methods available for CPL are the following:

- CLEP (College Level Examination Program)
- Portfolio (documentation of past learning)

CPL handbook and forms are online:

www.rrcc.edu/assessment

Other tests available:

- COMPASS (Red Rocks assessment test) Test times are listed in the schedule. No appointment is required. Sample tests are available online:

www.act.org/compass/sample

- Authorized Prometric Testing Center
Computerized certification and license testing for software publishers, state and federal government and educational entrance exams.
- HOBET (Health Occupations Basic Entrance Test)
- Colorado Vocational Educator Test

Information: 303.914.6720

College Success for All Students

Want to be a better student, but just don't know how? AAA 090 Advanced Academic Achievement gives both first-time and returning students the opportunity to learn and adopt proven methods to be successful in college. You'll be introduced to a variety of skills critical to success: education and career planning, effective communication, personal management, critical and creative thinking, development of community, awareness of diversity, leadership and techniques for academic success.

Computer Access Center

The Computer Access Center (CAC) in the Office of Special Services offers adaptive computers to students with specific disabilities. Computer adaptations include screen-reading and screen-enlargement software for students who are blind or with low vision or specific learning disabilities such as dyslexia. Alternative keyboards and software help students who have difficulty using a standard keyboard, and voice recognition software allows a student to access the computer by voice.

Information: 303.914.6733

Library

The library offers extensive print, audiovisual and electronic information 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



LARC – 2

article collections support traditional research. Interlibrary Loan lets you borrow materials from virtually any library in the world.

Information: **303.914.6740** or 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, staff and visitors with disabilities. The office is also a resource for the college community on disability issues. Services include sign language interpreters, books-on-tape, note takers, readers, individual tutors for students in danger of failing, test accom-

modations and adaptive computer training. The office also arranges orientations for new and potential students with disabilities.

Information: **303.914.6733** (V) or **303.914.6732** (V/TTY)

Weekend College

Did you know that you can take classes leading to a two-year degree by going to school only on weekends? Or, if you want to pick up elective classes or just take classes for fun, you have more than 100 classes to choose from during the spring and fall semesters. In fact, you can start new classes just about any time throughout a semester.

Information: **303.914.6606**

Writing Center and Online Writing Center

The mission of the Writing Center is to help students become better writers. English 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. The OWC enables students to get help with their writing at www.rrcc-online.com/~writing. The OWC provides links to information about writing and grammar, and students may submit papers and questions for feedback from tutors.

Information: **303.914.6701**



Alternatives

You can earn a certificate or a degree from Red Rocks without ever coming on campus through our distance learning opportunities.

Flex learning fits RRCC courses to your life. Study at night, on weekends, via television, in a hybrid of online and classroom or at your own pace.

It's your choice.

Online Courses

RRCC Online Courses

Courses through RRCC Online are taken, anytime, anywhere at your convenience. Courses begin at various times throughout the year. 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.

RRCC Online courses are designated by 450 (summer), 460 (fall), 470 (spring) section numbers. They are available in a wide variety of subjects that meet degree and certificate program requirements.

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

Tuition is \$120 per credit hour for both residents and nonresidents.

Information: 303.914.6702 or www.rrcc.edu/online

Computer Specifications

You never need to come to campus if you have access to a computer, Pentium III or faster with Windows 98 or newer, or a Macintosh with MacOS 7.5.5 or later, with 64MB of RAM, a 28.8 Kbps modem, sound card and speakers, an e-mail account and access to an online Internet service provider.

CCCOOnline Courses

Colorado Community College Online provides a centralized website where you can take classes, earn a certificate or even complete an associate's degree online from the community college of your choice. See an advisor for details. Tuition cost is \$134.90 per credit hour for both residents and nonresidents.

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

CCCOOnline courses as RRCC courses.

AA/AS/AAS degrees and certificates are offered in many areas including building code enforcement, business, computer networking, construction technology, criminal justice, early childhood, emergency management, Microsoft certification, occupational safety, public administration, telecommunication, and travel agent. Please see current schedule for a list of available courses.

Information: 800.801.5040 or www.cconline.org

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 your 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 you, the college and the employer defines the responsibilities of all parties. In addition, you 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 enhances your success during the internship – the employer (mentor), you (intern), and a RRCC faculty/staff member (support).

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, which may apply toward a degree in a specific area, is identified in the "Instructional Programs" section of this catalog. For programs not requiring work experience, internships are considered an approved substitute or an elective upon permission of the faculty advisor.



Alternatives – 2

Transferability of internship college credit is contingent on approval of the receiving institutions. General education internship credit has been formally articulated for transfer 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 an internship should begin their enrollment process in the Student Employment/Internship office.

Information: 303.914.6258

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 may be taken an unlimited number of times, but no more than six credits may be applied to any associate degree program.



"I chose Red Rocks because it is inexpensive compared to other schools and it's easy to transfer credits to other schools."

Dagan Budd
Music major
Pine, CO



International education

Red Rocks welcomes students from 40 countries, speaking everything from Spanish and Japanese to Nepali and Bulgarian.

In turn, U.S. students can earn credits while they travel abroad, for a week or a year, assisted by a variety of scholarships.

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. Red Rocks Community College "International Student Admissions Application."
2. A statement of financial resources sufficient for tuition and living expenses while in the U.S. (Currently \$16,550/year based on tuition of \$4,250/full time per semester). Tuition and fees are subject to change without notice.

Items 3 and 4 are for regular college course applicants.

3. Evidence of English language proficiency (not required of English as a Second Language students). Submit one of the following:
 - TOEFL score of 475
 - Michigan English Language Test score of 75
 - Satisfactory score on the RRCC basic-skills Computerized Assessment (COMPASS) test
 - U.S. high school diploma with two years attendance
 - Other acceptable proof of English proficiency
4. A certified English translation of an official high school, college or equivalent transcript.

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 is available through the International Education Office.

Application Deadlines

Though applications are considered at any time prior to the beginning of a term, students should observe the following deadlines to ensure the college enough time to assess and process all necessary 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 basic-skills Computerized Assessment (COMPASS) test and follow its placement requirements. The COMPASS takes about 90 minutes and is available

Study Abroad for U.S. and international students

Red Rocks students may study for full semesters in foreign countries throughout the year. The college is a member of the College Consortium for International Studies (www.ccisabroad.org), which offers 83 affordable programs in 30 countries. Approximately 90% of all course work is taught in English. Scholarships from \$1,000 - \$8,000 per semester are available. Short-term, faculty-led study abroad excursions for ten days to two weeks are commonly offered during spring and summer breaks.

Information: **303.914.6416** or **303.914.6538**

e-mail: international@rrcc.edu

Internet: www.rrcc.edu/international

on a walk-in basis. Test times are listed in the current schedule. The test is free for new students; retesting is available for \$5.

Guaranteed Transfer to Universities

If you follow the college's placement advice, your credits will transfer to nearly all of the universities and colleges in Colorado, such as the University of Colorado and Metropolitan State College of Denver. Most transfer students are able to enter the universities of their choice anywhere in the U.S. with junior class standing after completing 60 credits at RRCC.

Housing/Family Homestay Assistance

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

International 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 six levels of beginning, intermediate and advanced skills.

Information: **303.914.6416**, **303.914.6536** or **303.914.6538**, international@rrcc.edu, www.rrcc.edu/international



Student services

Student services meet the needs of 7,000 diverse Red Rocks students.

From a hot meal to get you through the day to a fitness center to help you work off the calories, from child care to a job to a volleyball game to work off some energy, we've got something for every student.

Bookstore

The Red Rocks Bookstore supplies new and used textbooks, recommended titles, software, reference books and supplies for art and drafting, college specialty items and clothing are also available.

Information: 303.914.6232

Cafeteria

The Red Rocks Cafe on the Lakewood campus serves hot and cold food selections during peak meal hours.

Information: 303.914.6374

Child Care

The Children's Center at Red Rocks offers full-service, full-day care for children from 18 months to kindergarten entry. The high quality program provides secure and nurturing attachments because of our primary care giving philosophy. Each child is assigned to a primary caregiver on entry and remains with that teacher/caregiver for at least two years. The center serves families of students, staff, faculty and the community. Some subsidies are available through the center for low-income families of students. The center does not provide drop-in care.

Information: 303.914.6328

Fitness Education Center

To participate in a program that includes individual analysis and prescribed training for total fitness, register for PED 110 or 111. The Fitness Center offers circuit training, a variety of aerobic equipment and a rickshott court. Those participating in this course must go through a mandatory one-hour orientation. Upon completion of the orientation, arrange your own hours of participation to meet the course requirements.

Information: 303.914.6375

Student Employment/ Internships

A wide range of full-time, part-time and temporary jobs are available to current and former students through the Lakewood campus Student Employment Office. While the college cannot guarantee employ-

ment, every effort is made to maintain ongoing contact with business and industry to generate appropriate employment opportunities. In addition, on-campus recruiting visits from business and industry are coordinated; job announcements and outlook surveys maintained; and resume preparation, counseling, interviewing workshops and other job search skills are provided. Details regarding the college's work-study program on campus are also available. Practical job experience can extend and help you apply what you learn in the classroom. Through RRCC internship programs, you can learn and get college credit while you're working for some of the area's best-known employers.

Information: 303.914.6258

Student Center

The Lakewood Campus Student Center offers various services and activities including:

- Campus/community events and entertainment
- FAX and copy services
- Leadership opportunities
- Publications and bulletin boards
- Recreation
- Student clubs and organizations
- Student ID cards
- Bus passes, sports tickets and movie tickets
- Computers for academic and leisure use

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 a big-screen TV room, pool table, video games, vending machines, fitness center, the Mountainside Espresso Bar, The Den, the Student Life Desk, The Mart (vendor space) and the Student Project Center.

Information: 303.914.6370 or 303.914.6372

The Student Voice

The Student Voice represents the interests of the student body with the college's administration, in setting policy and planning various activities. To join The Student Voice, you must be an enrolled student, complete the application process and maintain a 2.5 GPA. It is an excellent opportunity to develop leadership skills that will assist you in your educational and professional endeavors.

Information: 303.914.6248



Student rights

As a Red Rocks student, you have specific rights that ensure you are treated equitably, that you are provided all you need to learn, and that your privacy is protected.

Affirmative Action/Equal Opportunity

Red Rocks Community College 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, 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 a person's or group's 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 Human Resources office). The college has designated the executive director of Human Resources as its affirmative action officer.

For information contact:

Human Resources
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

Red Rocks Community College 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 nondiscrimination based on handicap. 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: **303.914.6733** or direct line
303.914.6737 TTY

Drug and Alcohol Abuse Prevention Program

The Law

Red Rocks Community College complies with the Drug Free Schools and Communities Amendments of 1989. A copy of this Act is on file in the Office of Student Life and the Human Resources Office.

Standard of Conduct

Students and employees shall not engage in the unauthorized or unlawful manufacture, distribution, dispensation, 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, dispensation, 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.

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 ability to work and study are also at risk.

Illegal Substances

A listing of controlled substances is on file for your



Student rights – 2

reference in the Office of Student Life and Human Resources Office.

Referral Sources

Referral for counseling, treatment, rehabilitation and re-entry programs are available through:

The College:

Advising	303.914.6255
Human Resources	303.914.6570
Student Center	303.914.6372

The Community:

Al-Anon –Al-ATeen	303.321.8788
Alcoholics Anonymous	303.322.4440
Cenikor Prevent. Network	303.234.1288
Mile High Council on Alcoholism/ Drug Abuse	303.759.5555
Narcotics Anonymous	303.832.3784
Suicide Depression Crisis Hotline	303.860.1200

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." HOT-LINE, National Institute of Drug Abuse (NIDA), 1-800-662-HELP.

Privacy Notification

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

- Your name
- Local address
- Local telephone number
- Field of study
- Most recent previous school attended
- Photographic/videotaped images
- Date and place of birth
- Full-time or part-time status
- Class schedule
- Class roster
- E-mail address

- Degrees and certificates awarded
- Participation in officially recognized activities and sports
- Dates of attendance

If you do not want the college to release directory information about you without your specific consent, sign a directory restriction form in the Admissions Office. Your directory restriction will remain in effect until you cancel the request for nondisclosure.

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. For more information, contact the college registrar at 303.914.6303.

Your rights include:

1. The right to inspect and review your education records within 45 days of the day Red Rocks Community College (RRCC) receives a request for access. You should submit to the registrar or coordinator of Student Records written requests that identify the record(s) you wish to inspect. 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. You should write the above RRCC official responsible for the record, clearly identify the part of the record you want changed, and specify 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 a person employed by the college in an administrative, supervisory, academic or 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 person serving on the State Board for Community Colleges and Occupational Education, or 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



Academics

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

Academic Integrity

At RRCC, academic integrity is the ethical foundation upon which the academic community pursues professional, administrative and scholarly endeavors.

Everyone associated with the college's academic community has a responsibility for establishing, maintaining and fostering understanding and respect for academic integrity. Following are some principles associated with academic integrity to which we expect students to adhere:

- Assume responsibility and take credit only for the words and/or ideas in an academic exercise that are expressly one's own.
- Use information, computer programs, disks, another student'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.

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: failing the assignment or course, and/or being expelled from the college.

Attendance

To get the most benefit 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, you need to 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 1- 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 cred-

its. Students registering for fewer than 12 credits are classified as part-time. You need written permission from your advisor or the registrar to enroll for more than 20 credits during any semester.

Evaluation and Grading

The evaluation of your achievement or mastery is based upon learning objectives. Achievement means successfully reaching a specified level of knowledge or understanding. Mastery means successfully reaching a level of competency in a skill. Your 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 before the end of the course and request an "early release of a grade" letter. This letter is unofficial.

Grades

To review or obtain a copy of your grades:

1. Call the S.T.A.R. phone system at **303.572.STAR (303.572.7827)** and press "2" for grades. Enter your student identification number or your Social Security number and PIN (your birth month and birth day, e.g. 0423).
2. Use the World Wide Web. Log on to **www.rrec.edu** and follow the prompts to the online enrollment system. After you enter the CCCWEB area, enter your student identification number and PIN as described above.

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)

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

Additional Grading Symbols

(AU) Audit. If you want to take a course without earning credit, you can register to audit that course. You must pay tuition and fees for the course and declare your intention to audit no later than the course's tuition refund date. Once



Academics – 2

you have registered to audit a course, you cannot change your 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.
- (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 can 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 two-thirds of the course work with a grade of C (or better) by the withdrawal date (see W). Before the end of the course, you are responsible for making arrangements with the instructor for the preparation of an Incomplete Grade Contract. If you do not complete the course work by the agreed upon deadline date, the instructor will change the I into the letter grade stipulated in the contract.
- (S) Satisfactory.** Equivalent to a grade of C or higher and is only available for certain predesignated courses
- (U) Unsatisfactory.** Equivalent to less than a grade of C and is only available for certain predesignated courses
- (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 for the preparation of an SP Grade Contract. If you do not

complete the course work by the agreed upon deadline date, the instructor will change the SP into an F.

- (Z) No grade received.** A grade of Z will be issued when no grade has been received from the instructor. The official grade will replace the Z when it is received from the instructor.

Academic Progress

If you receive a semester grade point average (GPA) of less than 2.0 for 12 or more credits, you must meet with an advisor.

Information: 303.914.6255

Academic Second Chance

All course work taken at RRCC is reflected on your permanent transcript; however, you can initiate a petition to remove from your cumulative grade point average (GPA) up to 15 credits of substandard grades you earned. Before submitting the required written request, you must wait at least two years after the course work was completed. You must also take a minimum of 15 credits of new course work at RRCC with a cumulative GPA of 2.0 or higher. You can petition only once to remove from your cumulative GPA the substandard grades. Once Student Records has removed these grades from your cumulative GPA, they cannot be reinstated. The substandard grades, however, 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 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 F, you will receive quality credit hours for that course. Quality hours are used to calculate your GPA.
- (QPTS) Quality Points.** The main grading symbols, A through F, 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 gives a numerical value called quality points. These points are used to compute your cumulative GPA. Grading symbols: W, I, S,U, SP and AU do not have points and are not used when computing your GPA.
- (GPA) Grade Point Average.** Your grade point average is the numerical value found by dividing the total number

Calculating your GPA

Prefix	Grade	Pts	AHRS	EHRS	QHRS	QPTS
ART 131	B	3	3	3	3	9 (3X3)
BIO 227	W	—	3	0	0	0
MAT 201	A	4	5	5	5	20 (4X5)
MAT Lab	CR	—	1	1	0	0
PHI 111	C	2	3	3	3	6 (2X3)
PSY 116	F	0	<u>1</u>	<u>0</u>	<u>1</u>	<u>0 (0X1)</u>
Totals			16	12	12	35

$$\text{GPA} = \frac{\text{Total QPTS} = 35}{\text{Total QHRS} = 12} = 2.917$$



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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 repeat any course. Each grade received is listed on your transcript. You may make a written request to Student Records for only the most recent grade to be used to calculate your GPA.

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);
- 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 credits.

Information: **303.914.6353**

Honors Program

Students and faculty participate in a community of learners that will 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, educational partnerships and intellectually challenging peers.

Scholarships are available to two students from each high school served by RRCC Community College each year. The scholarship awards cover tuition and books for four semesters to a maximum of 60 credits.

Information: **303.914.6355**

Phi Theta Kappa

Red Rocks sponsors a chapter of Phi Theta Kappa, the national student honors organization for two-year colleges. Members offer tutoring programs, raise money for charity and conduct educational forums. 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 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, the Veteran Administration will suspend you from certification for one academic term. Reinstatement will only occur after approved counseling has been received.

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. Copies of the veteran regulations are available for review in the Veteran Services office on campus.

Information: **303.914.6353**



Graduation

*Each year,
more than
1,300 students
graduate
from
Red Rocks.*

*Our
graduates are
nurses and
builders,
teachers and
engineers,
artists and
programmers
and
firefighters.*

*What's in
your future?*

Catalog 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, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. Meet with an academic advisor before beginning any program of study. No diplomas will be issued until all financial obligations to the college have been met. This includes tuition and fees, police tickets and library fines.

Graduation Requirements

1. You must earn a cumulative grade point average of 2.0 (C average). Some programs may require at least a B or C in specific courses.
2. The college reserves the right to substitute or delete course work based on the current curriculum. If the curriculum changes, college officials will make every effort to determine an equitable solution.
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" form during the term in which you intend to graduate, according to the deadline published in the class schedule for that session.





Associate degrees

Associate of Arts Transfer Degree, University Parallel

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. It 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 35 credits. Other requirements are found on the degree requirement checklists and individual catalog emphasis areas. Emphases are available in the following areas:

- Art
- Business
- Economics
- English and Literature
- Foreign Languages:
 - French
 - German
 - Spanish
- Early Childhood Education
- Elementary Education
- History
- Humanities
- International Studies
- Musical Theatre
- Outdoor Physical Education
- Philosophy
- Political Science
- Psychology
- Sociology
- Speech Communication
- Theatre Arts

Associate of Science Transfer Degree, University Parallel

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, preparatory engineering and 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 36 credits. Emphases are available in the following areas:

- Biology
- Biotechnology
- Chemistry
- Computer Science
- Pre-engineering
- Geology
- Mathematics
- Pre-nursing
- Physics

Associate of General Studies – Specialist Articulated Transfer Degree

The Associate of General Studies-Specialist degree (60 credits) is for the student who wants to complete the Associate of Arts state-designated general education transfer course requirements and have an emphasis in a career-oriented program of study. Transfer agreements exist between RRCC and certain four-year colleges for the following career areas:

- Criminal Justice
- Early Childhood Professions
- Emergency Medical Services
- Graphics and Animation Technology

Multimedia Technology
Production and Design Technology
(Certificates are also available for each area)

Associate of General Studies – Generalist Career-Oriented Degree

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

Associate of Applied Science Degree

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.

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 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, you should meet with an advisor in the Advising Center for assistance in planning your program of study.
3. For transfer to a four-year college or university, the Transfer Guide in the Advising Center for GPA requirements of the receiving institution
4. You must complete a minimum of 15 credits in your program area at Red Rocks.
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 that count toward a degree. In individual cases, the limit will be determined by the program area. If you are taking special-topics courses, you should consult with your faculty advisor regarding how these credits will apply toward a degree.
7. The college reserves the right to substitute or delete course work based on the current curriculum. If the curriculum changes, the college will make every effort to determine an equitable solution.
8. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks and the requirements for the degree.
9. With the approval of a faculty advisor, up to three credits of cooperative education may count toward a degree. (Some AAS degrees will require cooperative education credits)

Associate of Applied Science Programs

Emphases are available in the following career areas:

Auto Collision Technology*

(In cooperation with and taught at Warren Tech)

Automotive Technology*

(In cooperation with and taught at Warren Tech)

Business Programs:

Accounting* with emphases in:

Accounting Paraprofessional

Accounting Technician

Business (CCCOOnline)

Business Administration with emphases in:

Management and Supervision*

Real Estate*

Interdisciplinary

E-business*

Business Technology with emphasis in:

Administrative Assistant

Computer Information Systems*

with emphases in:

PC Application Specialist*

Web Development*

Web Design*

Microsoft Application Developer MCAD

Microsoft Database Administrator MCDBA

Microsoft Network System Administrator

MCSA

Computer Support Technician*

Network Systems Engineer MCSE*

Cisco Network Associate*

Programming Specialist*

Internet Programming Specialist*

Construction Technology with emphases in:

Air Conditioning, Heating and Refrigeration*

Refrigeration*

Residential Air Conditioning*

Residential Heating, Ventilation, Air

Conditioning

Building Code Enforcement*

Building Maintenance Technician*

Carpentry *

Construction Management*

Construction Technology Technician*

Electrical

Construction Electrician* (CCCOOnline)

Electro Mechanical Industrial Maintenance

Tech

IEBW/NECA Construction Technician

Maintenance Electrician*

Power Technology (CCCOnline)
 Data Communication Technician
 Data Communication Designer
 Fire Science
 Fine Woodworking*
 Plumbing
 United Association of Plumbing and
 Pipefitting
 Apprentice-related Technology with
 emphases in:
 (In partnership with the CITC)
 Carpentry*
 Drywall Application*
 Electrical*
 Ironworker*
 Masonry*
 Painting*
 Plumbing*
 Sheetmetal*

Criminal Justice* with emphases in:
 Corrections
 Law Enforcement
 Victim Assistance Direct Service*

**Emergency Management and
 Planning*(CCCOnline)**

**Engineering Graphics Technology
 with emphases in:**
 Architecture*
 Mechanical*

Fire Science Technology
 Track One: New students
 Track Two: Career advancement

Medical Assisting*
Medical Office*

**Multimedia Technology with
 emphases in:**
 Graphics/Animation Technology*
 Motion Graphics Animation*
 Production and Design Technology*

Occupational Safety Technology*
 (In cooperation with Trinidad State
 Junior College)

Outdoor Education

Paramedicine

Physical Education

Public Administration (through
 CCCOnline)

Radiologic Technology

Theatre Technology*

Water Quality Management Technology

* Certificate is also available.



Certificates

In addition to two-year degrees, Red Rocks students can earn certificates in a variety of specialties.

A certificate can require as few as five credits and may count toward a two- or four-year degree.

1. You must complete the specified subject matter or course requirements of an approved vocational/technical program.
2. You must earn a cumulative grade point average of 2.0. Some programs may require at least a C in specified courses.
3. You must complete at least 50 percent of your coursework at Red Rocks to receive a certificate.
4. The college reserves the right to substitute or delete course work based on the current curriculum. If the curriculum changes, the college will make every effort to determine an equitable solution.

Basic Law Enforcement Training Academy

Business:

- Accounting Clerk
- Bookkeeping Clerk
- E-Business
- Management and Supervision
- Small Business Management
- Real Estate

Business Technology

- Clerical Assistant Office Assistant

Computer Information Systems:

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

Construction Technology:

- Basic Plumbing and Heating Maintenance
- Building Code
- Building Code Enforcement
- Building Maintenance Technician
- Carpentry
- Colorado Plumbing Code Test Preparation
- Colorado Test Prep
- Commercial Refrigeration Apprentice
- Comprehensive Residential Heating Construction
- Construction Electrician
- Construction Fundamentals
- Construction Management
- Construction Technology Technician
- Control System Technician

- Electrical Installation
- Facility Maintenance I
- Fine Woodworking
- HVAC Apprenticeship
- HVAC Controls Technician
- Journey Level Plumbing
- Level I Refrigeration
- Master Craftsman
- Master Craftsman - Woodworking
- Maintenance
- Maintenance Electrician
- Maintenance Technology
- National Electrical Code
- Residential Plumbing Codes
- Refrigeration
- Refrigeration Level 2
- Residential Air Conditioning
- Residential Construction Electrician
- Residential Forced Air Heating
- Residential HVAC
- Residential Hydronic Heating
- Residential Plumbing
- Residential Plumbing and Heating
- Post-Degree Specialization:
 - Advanced Construction Electrician
 - Advanced Maintenance Electrician
 - Master Craftsman in Fine Woodworking
 - Refrigeration Level II

Criminal Justice:

- Basic Law Enforcement Training Academy
- Investigations
- Victim Assistance Administration
- Victim Assistance Direct Service

Early Childhood Education:

- Certificate of Early Childhood Professions
- Infant/Toddler Group Leader
- Preschool Group Leader

Emergency Management and Planning

Emergency Medical Services:

- Emergency Medical Technician Certificate I
- Emergency Medical Technician Certificate II

Engineering Graphics:

- Architectural
- Industry Upgrade
- Mechanical



Certificates – 2

Fire Science:

- Drive Operator
- Firefighter I
- Fire Inspector
- Fire Instruction
- Fire Investigations
- Fire Investigator
- Fire Officer I
- Fire Officer II
- Fire Officer III
- Hazardous Materials Technology
- Technical Heavy Rescue
- Wildland Management

Health Careers:

- Holistic Health/Holistic Nursing
- L.P.N. Refresher
- Medical Assisting
- Medical Office
- Nurse Aide
- Physician Assistant
- Phlebotomy
- R.N. Refresher

Multimedia Technology:

- Graphics and Animation Technology
- Production and Design
- Motion Graphics Animation
- Web Page Design

Park Ranger Technology:

- Law Enforcement
- Outdoor Recreation
- Public Safety
- Resource Interpretation Concentration

Outdoor Recreation Leadership:

- Outdoor Generalist
- Mountaineering Skills
- Winter Skills
- Water-based Skills

Public Safety Communications

Theatre:

- Stage Carpentry
- Costume and Fashion Design



Noncredit



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 Red Rocks 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 selected RRCC, in collaboration with Trinidad State Junior College, as one of the first four satellite training centers to offer OSHA training. We are the Department of Labor's only authorized OSHA Training Institute in this region.

The RMEC specializes in customizing all facets of health, safety management and supervisory training programs. From computer training to basic skills, we are your one-stop training organization dedicated to providing high quality, effective and affordable training to 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. To receive a schedule of courses call or visit our website at www.rrcc.edu/RMEC/index.html.

Information: 303.914.6420

Small Business Development Center

The RRCC Small Business Development Center (SBDC) provides counseling and training to owners of emerging and existing small businesses in Jefferson, Clear Creek, Park and Gilpin counties. SBDC counselors are experienced small business specialists who provide FREE one-on-one counseling in start-up business plan preparation, marketing, financing, record keeping, and business growth.

The SBDC also offers low-cost, non-credit training on a variety of business subjects: starting a business, developing your business concept, writing a business plan, marketing strategies, preparing Small Business Innovation Research (SBIR) proposals and franchising. To schedule an appointment or request more information on scheduled training, call 303.277.1840 or visit our website at www.sbdcredrocks.org

The Small Business Development Center is partially funded by the U.S. Small Business Administration. The support given by the U.S. Small Business Administration through funding does not constitute an express or implied endorsement of any of the cosponsors' or participants' opinions, products or services. Special arrangements for the handicapped will be made if the office is contacted in advance.

Information: 303.277.1840



RMEC staff members Ron Schuetz, Jeannine Kreller, Jenette Warner, Rich Hawkins, Danielle Trujillo, Jennifer Fox

2004-2005 Degree Requirements

State-guaranteed general education courses (35-37 credits)

Communication: 2 courses (6 credits)

English 121	English Composition I	(3)
English 122	English Composition II	(3)

Arts and Humanities: 3 courses (9 credits)

Select no more than 2 courses from any category:

Arts

ART 111	Art History I	(3)
ART 112	Art History II	(3)
MUS 120	Music Appreciation	(3)
MUS 121	Music History I	(3)
MUS 122	Music History II	(3)
THE 105	Introduction to Theatre Arts	(3)
THE 211	Development of Theatre I	(3)
THE 212	Development of Theatre II	(3)

Literature

LIT 115	Intro to Literature	(3)
LIT 201	Masterpieces of Literature I	(3)
LIT 202	Masterpieces of Literature II	(3)

Ways of Thinking

PHI 111	Intro to Philosophy	(3)
PHI 112	Ethics	(3)

Mathematics: 1 course (3 credits minimum)

MAT 120	Mathematics for the Liberal Arts	(4)
MAT 121	College Algebra	(4)
MAT 125	Survey of Calculus	(4)
MAT 135	Intro to Statistics	(3)
MAT 201	Calculus I	(5)
MAT 202	Calculus II	(5)

Social and Behavioral Science: 3 courses (9 credits)

 1 history course and 2 courses from 2 different disciplines
 e.g., HIS 201, ANT 101 and GEO 105

ANT 101	Cultural Anthropology	(3)
ANT 111	Physical Anthropology	(3)
GEO 105	World Geography	(3)
HIS 101	History of Western Civilization I	(3)
HIS 102	History of Western Civilization II	(3)
HIS 201	U.S. History I	(3)
HIS 202	U.S. History II	(3)
POS 105	Intro to Political Science	(3)
PSY 102	General Psychology II	(3)

Physical and Life Sciences: 2 courses (8 credits

 minimum). 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)
CHE 101	Intro to Chemistry I	(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)
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 (23-25 credits)

SPE 115 or SPE 125 (This elective is required by the Colorado Community College System) (3)

Total Credits (60 required) _____



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) or more, and then return, the catalog of the re-admission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing 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	Geology	GEY	All courses
Anthropology	ANT	All courses	Health and Wellness	HWE	100
Art	ART	All courses	History	HIS	All courses
Astronomy	AST	All courses	Humanities	HUM	All courses
Biology	BIO	All courses except 105	Literature	LIT	All courses
Business	BUS	115, 216, 217 and 226 (See AA degree, emphasis in business)	Management	MAN	226
Chemistry	CHE	All courses	Marketing	MAR	216
Computer Info. Systems. (generally transferable)	CIS	115, 118, 243, 251, 268	Mathematics	MAT	All courses 120 and above
Computer Science (generally transferable)	CSC	119, 160, 161, 165, 240, 261	Music	MUS	All courses
Early Childhood Education	ECE	101, 214, 215 and 227	Philosophy	PHI	All courses
Economics	ECO	All courses	Physical Education	PED	All courses (Maximum 3 credits apply toward degree)
Education	EDU	All courses above 200	Photography	PHO	All courses
English	ENG	121, 122, 131, 221 and 222	Physics	PHY	All courses except 105
Environmental Science	ENV	101	Political Science	POS	All courses
Foreign Language	FRE, GER, SPA, FOL	All courses except 101, 102	Psychology	PSY	101, 102, 110, 215, 226 227, 235, 238 and 249
Geography	GEO	All courses	Sociology	SOC	All courses
			Speech	SPE	All courses
			Theatre	THE	All courses

Other degree requirements

1. A minimum of 60 credits is required for the Associate of Arts degree. These must include 35 credits in general education transfer courses and 25 credits in the areas specified above in approved electives.
2. You must complete 23-35 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 see 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. For example, if you take Introduction to Chemistry I (CHE 101 - 5 credits) to satisfy the science requirement in the core curriculum, four of those five credits can be applied toward the general education requirement. Fewer electives would be required since the remaining one credit can be applied as an elective credit.
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, you should consult an advisor for assistance in planning your program of study. See an advisor in the Advising Center at Red Rocks. You should consult the Transfer Guide for GPA requirements of the receiving institution.
5. You must complete a minimum of 15 credits in your program area at Red Rocks.
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 term. (Apply in Admissions.) 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, you should consult with your advisor regarding how these credits will apply toward a degree.
9. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks and the requirements for the degree.

2004-2005 Degree Requirements

State-guaranteed general education courses (35–37 credits)

Communication: 2 courses (6 credits)

English 121	English Composition I	(3)
English 122	English Composition II	(3)

Arts and Humanities: 3 courses (9 credits)

Select no more than 2 courses from any of these categories:

Arts

ART 111	Art History I	(3)
ART 112	Art History II	(3)
MUS 120	Music Appreciation	(3)
MUS 121	Music History I	(3)
MUS 122	Music History II	(3)
THE 105	Introduction to Theatre Arts	(3)
THE 211	Development of Theatre I	(3)
THE 212	Development of Theatre II	(3)

Literature

LIT 115	Intro to Literature	(3)
LIT 201	Masterpieces of Literature I	(3)
LIT 202	Masterpieces of Literature II	(3)

Ways of Thinking

PHI 111	Intro to Philosophy	(3)
PHI 112	Ethics	(3)

Mathematics: 1 course

MAT 121	College Algebra	(4)
MAT 125	Survey of Calculus	(4)
MAT 201	Calculus I	(5)
MAT 202	Calculus II	(5)

Social and Behavioral Science: 3 courses (9 credits)1 History course and 2 courses from 2 different disciplines
e.g., HIS 201, ANT 101 and GEO 105

ANT 101	Cultural Anthropology	(3)
ANT 111	Physical Anthropology	(3)
GEO 105	World Geography	(3)
HIS 101	History of Western Civilization	(3)
HIS 102	History of Western Civilization	(3)
HIS 201	U.S. History I	(3)
HIS 202	U.S. History II	(3)
POS 105	Intro to Political Science	(3)
PSY 102	General Psychology II	(3)

Physical and Life Sciences: 2 courses (8 credits)

Additional credits beyond 8 will apply as electives toward AS 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)
CHE 111	General College Chemistry I	(5)
CHE 112	General College Chemistry II	(5)
GEY 111	Physical Geology	(4)
GEY 121	Historical Geology	(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 (23-25 credits) _____

Total Credits (60 required) _____

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) or more, and then return, the catalog of the re-admission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Approved elective credit courses 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. 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	Health and Wellness	HWE	100
Anthropology	ANT	All courses	History	HIS	All courses
Art	ART	All courses	Humanities	HUM	All courses
Astronomy	AST	All courses	Literature	LIT	All courses
Biology	BIO	All courses except 105	Management	MAN	226
Business	BUS	115, 216, 217 and 226 (See AA degree, emphasis in business)	Marketing	MAR	216
Chemistry	CHE	All courses	Mathematics	MAT	All courses 121 and above except MAT 135
Computer Info. Systems. (generally transferable)	CIS	115, 118, 243, 251, 268	Music	MUS	All courses
Computer Science (generally transferable)	CSC	119, 160, 161, 165, 240, 261	Philosophy	PHI	All courses
Early Childhood Profession	ECE	101, 214, 215 and 227	Physical Education	PED	All courses (Maximum of three credits apply toward degree)
Economics	ECO	All courses	Physics	PHY	All courses except 105
Education	EDU	All courses above 200	Photography	PHO	All courses
English	ENG	121, 122, 131, 221, and 222	Political Science	POS	All courses
Environmental Science	ENV	101	Psychology	PSY	101, 102, 110, 215, 226, 227, 235, 238 and 249
Foreign Language	FRE, GER, SPA, FOL	All courses except 101, 102	Sociology	SOC	All courses
Geography	GEO	All courses	Speech	SPE	All courses
Geology	GEY	All courses	Theatre	THE	All courses

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 see 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, you should consult an advisor for assistance in planning your program of study. (See an advisor in the Advising Center at Red Rocks.) You should consult the Transfer Guide for GPA requirements of the receiving institution.
5. You must complete a minimum of 15 credits in your program area at Red Rocks.
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 term. (Apply in Admissions.) 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, you should consult with your advisor regarding how these credits will apply toward a degree.
9. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks and the requirements for the degree.

2004-2005 Degree Requirements

State-guaranteed general education courses (35–37 credits)

Communication: 2 courses (6 credits)

English 121	English Composition I	(3)
English 122	English Composition II	(3)

Arts and Humanities: 3 courses (9 credits)

Select no more than 2 courses from any category.

Arts

ART 111	Art History I	(3)
ART 112	Art History II	(3)
MUS 120	Music Appreciation	(3)
MUS 121	Music History I	(3)
MUS 122	Music History II	(3)
THE 105	Introduction to Theatre Arts	(3)
THE 211	Development of Theatre I	(3)
THE 212	Development of Theatre II	(3)

Literature

LIT 115	Intro to Literature	(3)
LIT 201	Masterpieces of Literature I	(3)
LIT 202	Masterpieces of Literature II	(3)

Ways of Thinking

PHI 111	Intro to Philosophy	(3)
PHI 112	Ethics	(3)

Mathematics: 1 course (3 credits minimum)

MAT 120	Mathematics for the Liberal Arts	(4)
MAT 121	College Algebra	(4)
MAT 125	Survey of Calculus	(4)
MAT 135	Intro to Statistics	(3)
MAT 201	Calculus I	(5)
MAT 202	Calculus II	(5)

Social and Behavioral Science: 3 courses (9 credits)

1 History course and 2 courses from different disciplines
e.g., HIS 201, ANT 101 and GEO 105

ANT 101	Cultural Anthropology	(3)
ANT 111	Physical Anthropology	(3)
GEO 105	World Geography	(3)
HIS 101	History of Western Civilization I	(3)
HIS 102	History of Western Civilization II	(3)
HIS 201	U.S. History I	(3)
HIS 202	U.S. History II	(3)
POS 105	Intro to Political Science	(3)
PSY 102	General Psychology II	(3)

Physical and Life Sciences: 2 courses (8 credits minimum)

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)
CHE 101	Intro to Chemistry I	(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)
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)

Electives – only in Early Childhood Education, Criminal Justice or Multimedia Technology (23-25 credits)

See area of emphasis for required electives. See an advisor for career course information.

Total credits (60 required) _____

AGS | 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) or more, and then return, the catalog of the re-admission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Other AGS-Specialist degree requirements

1. A minimum of 60 credits is required for the Associate of General Studies degree. These must include 34 credits in general education transfer courses and 26 credits in the areas specified below in approved electives or career courses (Please see your advisor).
2. You must complete 26 semester elective credits in the area of emphasis.
3. You must earn a cumulative grade point average of 2.0 (C average) in order to graduate.
4. You must complete a minimum of 15 credits in your program area at Red Rocks.
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 term. (Apply in Admissions.) You must apply to graduate within one year of completing requirements
6. No more than six 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, you should consult with your advisor regarding how these credits will apply toward a degree.
8. The college reserves the right to substitute or delete course work based on the current curriculum. You are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
9. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks 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.

2004-2005 Degree Requirements

The AGS degree is available if you would like to complete a broad program of both 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

Arts and Humanities: (3 credits)

Select one approved course (see list on next page).

ART

LIT

MUS

PHI

THE

Mathematics: (3 credits minimum)

Select one approved course (see list on next page).

MAT

Social and Behavioral Sciences: (3 credits)

Select one approved course (see list on next page).

ANT

GEO

HIS

POS

PSY

Science: (4 credits minimum)

Select one approved course (see list on next page).

AST

BIO

CHE

GEY

PHY

College level electives—(14 credits)

Select any generally transferable academic courses.

General electives—(30 credits)

Select any courses numbered 100 or above

Total Credits (60 required) _____

AGS | 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) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. Obtain and keep a copy of your governing catalog.

Courses numbered below 100 do not count toward any degree.

Approved 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	Geology	GEY	All courses
Anthropology	ANT	All courses	Health and Wellness	HWE	100
Art	ART	All courses	History	HIS	All courses
Astronomy	AST	All courses	Humanities	HUM	All courses
Biology	BIO	All courses except 105	Literature	LIT	All courses
Business	BUS	115, 216, 217 and 226 (See AA degree, emphasis in business)	Management	MAN	226
Chemistry	CHE	All courses	Marketing	MAR	216
Computer Info. Systems. (generally transferable)	CIS	115, 118, 243, 251, 268	Mathematics	MAT	All courses 120 and above
Computer Science (generally transferable)	CSC	119, 160, 161, 165, 240, 261	Music	MUS	All courses
Early Childhood Education	ECE	101, 214, 215 and 227	Philosophy	PHI	All courses
Economics	ECO	All courses	Physical Education	PED	All courses (Maximum 3 credits apply toward degree)
Education	EDU	All courses above 200	Photography	PHO	All courses
English	ENG	121, 122, 131, 221 and 222	Physics	PHY	All courses except 105
Environmental Science	ENV	101	Political Science	POS	All courses
Foreign Language	FRE, GER, SPA, FOL	All courses except 101, 102	Psychology	PSY	101, 102, 110, 215, 226 227, 235, 238 and 249
Geography	GEO	All courses	Sociology	SOC	All courses
			Speech	SPE	All courses
			Theatre	THE	All courses

Other AGS-Generalist degree requirements

The Associate of General Studies—Generalist degree is available for those who want to complete a broad program of both career and transfer courses. Various courses within this degree may be accepted in a four-year baccalaureate program; however, each course is considered on an individual basis. Information concerning transfer to Colorado universities or colleges is available in the Advising Center.

1. A minimum of 60 credits is required for the Associate of General Studies degree. Courses needed to satisfy objectives are to be developed in consultation with your counselor and faculty advisor.
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, you should consult an advisor for assistance in planning your program of study. (Advisors can be seen in the Advising Center at Red Rocks.) You should consult the Transfer Guide for GPA requirements of the receiving institution (Advising Center).
5. You must complete a minimum of 15 credits at Red Rocks.
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 term. (Apply in Admissions.) You must apply to graduate within one year of completing requirements.
7. No more than 6 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, you should consult with your advisor regarding how these credits will apply toward a degree.
9. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks 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.

2004-2005 Requirements

Degree requirements

(See specific program advisor for student worksheet.)

Specific program requirements (45 credits)

Substituted courses (form required)

General education requirements (15 credits)

Communications (ENG 121 or above, SPE 115 or SPE 125)	3
Mathematics (MAT 106 and above)	3
Credit from any two of the following three areas: Arts and Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPE, SPA, THE) Science (AST, BIO, CHE, GEY, PHY) Social Science (ANT, ECO, HIS, POS, PSY, SOC)	6
Electives from any of the above subjects:	3

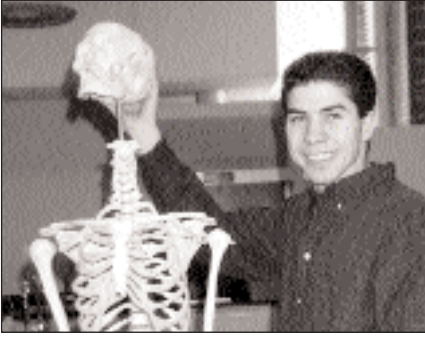
Note: Individual departments may specify particular courses for general education.

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) or more, and then return, the catalog of the readmission semester is the governing document. You may choose to use the catalog that is in effect the semester you graduate. You should be sure to obtain and keep a copy of your governing catalog.

Courses numbered below 100 will not count toward any degree.

Other (AAS) Degree Requirements

1. A minimum of 60 credits is required for the associate of applied science degree. These must include 45 credits in specific program courses and 15 credits in general education courses. Please see your advisor.
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, you should consult an advisor for assistance in planning your program of study. (Advisors can be seen in the Advising Center at Red Rocks.)
4. If you are planning to transfer to a four-year college or university, you should consult the Transfer Guide for GPA requirements of the receiving institution (Advising Center) .
5. You must complete a minimum of 15 credits in your program area at Red Rocks.
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 term. (Apply in Admissions.) 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 course 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, you should consult with your advisor regarding how these credits will apply toward a degree.
9. The college reserves the right to substitute or delete course work based on the current curriculum. You are assured that if the curriculum changes, the college will make every effort to determine an equitable solution.
10. If you are applying for an additional degree at Red Rocks, you must complete an additional 15 credits at Red Rocks and the requirements for the degree.
11. With the approval of a faculty advisor, up to five credits of internship may count toward a degree. (Some AAS degrees will require internship credits.)



Instructional Programs

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

Course numbers and descriptions are subject to change. The Colorado Community College System has begun a project to set common course numbers and common competencies throughout the system. This will make it easier for students to transfer and ensure curriculum quality across our system. The project will not jeopardize student credit and transfer. Check the website at www.rightchoice.com for updated information on course numbers and course competencies.

Accounting

Degree: Associate of Applied Science

Accounting Paraprofessional
Accounting Technician

Certificate:

Bookkeeping Clerk
Accounting Clerk

Red Rocks Community College offers an AAS degree in accounting with two options as well as two accounting certifi-



"I'm here mainly because of the atmosphere. The people are very friendly. I love Red Rocks."

RuShawn Crawford
Accounting major
Lakewood, CO

ates. If you plan to transfer to a baccalaureate institution, you should consider the AA degree with a business emphasis. You should consult with an accounting faculty advisor early in your career at the college to explore all your educational options.

Degree Area of Emphasis: Accounting Paraprofessional

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

Required Accounting Courses

ACC	121*	Accounting Principles I	4
ACC	122	Accounting Principles II	4
ACC	131	Income Tax I	3
ACC	135	Spreadsheet Applications for Accounting	3
ACC	138	Payroll and Sales Tax	3
ACC	211	Intermediate Accounting I	4
ACC	226	Cost Accounting	3
ACC	245	Computerized Accounting with a Professional Package	3

Required Business Courses

BTE	108	Ten-Key by Touch* or elective with advisor approval	1
BUS	115	Introduction to Business	3
BUS	216	Legal Environment of Business	3
BUS	217	Business Comm./Report Writing	3
CIS	118	Introduction to PC Applications	3
		Electives with approval of faculty advisor	5

Required General Education Courses

COM	100	Workplace Communication	
		or	
SPE	125	Interpersonal Communication	3
ENG	121	English Composition I	3
MAT	107	Career Math/Business	
		or	
		Any MAT course numbered 100 or higher	3
		Credit from two of the following three areas:	
		Social Science (ANT, ECO, GEO, HIS, POS, PSY, SOC)	
		Arts and Humanities (ART, SPA, FRE, GER, HUM, LIT, MUS, PHI, THE)	
		Science (AST, BIO, CHE, GEY, PHY)	6
		Total Required Credits	60

*See faculty advisor for approval; you must earn a C or better in all ACC courses to graduate. For a sequential course-scheduling plan, please see an accounting faculty advisor. Also see an advisor if you plan to transfer.

opportunities, options, excellence

Degree Area of Emphasis: Accounting Technician

Upon successful completion of this program, you should be able to perform bookkeeping and general office duties in a small office or begin a career path as an accounting technician in a large, departmentalized organization

Required Accounting Courses

ACC 101*	Fundamentals of Accounting	3
ACC 121	Accounting Principles I	4
ACC 122	Accounting Principles II	4
ACC 135	Spreadsheet App. for Accounting	3
ACC 138	Payroll and Sales Tax	3
ACC 245	Computerized Accounting with a Professional Package	3

Required Business Courses

BTE 108*	Ten-Key by Touch	1
BUS 115	Introduction to Business	3
BUS 216	Legal Environment of Business	3
BUS 217	Business Communications/Report Writing	3
CIS 118	Introduction to PC Applications	3
CIS 135	Complete PC Word Processing	3

Electives from accounting, business or computers with faculty advisor approval 9

Required General Education Courses

COM 100	Workplace Communication or	
SPE 125	Interpersonal Communication	3
ENG 121	English Composition I	3
MAT 107	Career Math/Business or Any MAT course numbered 100 or higher	3
	Credit from two of the following three areas	6

Social Science (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Arts and Humanities (ART, SPA, FRE, GER, HUM, LIT, MUS, PHI, THE)

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

Total Required Credits 60

*See faculty advisor for approval; you must earn a C or better in all ACC courses to graduate. For a sequential course-scheduling plan, please see an accounting faculty advisor. Also see an advisor if you plan to transfer.

Certificate: Bookkeeping Clerk

Upon successful completion of this program, you should possess the skills and knowledge to perform entry-level bookkeeping and accounting tasks.

Required Courses:

ACC 101*	Fundamentals of Accounting or	3
ACC 121	Accounting Principles I	4
ACC 138	Payroll and Sales Tax	3
BTE 100*	Computer Keyboarding	1
BTE 108*	Ten-Key by Touch or *elective (2) with approval of faculty advisor	1
BUS 115	Introduction to Business	3
CIS 118	Introduction to PC Applications	3

Total Required Credits 14

*See faculty advisor for approval; you must earn a C or better in all ACC courses to graduate. For a sequential course scheduling plan, please see an accounting faculty advisor. Also see an advisor if you plan to transfer.

Certificate: Accounting Clerk

Upon successful completion of this program you should possess the skills and knowledge 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

ACC 101*	Fundamentals of Accounting	3
ACC 121	Accounting Principles I	4
ACC 122	Accounting Principles II	4
ACC 135	Spreadsheet App. for Accounting	3
ACC 138	Payroll and Sales Tax	3
ACC 245	Computerized Accounting with a Professional Package	3
BTE 100*	Computer Keyboarding	1
BTE 108*	Ten-Key by Touch or *elective (2) with approval of faculty advisor	1
BUS 115	Introduction to Business	3
CIS 118	Introduction to PC Applications	3
COM 100	Workplace Communications or	
SPE 125	Interpersonal Communications	3

Total Required Credits 31

*See faculty advisor for approval; you must earn a "C" or better in all ACC courses to graduate. For a sequential course-scheduling plan, please see an accounting faculty advisor. Also see an advisor if you plan to transfer.

Air Conditioning

(See Construction Technology)

Apprenticeships

(See Construction Technology)

Art

Degree: Associate of Arts

The completion of the following courses is appropriate if you plan to transfer to a four-year college or university to complete a major in art. This program provides basic preparation leading to art-related careers, as well as to the teaching of art.

You are urged to consult with a faculty or academic advisor before beginning any program of study.

Recommended Courses

ART 111	Art History I	3
ART 112	Art History II	3
ART 121	Drawing I	
ART 122	Drawing II	3
ART 131	2-D Design	3
ART 154	Sculpture I	3
ART 211	Painting I	3

General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):

ENG 121	English Composition I	3
ENG 122	English Composition II	3

Arts and Humanities (3 courses : Select courses from 2 different areas): 9

ART 111, 112; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112; THE 105, 211, 212

Mathematics (1 course) 3

MAT 120, 121, 125, 135, 201, 202

Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines): 9

ANT 101, 111; GEO 105; HIS 101, 102, 201, 202; POS 105; PSY 102

Physical and Life Sciences(2 courses) 8

AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212

RRCC Requirement for the Associates of Arts Degree:

SPE 115 or 125 3

Electives (4 credits)

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Required Credits 60

Auto Collision Technology

(In cooperation with and taught at Warren Tech)

Degree: Associate of Applied Science

Certificates: Five (NATEF) areas

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 bachelors 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.

Associate of Applied Science

NATEF Areas

Non-Structural Analysis and Damage Repair	1-47
Painting and Refinishing	1-40
Plastic Repair	1-20
Structural Analysis and Damage Repair	1-39
Mechanical and Electrical Components	1-31
Management	1-14

General Education Requirements 15

English/Speech (COM, ENG, SPE—any level above 100) 3

Mathematics (100 or above) 3

Credit from any two of the following three areas: 9

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

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

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

Total Credits 61

NATEF

Specialty Certificates

For the following certificates please check with the instructor/advisor or the course description area of this catalog for prerequisites.

Non-Structural Analysis/Damage Repair

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 Replacement and Alignment	3
ACT 123	Metal Finishing and Body Filling	3
ACT 175	Special Topics	1
ACT 180	Auto Collision Repair Internship Level I	1
ACT 211	Metal Welding and Cutting II (co-requisite)	2
ACT 221	Moveable Glass and Hardware	2

Painting and Refinishing

ACT 101	Introduction to Auto Collision Tech	2
ACT 111	Metal Welding and Cutting I	3
ACT 141	Refinishing Safety	1
ACT 142	Surface Preparation I	2
ACT 143	Spray Equipment Operation	2
ACT 144	Refinishing I	2
ACT 175	Special Topics	1
ACT 180	Auto Collision Repair Internship Level I	1
ACT 241	Paint Defects	3
ACT 242	Surface Preparation II	2
ACT 243	Refinishing II	2
ACT 244	Final Detail	2

Plastic Repair

ACT 151	Plastics and Adhesives I	1
ACT 170	Auto Collision Technology Lab Experiences	1
ACT 180	Auto Collision repair Internship Level I	1
ACT 251	Plastics and Adhesives II	1

Structural Analysis and Damage Repair

ACT 111	Metal Welding and Cutting I (co-requisite)	3
ACT 131	Structural Damage Diagnosis	3
ACT 132	Structural Damage Repair	3
ACT 211	Metal Welding and Cutting II (co-requisite)	2
ACT 220	Structural Repair II	4
ACT 231	Advanced Structural Damage Diagnosis and Repair	3
ACT 232	Fixed Glass Repair	2

ACT 171 Auto Collision Tech Lab Experiences II 1

Mechanical and Electrical Components

See Janis Eagan, **303.914.6543** for course listings and further information about this Red Rocks/Warren Tech program.

Management

ACT 181	Automotive Collision Repair Level II Internship	1-9
ACT 205	Estimating and Shop Management	3
ACT 226	Production	4

Automotive Service Technology

(In cooperation with and taught at Warren Tech)

Degree: Associate of Applied Science

Certificates: Awarded upon completion of at least one NATEF specialty area

Master Technician: Completion of all eight NATEF areas

This program is a nationally certified automotive repair program (NATEF) providing you with entry-level skills in the automotive industry or upgrading for those currently in the field. This is an open-entry program where students can begin at several designated starting times during the year. Therefore, you can complete some of the courses, enter the work force, then return to complete requirements for the AAS degree, certificates, or to upgrade specific skills. Demonstrated mastery of skills is required. All automotive (ASE) courses are held at the Warren Tech Auto Shop. The instructors are ASE Certified Master Technicians.

You should consult with an automotive service technology advisor before beginning your program of study.

Degree: Associate of Applied Science

The Associate of Applied Science degree (75 credits), requires a minimum of 15 credits of academic general education courses and a minimum of 60 credits in NATEF specialty areas. The ASE courses offered in the NATEF specialty areas must be completed as groups to satisfy requirements.

General Education 15

English/Speech (minimum 3 credits): COM, ENG, SPE

Mathematics (minimum 3 credits): MAT 100 or above

Take a minimum of 9 credits from any two of the following three areas:

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

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

Social/Behavioral Science (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Automotive Courses (at least 60 credits)

ASE 101 Auto Shop Orientation 2
(Required for all students new to the program)

NATEF Specialty Area Certificates

Brakes

ASE 110 Brakes I 3

ASE 210 Brakes II 3

Total Required Credits 6

Suspension and Steering

ASE 140 Suspension and Steering I 3

ASE 240 Suspension and Steering II 3

Total Required Credits 6

Heating and Air Conditioning

ASE 265 Heating and A/C 5

Total Required Credits 5

Manual Drive Train and Axles

ASE 150 U joint and Axle Shaft Service 2

ASE 151 Manual Transmission/Transaxles 2

ASE 152 Differentials and 4WD/AWD 2

Total Required Credits 6

Automatic Transmission/Transaxles

ASE 250 Auto Trans/Transaxle Service 1

ASE 251 Auto Trans/Transaxle Diagnosis 5

Total Required Credits 6

Engine Performance

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

Total Required Credits 11

Electrical and Electronic Systems

ASE 120 Basic Automotive Electricity 2

ASE 123 Automotive Battery, Starting, Charging 2

ASE 221 Auto body Electrical 4

ASE 231 Automotive Computers 2

Total Required Credits 10

Engine Repair

ASE 160 Engine Removal and Install 1

ASE 161 Engine Disassembly, Diagnose, Assemble 5

Total Required Credits 6

Auto Parts Specialist

ASE 201 Automotive Parts Management 1

ASE 282 Internship: General I 1

Total Required Credits 2

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. Some courses might not be offered each semester.

Recommended Courses 36

BIO 111 General College Biology I 5

BIO 112 General College Biology II 5

CHE 111 General College Chemistry I 5

CHE 112 General College Chemistry II 5

MAT 121 College Algebra 4

PHY 111 Physics: Algebra-based I 5

BIO 201 Human Anatomy and Physiology I 4

BIO 202 Human Anatomy and Physiology II 4

BIO 208 Microbiology 5

BIO 211 Cell Biology 4

BIO 212 Molecular Biology 4

BIO	220	General Zoology	5
BIO	221	General Botany	5
BIO	228	Field Biology	2-3
GEY	121	Historical Geology	4

General Education Transfer Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3

Arts and Humanities (3 courses: Select courses from 2 different areas): 9

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212

Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102

Total Required Credits 60

Biotechnology

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 specialization in biotechnology. You should consult with a biology faculty advisor before beginning any program of study. Some courses might not be offered each semester.

Recommended Courses 36

BIO	111	General College Biology I	5
BIO	201	Human Anatomy and Physiology I	4
BIO	202	Human Anatomy and Physiology II	4
BIO	208	Microbiology	5
CHE	111	General College Chemistry I	5
CHE	112	General College Chemistry II	5
MAT	121	College Algebra	4
BIO	211	Cell Biology	4
BIO	212	Molecular Biology	4

General Education Transfer Requirements

English/Speech

ENG	121	English Composition I	3
ENG	122	English Composition II	3

Arts and Humanities (3 courses: Select courses from 2 different areas): 9

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212

Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9

latest information: www.rccc.edu

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102

Total Required Credits 60

Blueprints

(See Construction Technology)

Building Codes

(See Construction Technology)

Building Maintenance

(See Construction Technology)

Business

Degree: Associate of Arts

The study of business examines the strategies and functional activities that private enterprises undertake to achieve the profit motive. You can major in the following fields at the baccalaureate level: accounting, finance, information systems, management and marketing. Graduates in these disciplines go on to exciting and challenging professional careers in the business world.

Colorado Community Colleges are in the process of negotiating a business transfer agreement with the public four-year colleges and universities in the state. Please see a faculty advisor or the Advising Center for more specific information.

Required Business Courses

ACC	121	Principles of Accounting I	4
ACC	122	Principles of Accounting II	4
BUS	216	Legal Environment of Business	3
BUS	115	Introduction to Business	3
BUS	217	Business Communications and Report Writing	3
BUS	226	Business Statistics	3

Business Graduation Requirements 20

General Education Transfer Requirements

Communications (2 courses)

ENG	121	English Composition I	3
ENG	122	English Composition II	3

Arts and Humanities (2 courses): 6

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212

Mathematics (2 courses)			
MAT	123	Finite Mathematics or	
MAT	121	College Algebra and	4
MAT	125	Survey of Calculus	4
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 ECO):			
HIS 101, HIS 102, HIS 201, or HIS 202			3
ECO 201 Principles of Macroeconomics			3
ECO 202 Principles of Microeconomics			3
Physical and Life Sciences (2 courses)			
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212			8
SPE	115	Public Speaking	3
Total Required Credits			60

Degree: Associate of Applied Science

(offered through CCCOnline)

For more information go to www.ccconline.org

Required Business Courses

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 Communication and Report Writing	3
BUS	226	Business Statistics	3
MAN	200	Human Resource Management	3
MAN	216	Small Business Management	3
MAN	226	Principles of Management	3
MAR	111	Principles of Sales	3
MAR	216	Principles of Marketing	3
CIS	115	Introduction to Computer Systems	3
CIS	118	Introduction to PC Applications	3
CIS	155	Complete PC Spreadsheets	3

General Education Courses

ECO	201	Principles of Macroeconomics	3
ECO	202	Principles of Microeconomics	3
ENG	121	English Composition I	3
ENG	122	English Composition II	3
MAT	121	College Algebra	4
SPE	115	Public Speaking	3
Total Required Credits			63

Business Administration

Degree: Associate of Applied Science

Certificates: Variable

Business organizations are looking for people who can help them achieve their goals. Training in business helps increase an individual's opportunity for advancement within a corporate or administrative structure. Both large and small businesses stress the need for academic preparation in addition to work experience. Depending upon the level of work and the company, advanced degrees may be required.

This AAS degree is meant for those who want a business degree and do not plan to transfer to a four-year college or university, although many of these courses will transfer.

The Associate of Applied Science degree in business administration is available with an emphasis in the following areas:

- E-Business
- Interdisciplinary
- Management and Supervision
- Real Estate

Certificates are also available in the following areas:

- E-Business
- Management and Supervision
- Real Estate
- Small Business Management

See also Business - Associate of Applied Science section for information regarding an AAS in business delivered entirely over the Internet through CCCOnline.

Please contact your business faculty advisor for choice of electives and general education courses, program planning, and transfer information. See your advisor if you plan to transfer.

Business Core: (Required for all areas of emphasis)

ACC	121	Accounting Principles I	4
ACC	122	Accounting Principles II	4
BUS	115	Introduction to Business	3
BUS	204	Introduction to E-Business	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
Total Business Core Credits			26

General Education Courses:

(Required for all areas of emphasis)

ENG	121	English Composition I	3
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MAT 107	Career Math/Business	
	or	
Any MAT course 100 or higher		(3)
ECO 201	Principles of Macroeconomics	3
PHI 112	Ethics	3
General education elective with approval of faculty advisor		3
Total General Education Credits		15

Degree Area of Emphasis: E-Business

Business Core Credits		26
General Education Credits		15
Additional Required Courses		
BUS 210	Introduction to E-Commerce	3
BUS 215	Global E-Commerce	3
MAR 217	E-Commerce Marketing	3
CIS xxx	CIS elective	3
Electives (see faculty advisor for approval)		
Choose from ACC, BUS, CIS, MAN, MAR, SBM		7
Total Area of Emphasis Credits		19
Total Required Credits		60

Area of Emphasis: Interdisciplinary

This area of emphasis is for students who have started or completed vocational programs like construction technology or fire science and who would like to supplement their trade knowledge with business and management knowledge.

Business Core Credits		26
General Education Credits		15
Additional Required Courses		
Interdisciplinary Credits*		15
Electives (see faculty advisor for approval)		
Choose from ACC, BUS, CIS, MAN, MAR, SBM		6
Total Area of Emphasis Credits		19
Total Required Credits		60

*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 with the particular educational institution (see faculty advisor for approval)

*General Education courses already taken through a Community Colleges of Colorado vocational program may be accepted for these requirements (see faculty advisor).

Area of Emphasis: Management and Supervision

Business Core Credits		26
General Education Credits		15

Additional Required Courses

CIS 118	Introduction to PC Applications	3
MAN 116	Principles of Supervision	3
MAN 117	Time Management (Fall only)	1
Electives (see faculty advisor for approval)		
Choose from ACC, BUS, CIS, MAN, MAR, SBM		12
Total Area of Emphasis Credits		19
Total Required Credits		60

Area of Emphasis: Real Estate

Business Core Credits		26
General Education Credits		15
Additional Required Courses		
REE 103	Real Estate Broker's I	6
REE 104	Real Estate Broker's II	5
CIS 118	Introduction to PC Applications	3
MAN 116	Principles of Supervision	3
Electives (see faculty advisor for approval)		
Choose from ACC, BUS, CIS, MAN, MAR, SBM		3
Total Area of Emphasis Credits		20
Total Required Credits		61

Certificate: E-Business*

BUS 204	Introduction to E-Business	3
BUS 210	Introduction to E-Commerce	3
BUS 215	Global E-Commerce	3
MAR 217	E-Commerce Marketing	3
CIS Elective or Cooperative Education (see faculty advisor for approval)		3
Total Required Credits		15

Students in the E-Business Certificate Program must earn a grade of C or better in all classes to graduate.

*This certificate is designed for students who either have taken prior business courses or have extensive business experience.

Certificate: Management and Supervision

ACC 121	Accounting Principles I	4
BUS 115	Introduction to Business	3
BUS 216	Legal Environment of Business	3
BUS 217	Business Comm. 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

Business Electives (see faculty advisor for approval)	5
Total Required Credits	30

Certificate: Real Estate

REE 103 Real Estate Broker's I	6
REE 104 Real Estate Broker's II	5
Total Required Credits	11

Certificate: Small Business Management

Required Courses

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 120 Writing a Business Plan	1

Elective courses: (select one credit from the following)

MAN 117 Time Management (fall only)	1
SBM 175 Special Topics (spring only)	1
Elective with approval of your faculty advisor	1

Total Required Credits	8
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Business Technology

Degree: Associate of Applied Science

Certificates: Variable Credits

These program options 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. The student must earn a minimum grade of C in all BTE, CIS, and ACC courses required for a certificate or degree.

Area of Emphasis:

Administrative Assistant

ACC 101 Fundamentals of Accounting	3
BTE 102 Keyboarding Applications I	3
BTE 111 Keyboarding Speedbuilding I	2
BTE 112 Keyboarding Speedbuilding II	3
BTE 125 Records Management	3
BTE 166 Business Editing Skills	3
BTE 202 Office Simulation I	4
BTE 203 Office Simulation II	4
BTE 225 Administrative Office Management	3
BTE 287 Cooperative Education/Internship	3
CIS 118 Introduction to PC Applications: MS Office	4
CIS 130 Introduction to the Internet	1.33
CIS 135 Complete PC Word Processing: Word	4
CIS 145 Complete PC Database: Access	4
CIS 155 PC Spreadsheet Concepts: Excel	4
ENG 121 English Composition I	3
MAT 121 College Algebra	4

General Education Courses **9**

Credit from 2 of these areas:

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

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

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

Total Required Credits	64.33
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Certificate: Clerical Assistant

BTE 102 Keyboarding Applications I	3
BTE 125 Records Management	3
BTE 166 Business Editing Skills	3
BTE 287 Cooperative Education/Internship	3
CIS 118 Introduction to PC Applications: MS Office	4
ENG 115 Technical English	3
MAT 107 Career Math/Business	3

Electives **5-8**

CIS 135, CIS 140, CIS 145, CIS 155, CIS 165, BTE 202, BTE 225

Total Required Credits	27-30
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Certificate: Office Assistant

BTE 100 Computer Keyboarding	2
BTE 102 Keyboarding Applications I	3
BTE 111 Keyboarding Speedbuilding I	2
BTE 125 Records Management	3

opportunities, options, excellence

BTE 166	Business Editing Skills	3
BTE 202	Office Simulation I	4
BTE 225	Administrative Office Management	3
BTE 287	Cooperative Education/Internship	3
CIS 118	Introduction to PC Applications: MS Office	4
CIS 130	Introduction to the Internet	1.33
CIS 135	Complete PC Word Processing: Word	4
CIS 145	Complete PC Database: Access	4
CIS 155	PC Spreadsheet Concepts: Excel	4
ENG 115	Technical English	3
MAT 107	Career Math/Business	3
Total Required Credits		46.33

Carpentry

(See Construction Technology)

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. Some courses might not be offered each semester.

If you are planning to major in chemistry at a four-year college or university, you will find MAT 201 Calculus I is the (lowest level) mathematics course in which the credits earned will count toward a BA or a BS degree. If you are a student just entering and are not prepared to take MAT 201, you will need to take the pre-requisite course(s) The credits earned in the pre-requisite course(s) will not count toward a BA or a BS degree.

Recommended Courses		36
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
PHY 211	Physics: Calculus-Based I	5
PHY 212	Physics: Calculus-Based II	5

General Education Transfer Requirements

English/Speech

ENG 121	English Composition I	3
ENG 122	English Composition II	3

Arts and Humanities (3 courses: Select courses from 2 different areas): 9

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212

Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102

Total Required Credits **60**

Codes

(See Construction Technology)

Communication

(See Speech Communication)

Computer Information Systems

Degree: Associate of Applied Science

Certificates: Variable Credits

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, and CWB courses required for a certificate or degree.

Core Curriculum Requirements for all Areas of Emphasis

ACC 121	Accounting Principles I	4
or		
Faculty advisor approved business course		3
ENG 121	English Composition I	3
ENG 122	English Composition II	3
or		
ENG 131	Technical Writing	3
MAT 121	College Algebra (or higher)	4
SPE 115	Public Speaking	3
CIS 268	System Analysis and Design I	4
CIS 201	Computer Issues	1

CIS 289	Capstone	4
Credit from any two of the following three areas:		6
Humanities (ART, FRE, GER, HUM, LIT, PHI, SPA, THE)		
Science (AST, BIO, CHE, GEY, PHY)		
Social and Behavioral Science (ANT, ECO, GEO, HIS, POS, PSY, SOC)		
Total Required Core Credits		31-32

Degree: Associate of Applied Science

Area of Emphasis:

Cisco Network Associate

This area of emphasis prepares you for the Cisco Certified Network Associate certification. The student will learn about networking principles, setup and configuration of internetworking devices, and local area and wide area network planning and design.

CSC 119	Introduction to Programming	4
CNG 121	Computer Technician I: A+	5
	or	
CIS 220	Fundamentals of UNIX	4
CNG 260	Cisco Network Associate I	6
CNG 261	Cisco Network Associate II	6
CNG 262	Cisco Network Associate III	6
CNG 263	Cisco Network Associate IV	6

Minimum Required Credits for Area of Emphasis 32-33

Core Curriculum Requirements 31-32

Total Required Credits 63-65

Area of Emphasis:

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.

CNG 121	Computer Technician I: A+	5
CNG 122	Computer Technician II: A+	5
CNG 260	Cisco Network Associate I	6
CNG 261	CISCO Network Associate II	6
CNG 212	Manage MS Windows Server Environment	5
CNG 213	Manage MS Windows Network Infrastructure	5
CNG 211	Windows XP Configuration	4

Minimum Required Credits for Area of Emphasis 36

Core Curriculum Requirements 31-32

Total Required Credits 67-68

Area of Emphasis:

Internet Programming Specialist

This area of emphasis prepares you for an entry-level programming position, with an emphasis on programming for the Internet. Upon completion of this program, you will have written programs in a variety of programming languages. The curriculum includes general-purpose applications, client-side programs, and server-side programs.

CSC 160	Computer Science I	5
CSC 161	Computer Science II	5
CSC 240	Java Programming	4
CIS 220	Fundamentals of UNIX	4
CIS 221	Advanced UNIX	4
	or	

CWB 210	Advanced Web Scripting: CGI and Perl	4
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CWB 110	Complete Web Authoring: HTML	4
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Faculty advisor approved networking course	4-6
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Minimum Required Credits for Area of Emphasis 30-32

Core Curriculum Requirements 31-32

Total Required Credits 61-64

Area of Emphasis: Microsoft

Application Developer (MCAD)

This area of emphasis provides the skills necessary to develop and maintain applications, components, Web or desktop clients and back-end data services using the MS .NET technology.

CSC 119	Introduction to Programming	4
	and	

CSC 154	Introduction to MS Visual Basic .NET (OOP)	4
	or	

CSC 160	Computer Science I	5
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CSC 251	Programming in Visual Basic .NET	4
	or	

CSC 261	Programming in C# .NET	4
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CSC 250	Programming with MS ADO .NET	4
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CSC 253	MS ASP .NET Web Application Development	4
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CSC 252	MS Visual Basic .NET Application Dev.	4
	or	

CSC 262	MS C# .NET Application Development	4
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CSC 263	MS ASP .NET XML Web Service Dev.	4
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CSC 264	Building COM+ Applications Using MS .NET Enterprise Services	4
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Minimum required credits for area of emphasis 29-32

Core Curriculum Requirements 31-32

Total Required Credits 60-64

Area of Emphasis: Microsoft Database Administrator (MCDBA)

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

CSC	119	Introduction to Programming and	4
CSC	154	Introduction to MS Visual Basic .NET (OOP) or	4
CSC	160	Computer Science I	5
CIS	251	Intro. to Structured Query Language (SQL) or	4
CIS	252	Querying MS SQL Server with Transact-SQL	4
CIS	253	Programming Microsoft SQL Server Database	4
CSC	250	Programming with MS ADO .NET	4
CNG	212	Manage MS Windows Server Environment	5
CNG	227	Administering a Microsoft SQL Server Database	4
Choose one elective			4
CSC	253	MS ASP .NET Web Application Development	
CSC	252	MS Visual Basic .NET Application Development	
CSC	262	MS C# .NET Application Development	
CSC	263	MS ASP .NET XML Web Service Development	

Minimum required credits for area of emphasis 30-33

Core curriculum requirements 31-32

Total Required credits 61-65

Area of Emphasis: Microsoft Network System Administrator (MCSA)

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

CSC	119	Introduction to Programming or	4
CSC	154	Introduction to MS Visual Basic .NET (OOP)	4
CNG	121	Computer Technician I: A+	5
CNG	122	Computer Technician II: A+	5
CNG	211	Windows XP Configuration	4
CNG	212	Manage MS Windows Server Environment	5
CNG	213	Manage MS Windows Network Infrastructure	5
Choose one elective:			4
CNG	217	Implement Security in a MS Windows Environment	
CNG	226	Implementing and Managing Microsoft Exchange	
CNG	227	Administering a Microsoft SQL Server Database	

Minimum Required Credits for Area of Emphasis 32

Core Curriculum Requirements 31-32

Total Required Credits 63-64

Area of Emphasis: Microsoft Network System Engineer (MCSE)

This area of emphasis provides the skills necessary to design and implement an infrastructure solution based on the Windows platform and Microsoft Servers software.

CSC	119	Introduction to Programming	4
CNG	211	Windows XP Configuration	4
CNG	212	Manage MS Windows Server Environment	5
CNG	213	Manage MS Windows Network Infrastructure	5
CNG	214	Plan MS Windows Server Network Infrastructure	5
CNG	216	Plan MS Windows Server Active Directory Infrastructure	5
CNG	221	Design MS Directory and Network Infrastructure	4
Choose one elective:			4
CNG	217	Implement Security in a MS Windows Environment	
CNG	226	Implementing and Managing Microsoft Exchange	
CNG	227	Administering a Microsoft SQL Server Database	

Minimum Required Credits for Area of Emphasis 36

Core Curriculum Requirements 31-32

Total Required Credits 67-68

Area of Emphasis: PC Applications Specialist

This area of emphasis prepares you as an entry-level micro-computer specialist with an emphasis in applications. Upon completion of the course work, you will be prepared to sit for the Microsoft Office Users Specialist (MOUS) examinations for MOUS certification.

CSC	119	Introduction to Programming	4
CIS	118	Introduction to PC Applications: MS Office	4
CIS	124	Intro to Operating Systems	4
CIS	140	Microsoft Outlook	1.33
CIS	135	Complete PC Word Processing: Word	4
CIS	145	Complete PC Database: Access	4
CIS	155	PC Spreadsheet Concepts: Excel	4
CIS	165	Complete Presentation Graphics: PowerPoint	4
Faculty advisor approved networking course			4-6

Minimum Required Credits for Area of Emphasis 33.33-35.33

Core Curriculum Requirements 31-32

Total Required Credits 64.33-66.33

Area of Emphasis: Programming Specialist

This area prepares you as 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.

CSC 119	Introduction to Programming and	4
CSC 154	Introduction to MS Visual Basic .NET (OOP) or	4
CSC 160	Computer Science I	5
CIS 220	Fundamentals of UNIX	4
CIS 221	Advanced UNIX	4
CSC	Two programming languages with at least one second-semester course	8
	Faculty advisor approved electives	8
Minimum Required Credits for Area of Emphasis		29-32
Core Curriculum Requirements		31-32
Total Required Credits		60-64

Area of Emphasis: Web Design

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

CSC 119	Introduction to Programming	4
CWB 110	Complete Web Authoring: HTML	4
CWB 115	Web Design Fundamentals	4
CWB 130	Complete Web Editing Tools: Dreamweaver	4
CWB 161	Image Editing I: Photoshop	4
CWB 205	Complete Web Scripting: JavaScript	4
CWB 245	Complete Web Animation: Flash	4
	Faculty advisor approved electives	8
Minimum Required Credits for Area of Emphasis		36
Core Curriculum Requirements		31-32
Total Required Credits		67-68

Area of Emphasis: 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 websites. Course offerings provide a mix of programming and applications that examine both the client and server aspects of websites. Creation of dynamic Web pages using databases is explored.

CWB 110	Complete Web Authoring: HTML	4
CIS 145	Complete PC Database: Access	4
CIS 251	Introduction to Structured Query Language (SQL)	4

CSC 160	Computer Science I or	5
CSC 154	Introduction to MS Visual Basic .NET (OOP)	4
CWB 210	Advanced Web Scripting: CGI and Perl or	4
CSC 253	MS ASP .NET Web Application Development or	4
CWB 208	Web Application Development: ColdFusion	4
	Faculty advisor approved electives	12
Minimum Required Credits for Area of Emphasis		32-33
Core Curriculum Requirements		31-32
Total Required Credits		63-65

Certificate Programs

Certificate: Cisco Network Associate

This area of emphasis prepares you for the Cisco Certified Network Associate certification. The student will learn about networking principles, setup and configuration of internetworking devices, and local area and wide area network planning and design.

CSC 119	Introduction to Programming	4
CNG 121	Computer Technician I: A+ or	5
CIS 220	Fundamentals of UNIX	4
CNG 260	Cisco Network Associate I	6
CNG 261	Cisco Network Associate II	6
CNG 262	Cisco Network Associate III	6
CNG 263	Cisco Network Associate IV	6
CIS 201	Computer Issues	1
Total Required Credits		33-34

Certificate: Computer Support Technician

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

CNG 121	Computer Technician I: A+	5
CNG 122	Computer Technician II: A+	5
CNG 260	Cisco Network Associate I	6
CNG 261	Cisco Network Associate II	6
CNG 212	Manage MS Windows Server Environment	5
CNG 213	Manage MS Windows Network Infrastructure	5

CNG 211	Windows XP Configuration	4
CIS 201	Computer Issues	1
Total Required Credits		37

Certificate: Internet Programming Specialist

This area of emphasis prepares you for an entry-level programming position, with an emphasis on programming for the Internet. Upon completion of this program, you will have written programs in a variety of programming languages. The curriculum includes general-purpose applications, client-side programs, and server-side programs.

CSC 160	Computer Science I	5
CSC 161	Computer Science II	5
CSC 240	Java Programming	4
CIS 220	Fundamentals of UNIX	4
CIS 221	Advanced UNIX	4
	or	
CWB 210	Advanced Web Scripting: CGI and Perl	4
CWB 110	Complete Web Authoring: HTML	4
CIS 201	Computer Issues	1
Faculty advisor approved networking course		4-6
Total Required Credits		31-33

Certificate: Microsoft Application Developer (MCAD)

This certificate provides the skills necessary to develop and maintain applications, components, Web or desktop clients and back-end data services using the MS .NET technology.

CSC 119	Introduction to Programming and	4
CSC 154	Introduction to MS Visual Basic .NET (OOP) 4	4
	or	
CSC 160	Computer Science I	5
CSC 251	Programming in Visual Basic .NET	4
	or	
CSC 261	Programming in C# .NET	4
CSC 250	Programming with MS ADO. NET	4
CSC 253	MS ASP .NET Web Application Development4	4
CSC 252	MS Visual Basic .NET Application Dev.	4
	or	
CSC 262	MS C# .NET Application Development	4
CSC 263	MS ASP .NET XML Web Service Dev.	4
CSC 264	Building COM+ Applications Using MS .NET Enterprise Services	4

CIS 201	Computer Issues	1
Total Required Credits		30-33

Certificate: Microsoft Database Administrator (MCDBA)

This certificate provides students with the skills necessary to design, implement, and administer Microsoft SQL Server databases.

CSC 119	Introduction to Programming and	4
CSC 154	Introduction to MS Visual Basic .NET (OOP) 4	4
	or	
CSC 160	Computer Science I	5
CIS 251	Intro. to Structured Query Language (SQL) 4	4
	or	
CIS 252	Querying Microsoft SQL Server with Transact-SQL	4
CIS 253	Programming Microsoft SQL Server Database4	4
CSC 250	Programming with MS ADO .NET	4
CNG 212	Manage MS Windows Server Environment	5
CNG 227	Administering a Microsoft SQL Server Database	4
CIS 201	Computer Issues	1
Choose one elective		4
CSC 253	MS ASP .NET Web Application Development	
CSC 252	MS Visual Basic .NET Application Dev.	
CSC 262	MS C# .NET Application Development	
CSC 263	MS ASP .NET XML Web Service Dev.	
Total Required Credits		31-34

Certificate: Microsoft Network System Administrator (MCSA)

This certificate provides the skills necessary to manage and troubleshoot system environments based on Microsoft Windows Platforms.

CSC 119	Introduction to Programming and	4
	or	
CSC 154	Introduction to MS Visual Basic .NET (OOP) 4	4
CNG 121	Computer Technician I: A+	5
CNG 122	Computer Technician II: A+	5
CNG 211	Windows XP Configuration	4
CNG 212	Manage MS Windows Server Environment	5
CNG 213	Manage MS Windows Network Infrastructure	5
CIS 200	Computer Issues	1

Choose one elective:	4
CNG 217 Implement Security in a MS Windows Environment	
CNG 226 Implementing and Managing Microsoft Exchange	
CNG 227 Administering a Microsoft SQL Server Database	
Total Required Credits	33

Certificate: Microsoft Network System Engineer (MCSE)

This area of emphasis provides the skills necessary to design and implement an infrastructure solution based on the Windows platform and Microsoft Servers software.

CSC 119 Introduction to Programming	4
or	
CSC 154 Introduction to MS Visual Basic .NET (OOP)	4
CNG 211 Windows XP Configuration	4
CNG 212 Manage MS Windows Server Environment	5
CNG 213 Manage MS Windows Network Infrastructure	5
CNG 214 Plan MS Windows Server Network Infrastructure	5
CNG 216 Plan MS Windows Server Active Directory Infrastructure	5
CNG 221 Design MS Directory and Network Infrastructure	4
CIS 201 Computer Issues	1
Choose one elective:	4
CNG 217 Implement Security in a MS Windows Environment	
CNG 226 Implementing and Managing Microsoft Exchange	
CNG 227 Administering a Microsoft SQL Server Database	
Total Required Credits	37

Certificate: PC Applications Specialist

This area of emphasis prepares you as an entry-level micro-computer specialist with an emphasis in applications. Upon completion of the course work, you will be prepared to sit for the Microsoft Office Users Specialist (MOUS) examinations for MOUS certification.

CSC 119 Introduction to Programming	4
CIS 118 Introduction to PC Applications: MS Office	4
CIS 124 Intro to Operating Systems	4
CIS 140 Microsoft Outlook	1.33
CIS 135 Complete PC Word Processing: Word	4
CIS 145 Complete PC Database: Access	4
CIS 155 PC Spreadsheet Concepts: Excel	4

CIS 165 Complete Presentation Graphics: PowerPoint	4
CIS 201 Computer Issues	1
Faculty advisor approved networking course	4-6
Total Required Credits	34.33-36.33

Certificate: Programming Specialist

This area prepares you as 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.

CSC 119 Introduction to Programming	4
and	
CSC 154 Introduction to MS Visual Basic .NET (OOP)	4
or	
CSC 160 Computer Science I	5
CIS 220 Fundamentals of UNIX	4
CIS 221 Advanced UNIX	4
CIS 201 Computer Issues	1
CSC Two programming languages with at least one second-semester course	8
Faculty advisor approved electives	8
Total Required Credits	30-33

Certificate: Web Design

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

CSC 119 Introduction to Programming	4
CWB 110 Complete Web Authoring: HTML	4
CWB 115 Web Design Fundamentals	4
CWB 130 Complete Web Editing Tools: Dreamweaver	4
CWB 161 Image Editing I: Photoshop	4
CWB 245 Complete Web Animation: Flash	4
CWB 205 Complete Web Scripting: JavaScript	4
CIS 201 Computer Issues	1
Faculty advisor approved electives	8
Total Required Credits	37

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 websites. Course offerings provide a mix of programming and applications that examine both the client and server aspects of websites. Creation of dynamic Web pages using databases is explored.

CWB 110 Complete Web Authoring: HTML	4
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CIS 145	Complete PC Database: Access	4	ENG 122	English Composition II	3
CIS 251	Introduction to Structured Query Language (SQL)	4	SPE 115	Public Speaking	3
CSC 160	Computer Science I or	5	Humanities (any two courses from the following)		6
CSC 154	Introduction to MS Visual Basic .NET (OOP)	4	ART 111, 112; LIT 115, 201, 202; MUS 120, 122; PHI 111, 112; THE 211, 212		
CWB 210	Advanced Web Scripting: CGI and Perl or	4	Social and Behavioral Sciences (courses from two different disciplines)		6
CSC 253	MS ASP .NET Web Application Development or	4	ANT 101, 111; GEO 105; HIS 101, 102 201, 202; POS 105; PSY 102		
CWB 208	Web Application Development: ColdFusion	4	Electives		3
CIS 201	Computer Issues	1	Electives must be selected from college-level transfer courses. No more than three credits in PED may be counted.		
Faculty advisor approved electives		12	Total Required Credits		64
Total Required Credits		33-34			

Computer Science

Important note: Please refer to the CIS department website, 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, and CWB 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. Students are urged to consult a faculty advisor before beginning any program.

Recommended Courses

CSC 160	Computer Science I	5
CSC 161	Computer Science II	5
CSC 165	Discrete Structures	4
MAT 201	Calculus I (Core)	5
MAT 202	Calculus II (Core)	5
PHY 211	Physics: Calculus-based I* (Core)	5
PHY 212	Physics: Calculus-based II* (Core)	5

*Other natural science credits may be substituted for the AS degree. However, many colleges and universities offering a Bachelor of Science degree in Computer Science require PHY 211 and PHY 212. Please consult with a computer science faculty advisor.

Electives in Mathematics and Computer Science	6
	40

All electives must be transferable. The students are encouraged to work with your computer science faculty advisor.

Core Curriculum Requirements

English/Speech		
ENG 121	English Composition I	3

latest information: www.rrcc.edu

Construction Technology

**Degree: Associate of Applied Science
with Areas of Emphasis and Options in:**

Air Conditioning, Heating and Refrigeration (HVA)

Degrees:

- Air Conditioning, Heating and Refrigeration
- Refrigeration
- Residential Air Conditioning
- Residential Hydronic Heating
- Residential Heating
- HVAC Apprenticeship

Certificates:

- Commercial Residential Heating
- Level I Refrigeration
- Refrigeration
- Residential Air Conditioning
- Residential Forced Air Heating
- Heating, Ventilation, Residential HVAC Air Conditioning
- Commercial Refrigeration Apprentice
- Level II Refrigeration
- HVAC Controls Technician
- Controls Systems Technician

Apprentice-Related Technology (ARE)

(In conjunction with the Construction Industry Training Council.
Permission of Construction Technology Department chair required.
Information: 303.914.6511)

Degrees:

- Carpentry
- Electricity
- Masonry
- Painting
- Plumbing
- Sheet Metal

Certificates:

- Carpentry (Under development)
- Electricity
- Masonry
- Painting
- Plumbing
- Sheet Metal Worker
- Skilled Laborer (Under development)

Carpentry (CAR)

Degree:

- Carpentry

Certificate:

- Carpentry

Construction Technology (CON)

Degrees:

- Construction Technology Technician
- Building Maintenance Technician
- Trades Degree
- Construction Management
- Construction Management (Online)

Certificates:

- Construction Technology Technician
- Building Maintenance Technician
- Construction Fundamentals
- Construction Management

Electricity (EIC)

Degrees:

- Construction Electrician
- Maintenance Electrician
- IBEW/NECA Construction Electrician
- Power Technology
- Data Communication Designer
- Data Communication Technician

Certificates:

Construction
 Electrical Installation
 Maintenance
 Residential Construction
 National Electrical Code

Post-degree Specializations:

Advanced Construction
 Advanced Maintenance
 Controls Systems Technician
 Data Communicaton

Fine Woodworking (FIW)

Degrees:

Fine Woodworking

Certificates:

Fine Woodworking
 Post-degree Specialization
 Master Craftsman

Fire Protection Technology (under EIC)

Degree:

Fire Alarm Systems Technician

Certificates:

Fire Alarm and Detection
 Fire Code Tools: Hand/Power Tools

Interdisciplinary

Degrees:

Building Code Enforcement

Certificates:

Building Code
 Basic Plumbing and Heating
 Maintenance
 Building Code Enforcement*

Manufacturing Technology

Electromechanical Industrial
 Maintenance – Technology Option

Plumbing (PLU)

Degrees:

Plumbing
 United Association of Plumbing and
 Pipefitting

Certificates:

Colorado Plumbing Code Test Preparation
 Residential Plumbing
 Residential Plumbing and Heating
 Journey-Level Plumbing

Requirements for all areas of emphasis in Construction Technology

General Education Requirements

English/Speech (ENG, SPE - any level above 100)	3
Mathematics (MAT 107)	3
Credit from 2 of these 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)	
General Education Electives	3
Total General Education Requirements	15

Construction Technology Requirements

Choose a minimum of 10 credits from the following classes:		
CON 105	Construction Technology	4
CON 110	Introduction to Construction	3
CON 145	Construction Project Management	2
CON 146	Construction Scheduling	2
CON 230	Blueprint Reading	4
CON 251	Construction Process	4
Total Construction Technology Requirements		10
Required Major Courses		36
See individual areas of emphasis for specific requirements.		
Total Required Credits (minimum)		61

Degrees: Associate of Applied Science (all emphases)

Certificates: Variable Credits

The Construction Technology Program is the most comprehensive in the state. This flexible program allows you to choose courses in one or more trades. In addition to teaching all four National Codes, this degree provides you with opportunities to earn interdisciplinary certificates as well as post-degree upgrading. Construction Technology requirements and electives must be approved by a Construction Technology advisor.

Information: 303.914.6511

Degree: Associate of Applied Science Construction Management

You must complete a total of 36 credits in a variety of areas. Meet with your Construction Technology advisor to pre-design an educational plan. This customized degree may include but is not limited to the following areas of study: business, management, supervision, accounting, foreign language skills, estimating, building codes, OSHA training and professional trade skills.

General Education Requirements

ENG 131	Technical Writing	3
MAT 107	Career Math/Technical	3
SPA 101	Spanish I	3
PHY 105	Conceptual Physics	4
ART, GEO, SOC, or PSY		3
Total General Education Requirements		15

Construction Technology Requirements

CON 105	Construction Technology	4
CON 230	Blueprint Reading	4
CON 251	Construction Process	4
CON 145	Construction Project Management	2
CON 146	Construction Scheduling	2
CON XXX	Electives Approved by your advisor	8
XXX MAN, BUS,	Trade Electives Approved by Advisor	22

Required Major Courses 46

Total Required Credits 62

Certificate: Construction Management

CON 105	Construction Technology	4
CON 230	Blueprint Reading	4
CON 251	Construction Process	4
CON 145	Construction Project Management	2
CON 146	Construction Scheduling	2
CON XXX	Electives Approved by your advisor	14
Total Required Credits		30

Degree: Associate of Applied Science Construction Technology Technician

You must complete a total of 36 credits in a variety of areas. Meet with your Construction Technology advisor to pre-design an educational plan.

General Education Requirements	15
Construction Technology Requirements	10
	25
Required Major Courses	36
Total Required Credits	61

Certificate: Construction Technology Technician

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

Construction Technology Requirements	10
Required Major Courses	20
Total Required Credits	30

Certificate: Construction Technology Fundamentals

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

Construction Technology Requirements	10
Additional Construction Technology Electives	4
Total Required Credits	14

Degree: Associate of Applied Science 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.

Degree: Associate of Applied Science Building Maintenance Technician

You must complete a total of 36 credits, including one course from the areas listed below. No more than four courses from any one area will count toward the completion of this degree. Meet with Construction Technology advisor.

General Education Requirements	15
Construction Technology Requirements	10
	25
Required Major Courses	36
Total Required Credits	61

Certificate: Building Maintenance Technician

You must complete a total of 36 credits including one course from each of the areas listed below. No more than four courses from any one area will count toward the completion of this degree. Meet with Construction Technology advisor.

Construction Technology Requirements	10
Required Major Courses	36
Total Required Credits	46

Building Maintenance Technician

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	Choose From Framing Classes	4

Electricity

EIC	100	Electrical Construction and Planning	4
EIC	105	Basics of AC and DC Electricity	4
EIC	110	Electrical Installations I	4
EIC	130	National Electrical Code I	4
EIC	155	AC Circuit Fundamentals	4
EIC	167	Electrical Maintenance Techniques	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

Air Conditioning, Heating and Refrigeration

This program provides the knowledge and skills for job 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. Please see a construction technology advisor. **303.914.6511**

Graduates of the HVAC/R Program may articulate with Ferris State University to pursue a baccalaureate degree.

Construction Technology AAS Degree with Heating, Ventilation and Air Conditioning Emphasis

General Education Requirements	15
Construction Technology Curriculum Requirements	<u>10</u>
	25
Required Major Courses	
HVA 100 Safety for the Trades	0.5
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
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 134 Air Conditioning Systems	4
HVA 162 Heating Controls	4
HVA 206 Mechanical Code	4
HVA 240 Servicing Forced Air Systems	4
HVA 247 Hot Water Heating Systems	4
Total Required Credits	62.5

Degree: Associate of Applied Science Air Conditioning, Heating/Refrigeration

General Education Requirements	15
Construction Technology Requirements	<u>10</u>
	25
Required Major Courses	
HVA 100 Safety for the Trades	0.5
HVA 102 Refrigeration Fundamentals	4

HVA 105 Electricity for HVAC/R	4
HVA 110 Fundamentals of Gas Heating	4
HVA 113 Refrigerant Recovery Training	1
HVA 132 Refrigeration and Air Conditioning Controls	4
HVA 134 Air Conditioning Systems	4
HVA 162 Heating Controls	4
HVA 216 Mechanical Code	4
HVA 240 Servicing Forced Air Systems	4
HVA 247 Hot Water Heating Systems	4
Total Required Credits	62.5

Degree: Associate of Applied Science Refrigeration

General Education Requirements	15
Construction Technology Requirements	<u>10</u>
	25
Required Major Courses	
HVA 100 Safety for the Trades	0.5
HVA 102 Refrigeration Fundamentals	4
HVA 105 Electricity for HVAC/R	4
HVA 111 Piping Skills	4
HVA 113 Refrigerant Recovery Training	1
HVA 132 Refrigeration and Air Conditioning Controls	4
HVA 206 Mechanical Code	4
HVA 230 Commercial Refrigeration	4
HVA 231 Pneumatic Controls	4
HVA 233 Evaporative Cooling Systems and Water Treatment	4
HVA Electives	4
Total Required Credits	62

Degree: Associate of Applied Science Residential Air Conditioning

General Education Requirements	15
Construction Technology Requirements	<u>10</u>
	25
Required Major Courses	
HVA 100 Safety for the Trades	0.5
HVA 102 Basic Refrigeration	4
HVA 105 Electricity for HVAC/R	4
HVA 111 Piping Skills	4

HVA 113	Refrigerant Recovery Training	1
HVA 132	Air Conditioning/Refrigeration Controls	4
HVA 134	Air Conditioning Systems	4
HVA 140	Basic Sheet Metal	4
HVA 206	Mechanical Code	4
HVA 260	Estimating HVAC/R Systems	4
HVA 261	Air Conditioning Systems Service and Repair	4
Total Required Credits		62.5

Degree: Associate of Applied Science Residential Heating

General Education Requirements	15
Construction Technology Requirements	10

Required Major Courses

HVA 105	Electricity for HVAC/R	4
HVA 110	Fundamentals of Gas Heating	4
HVA 111	Piping Skills	4
HVA 140	Basic Sheet Metal	4
HVA 162	Heating Controls	4
HVA 206	Mechanical Code	4
HVA 247	Hot Water Heating Systems	4
HVA 216	Mechanical Code Calculations	4
HVA 250	Designing Forced Air Systems	4
Total Required Credits		61

Certificate: Level I Refrigeration

Required Major Courses		
HVA 100	Safety for the Trades	0.5
HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 113	Refrigerant Recovery Training	1
Total Required Credits		9.5

Certificate: HVAC Controls Technician

Required Major Courses		
HVA 105	Electricity for HVAC/R	4
HVA 132	Air Conditioning/Refrigeration Controls	4
HVA 162	Heating Controls	4
HVA 231	Pneumatic Controls	4
Total Required Credits		16

Certificate: Control Systems Technician

Required Major Courses		
HVA 132	Air Conditioning/Refrigeration Controls	4
HVA 162	Heating Controls	4
HVA 231	Pneumatic Controls	4
EIC 220	Industrial Electrical Controls	4
EIC 225	Programmable Controls	4
EIC 240	Fire Alarm Fundamentals	4
Total Required Credits		24

Certificate: Refrigeration Level 2

Required Major Courses		
HVA 100	Safety for the Trades	0.5
HVA 102	Refrigeration fundamentals	4
HVA 105	Electricity for HVAC/R	4
HVA 113	Refrigeration recovery certificate	1
HVA 132	Air Conditioning/Refrigeration Controls	4
HVA 233	Advanced Refrigeration	
	or	
HVA 261	A/C Systems Service and repair	4
Total Required Credits		17.5

Certificate: Comprehensive Residential Heating

Required Major Courses		
HVA 105	Electricity for HVAC/R	4
HVA 110	Fundamentals of Gas Heating	4
HVA 111	Piping Skills	4
HVA 140	Basic Sheet Metal	4
HVA 162	Heating Controls	4
HVA 206	Mechanical Code	4
HVA 216	Mechanical Code Calculations	4
HVA 240	Servicing Forced Air Systems	4
HVA 247	Hot Water Heating Systems	4
HVA 250	Designing Forced Air Systems	4
HVA 257	Low Pressure Steam Heating	4
HVA 267	Radiant Heating Systems	4
HVA 260	Estimating Residential HVAC Systems	4
CON 105	Construction Technology	2

CON 230	Construction Blueprint Reading	4
CON 251	Construction Process	4
Total Required Credits		62

Certificate: Refrigeration

Required Major Courses

HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 111	Piping Skills	4
HVA 113	Refrigerant Recovery Training	1
HVA 122	Commercial Refrigeration	4
	or	
HVA 233	Advanced Refrigeration	4
HVA 132	A/C and Refrigerant Controls	4
HVA 206	Mechanical Code	4
HVA XXX	HVA Electives	4
Total Required Credits		29

Certificate: Residential Air Conditioning

Required Major Courses

HVA 100	Safety for the Trades	0.5
HVA 101	Piping Skills	4
HVA 102	Basic Refrigeration	4
HVA 105	Electricity for HVAC/R	4
HVA 113	Air Conditioning and Refrigeration Controls	4
HVA 122	Air Conditioning Systems	4
HVA 134	Refrigerant Recovery Training	1
HVA 140	Basic Sheet Metal	4
HVA 206	Mechanical Code	4
HVA 261	Air Conditioning Systems Service and Repair	4
Total Required Credits		33.5

Certificate: Residential Forced-Air Heating

Required Major Courses

HVA 110	Fundamentals of Gas Heating	4
HVA 216	Mechanical Code Calculations	4
HVA 105	Electricity for HVAC/R	4
HVA 140	Basic Sheet Metal	4
HVA 240	Servicing Residential Forced Air Systems	4
HVA 250	Designing Forced Air Systems	4
HVA 162	Heating Controls	4
HVA 206	Mechanical Code	4
Total Required Credits		32

Certificate: Residential HVAC

Required Major Courses

HVA 100	Safety for the Trades	0.5
HVA 110	Fundamentals of Gas Heating	4
HVA 216	Mechanical Code Calculations	4
HVA 105	Electricity for HVAC/R	4
HVA 101	Piping Skills	4
HVA 102	Basic Fundamentals	4
HVA 134	Air Conditioning Systems	4
HVA 113	Refrigeration Recovery Training	1
HVA 132	Air Conditioning and Refrigeration Controls	4
HVA 140	Basic Sheet Metal	4
HVA 240	Servicing Forced Air Systems	4
HVA 250	Designing Forced Air Systems	4
HVA 162	Heating Controls	4
HVA 261	Air Conditioning Systems Service and Repair	4
HVA 247	Hot Water Heating Systems	4
HVA 267	Radiant Heating Systems	4
HVA 206	Mechanical Code	4
HVA 260	Estimating Residential HVAC Systems	4
Total Required Credits		65.5

Certificate: Residential Hydronic Heating

Required Major Courses

HVA 110	Fundamentals of Gas Heating	4
HVA 216	Mechanical Code Calculations	4
HVA 105	Electricity for HVAC/R	4
HVA 111	Piping Skills	4
HVA 257	Low Pressure Steam Heating	4
HVA 162	Heating Controls	4
HVA 247	Hot Water Heating Systems	4
HVA 267	Radiant Heating Systems	4
HVA 206	Mechanical Code	4
Total Required Credits		36

Certificate: Air Conditioning, Heating/Refrigeration Apprenticeship Program

Required Major Courses

HVA	105	Basic Electricity	4
HVA	102	Basic Refrigeration	4
HVA	113	Refrigerant Recovery Training	1
HVA	110	Fundamentals of Gas Heating	4
HVA	216	Mechanical Code Calculations	4
HVA	132	Air Conditioning and Refrigeration Controls	4
HVA	140	Basic Sheet Metal	4
HVA	162	Heating Controls	4
HVA	206	Mechanical Codes	4
		or	
CON	230	Blueprint Reading	4
Total Required Credits			33

Certificate: Commercial Refrigeration Apprenticeship Program

Required Major Courses

HVA	102	Basic Refrigeration	4
HVA	105	Basic Electricity	4
HVA	111	Piping Skills	4
HVA	113	Refrigerate Recovery Training	1
HVA	122	Commercial Refrigeration I	4
HVA	132	Air Conditioning and Refrigeration Controls	4
HVA	206	Mechanical Code	4
HVA	258	Independent Study	4
CON	105	Construction Technology	4
		or	
CON	230	Blueprint Reading	4
Total Required Credits			33

Apprentice-Related Technology

All apprentice-related courses are taught in cooperation with the Construction Industry Training Council. Apprentice classes require 1,000 hours of on-the-job training in conjunction with each class. You must have the approval of the chair of Construction Technology, 303.914.6511.

Degree: Associate of Applied Science Apprentice-Related (Applicable Trade)

General Education Requirements	15
Construction Technology Requirements	10
Apprentice Trade-Related Certificate	16-40
Construction Technology Electives (see CT Advisor)	4-20
Total Required Credits	45-85
Total Degree Credits	60-85

Certificate: Apprentice-Related Carpentry

Program is under development. Please call 303.914.6511 for more information

Certificate: Apprentice-Related Electrical

ARE	112	Electrical I	4
ARE	122	Electrical I (continued)	4
ARE	132	Electrical II4	
ARE	142	Electrical II (continued)	4
ARE	152	Electrical III	4
ARE	157	Electrical III (continued)	4
ARE	162	Electrical IV	4
ARE	167	Electrical IV (continued)	4
Total Required Credits			32

Certificate: Apprentice-Related Laborer

Program is under development. Please call 303.914.6511 for more information

Certificate: Apprentice-Related Masonry

ARE 113	Masonry I	4
ARE 123	Masonry I (continued)	4
ARE 133	Masonry II	4
ARE 143	Masonry II (continued)	4
ARE 153	Masonry III	4
ARE 163	Masonry III (continued)	4
Total Required Credits		24

Certificate: Apprentice-Related Painting

ARE 111	Painting I	4
ARE 121	Painting I (continued)	4
ARE 131	Painting II	4
ARE 141	Painting II (continued)	4
ARE 151	Painting III	4
ARE 156	Painting III (continued)	4
Total Required Credits		24

Certificate: Apprentice-Related Plumbing

ARE 114	Plumbing I	4
ARE 124	Plumbing I (continued)	4
ARE 134	Plumbing II	4
ARE 144	Plumbing II (continued)	4
ARE 154	Plumbing II	4
ARE 158	Plumbing III (continued)	4
ARE 164	Plumbing IV	4
ARE 168	Plumbing IV (continued)	4
Total Required Credits		32

Certificate: Apprentice-Related Sheet Metal

ARE 115	Sheet Metal I	4
ARE 125	Sheet Metal I (continued)	4
ARE 135	Sheet Metal II	4
ARE 145	Sheet Metal II (continued)	4
ARE 155	Sheet Metal III	4
ARE 159	Sheet Metal III (continued)	4
ARE 165	Sheet Metal IV	4
ARE 169	Sheet Metal IV (continued)	4
Total Required Credits		32

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. Areas of emphasis are designed to meet individual needs, whether you are a part-time or full-time student.

Courses are competency based. Variable credit classes are available to fit your schedule. Courses may be repeated up to three times to increase proficiency. All classes are open to all skill levels unless otherwise noted. Additional unlisted topics are available through independent study. Personal tool requirements increase with proficiency. Please see a Construction Technology advisor, **303.914.6511**.

Degree: Associate of Applied Science Carpentry

General Education Requirements	15
Construction Technology Requirements	10
	25

Required Major Courses

CAR 156	Shop Tools: Stationary, Hand and Portable	4
CAR XXX	Carpentry Class from Structure Category	8
CAR XXX	Carpentry Class from Exterior Finishes	8
CAR XXX	Carpentry Class from Specialties Category	8
CON/FIW /CAR XXX	Elective approved by your advisor	8
Total Required Credits		61

Certificate: Carpentry

Required Major Courses

CON 251	Construction Process	4
CAR 156	Shop Tools: Stationary Hand and Portable	4
CAR XXX	Carpentry Class from Structure Category	4
CAR XXX	Carpentry Class from Exterior Finishes	4
CAR XXX	Carpentry Class from Specialties Category	4
CON/FIW /CAR XXX	Elective approved by your advisor	8
Total Required Credits		28

Structure

CAR 105	Job Site Layouts and Blueprint Reading
CAR 115	Form and Foundation Systems
CAR 121	Floor Framing
CAR 122	Wall Framing
CAR 123	Roof Framing
CAR 140	Stair Construction / Layout
CAR 17X	Framing Labs

Exterior Finishes

CAR 125	Roofing Materials and Methods
CAR 130	Windows and Exterior Doors

CAR 131	Exterior Trim
CAR 135	Thermal and Moisture Methods and Materials
CAR 17X	Carpentry Labs
Specialties	
CAR 136	Remodeling, Renovation and Additions
CAR 146	Interior Finishes and Drywall Construction
CAR 148	Interior Finishes
CAR 151	Trim: Doors and Trim
CAR 153	Interior Trim: Cabinets/Countertops
CAR 155	Interior Trim: Built-Ins
CAR 253	Advance Interior Trim: Cabinets/Countertops

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. This program uses an extensive lab environment for important hands-on experience in electrical classes. Please see a Construction Technology advisor: 303.914.6511.

Degree: Associate of Applied Science Maintenance Electrician

General Education Requirements	15	
Construction Technology Requirements	10	
	25	
Required Major Courses		
EIC 100	Electrical Construction and Planning	4
EIC 105	Basics of AC and DC Electricity	4
EIC 120	Electrical Installations II	4
EIC 155	AC Circuit Fundamentals	4
EIC 165*	Solid State Circuits and Devices	4
EIC 210	Advanced National Electrical Code	4
EIC 220	Industrial Electrical Controls	4
EIC 225	Programmable Controllers	4
EIC 230*	AC/DC Machines: Theory and Applications	4

EIC 235*	Transformers and Power Distribution	4
EIC 240*	Fire Alarm Fundamentals	4
Total Required Major Courses		36
Total Required Credits		61

*Take two of four classes marked.

Degree: Associate of Applied Science Construction Electrician

General Education Requirements	15	
Construction Technology Requirements	10	
	25	
Required Major Courses		
EIC 100	Electrical Construction and Planning	4
EIC 105	Basics AC and DC Electricity	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 240*	Fire Alarm Fundamentals	4

Total Required Major Courses	36
Total Required Credits	61

*Take two of the classes marked.

Certificate: Construction Electrician

Required Major Courses		
CON 230	Blueprint Reading	4
CON 251	Construction Process	4
EIC 100	Electrical Construction and Planning	4
EIC 105	Basics of AC and DC Electricity	4
EIC 120	Electrical Installations II	4
EIC 130	National Electric Code I	4
EIC 135	National Electric Code II	4
EIC 169	Electrical Code Calculations	4
EIC 240	Fire Alarm Fundamentals	4
Total Required Credits		36

Certificate: Advanced Construction Electrician

Requires Construction Electrician Certificate or instructor's approval
Required Major Courses

CON	230	Blueprint Reading	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	205	Advanced Electrical Planning	4
Total Required Credits			32

Certificate: Electrical Installation

Required Major Courses

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
Total Required Credits			16

Certificate: National Electrical Code

Required Major Courses

EIC	130	National Electrical Code I	4
EIC	135	National Electrical Code II	4
EIC	169	Electrical Code Calculations	4
Total Required Credits			12

Certificate: Control Systems Technician

Required Major Courses

HVA	132	Air Conditioning/Refrigeration Controls	4
HVA	162	Heating Controls	4
HVA	231	Pneumatic Controls	4
EIC	220	Industrial Electrical Controls	4
EIC	225	Programmable Controls	4
EIC	240	Fire Alarm Fundamentals	4
Total Required Credits			24

Certificate: Residential Construction Electrician

Required Major Courses

CON	230	Blueprint Reading	4
EIC	100	Electrical Construction and Planning	4
EIC	105	Basics of AC and DC Electricity	4
EIC	110	Electrical Installations I	4
EIC	130	National Electric Code I	4
Total Required Credits			20

Degree: Associate of Applied Science Construction Technology

with an Emphasis in IBEW/NECA

Construction Electrician via CCCOnline

Greg Morey, academic advisor – 303.914.6242 – greg.morey@rrcc.edu

Rich Thatcher, Electrical Program faculty – rich.thatcher@rrcc.edu

You can earn an Associate of Applied Science degree in construction technology with an emphasis in IBEW/NECA construction electrician. Utilize your four or five years of apprenticeship schooling and combine it with an articulation agreement between IBEW/NECA and Red Rocks Community College.

The objective of the program is to allow members having served their apprenticeship program through the National Joint apprenticeship (NJATC) to earn an associate's degree. This program allows you to combine your excellent trade skills with your academic skills.

After completing the IBEW/NECA NJATC apprenticeship program, Red Rocks Community College will grant 43 credits toward the degree. You will need to complete 18 hours of general education requirements at Red Rocks Community College offered through CCCOnline to complete the degree.

IBEW/NECA Members Graduation Requirements and Policy

1. Proof of completion of IBEW/NECA Wireman or Outside Lineman NJATC programs
2. A cumulative grade point average of 2.0 (a C average)
3. Eighteen approved credits must be earned through RRCC and/or CCCOnline
4. File an Application for Graduation before completing your last class
5. Resolve all financial obligations to the college and return all college-owned materials

Degree: Associate of Applied Science Construction Technology Emphasis in IBEW/NECA

Required Major Courses

English or Speech	3
Mathematics	3
Credit from 2 of these areas;	6
Humanities, (ART, foreign language, LIT, MUS, PHI, THE)	
Science (AST, BIO, CHE, GEY, PHY)	
Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)	
Electives from any of the above subjects;	3
Computer Science	3
Total Required Credits	18

Degree: Associate of Applied Science Construction Technology Emphasis in Power Technology

Via CCCOnline

Greg Morey, academic advisor, 303.914.6242, greg.morey@rrcc.edu

Rich Thatcher: electrical faculty, rich.thatcher@rrcc.edu
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 Spec.*
Utility Engineering Standards Specialist Tech*

*Upon program approval by the Department of Labor

Articulation Agreement Construction Technology Emphasis in Power Technology

An Associate of Applied Science degree is available for those currently enrolled or who have completed their apprenticeship. RRCC's Construction Technology Electrical Program will

latest information: www.rrcc.edu

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 via CCCOnline.

By utilizing your apprentice training and just six additional classes, you may obtain a degree online, at home and at times of your choosing. All AAS degrees will articulate with a variety of colleges and universities if you elect to pursue a baccalaureate degree.

Graduation Requirements and Policy

1. Proof of completion of above-listed programs
2. A cumulative grade point average of 2.0 (a C average)
3. Eighteen approved credits must be earned through RRCC and CCCOnline
4. File an Application for Graduation before completing your last class
5. Resolve all financial obligations to the college and return all college-owned materials

Degree Requirements:

Credit for your apprenticeship will be granted after completion of your apprenticeship and a minimum of 18 credits from the options below, and upon application for graduation, which must be made at the start of the last semester of classes through RRCC.

Power Technology Apprenticeship	43
English/Speech/Communications (choose one)	3
Mathematics (choose one)	3
Computer Science (choose one)	3
2 classes from these areas:	6
Humanities	
Science	
Social and Behavioral Sciences	
General Education Electives (choose one)	3
Minimum Total Credits	61

Certificate: Maintenance Electrician

Required Major Courses

CON 105	Construction Technology	4
CON 230	Blueprint Reading	4
EIC 105	Basics of AC and DC Electricity	4
EIC 120	Electrical Installations II	4
EIC 130	National Electric Code I	4
EIC 135	National Electric Code II	4
EIC 220	Industrial Electrical Controls I	4
EIC 240	Fire Alarm Fundamentals	4
Total Required Credits		32

Certificate: Advanced Maintenance Electrician*

Required Major Courses

CON	230	Blueprint Reading	4
EIC	105	Basics of AC and DC Electricity	4
EIC	167	Electrical Maintenance Techniques	4
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
EIC	225	Programmable Controllers	4
Total Required Credits			32

Certificate: Post-Degree Specialization for Advanced Construction Electrician*

Requires Certificate for Maintenance or instructor's approval.

Required Major Courses

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
Total Required Credits			16

Certificate: Post-Degree Specialization for Advanced Maintenance Electrician*

Required Major Courses

EIC	165	Solid State Devices and Circuits	4
EIC	220	Industrial Electrical Controls I	4
EIC	225	Programmable Controllers	4
EIC	241	Advanced Fire Alarm Systems	4
Total Required Credits			16

*Prerequisite: AAS degree maintenance electrician emphasis or instructor's approval.

Degree: Associate of Applied Science Emphasis in Data Communication Technician

General Education Requirements 15

Required Major Courses

CON	230	Blueprint Reading	4
EIC	100	Electrical Construction and Planning	4
EIC	105	Basics of AC and DC Electricity	4
EIC	120	Electrical Installations II	4
EIC	130	National Electrical Code I	4
EIC	135	National Electrical Code II	4
EIC	253	Fiber Optic Certification	2
EIC	255	Electrical Issues fir Telecommunications	0.5
EIC	256	Structured Cabling Systems Distribution Certification	0.5
EIC	257	Certification for Residential Voice/Data and System Network	1.5
EIC	258	Voice/Data Cat Rated Cabling Distribution	1
EIC	259	LAN Troubleshooting, Repair and Certification	1
EIC	261	Project Management	1
EIC	262	Voice/Data Engineering Design	2
EIC	264	Specifications Analysis	0.5
EIC	263	Specification Writing For Structured Cabling Systems	1
EIC	282	Electrical Estimating	1
EIC	287	NICET Levels 1 and 2 Exam Preparation	2
EIC	288	RCDD Pre-study Course (Condensed)	1.5
EIC	289	RCDD Pre-study Course	2
EIC	291	Estimating for Voice/Data Low Voltage Integration and Systems	1.5
EIC	296	Conest Software Telecommunications Estimating	1
Total			60

*Courses have special pricing, Call Construction Technology (303.914.6511) for more information.

Degree: Associate of Applied Science Emphasis in Data Communication Design

General Education Requirements 15

CON	230	Blueprint Reading	4
CON	228	Estimating	3

EGT	120	Intermediate CADD Applications	3
EIC	100	Electrical Construction and Planning	4
EIC	105	Basics of AC and DC Electricity	4
EIC	130	National Electrical Code I	4
EIC	135	National Electrical Code II	4
EIC	253	Fiber Optic Certification	2
EIC	255	Electrical Issues for Telecommunications	0.5
EIC	256	Structured Cabling Systems Distribution Certification	0.5
EIC	257	Certification For Residential Voice/Data System Network	1.5
EIC	259	LAN Troubleshooting/ Repair/ and Certifying	1
EIC	282	Electrical Estimating	1
EIC	285	Voice/Data /Cat Distribution	1
EIC	287	NICET Levels 1 and 2 Exam Preparation	2
EIC	288	RCDD Pre-study Course (Condensed)	1.5
EIC	289	RCDD Pre-study Course	2
EIC	291	Est for Voice/Data Low Voltage Integration and Systems	1.5
EIC	292	Project Management	1
EIC	294	Specifications Analysis	0.5
EIC	296	Grounding and Bonding	1
EIC	298	Conest Software Telecommunications Estimating	1
Total Required Credits			59

*Courses have special pricing please call the Construction Technology (303.914.6511) for more information.

Certificate: Data Communications

EIC	253	Fiber Optic Levels Certification	2
EIC	255	Electrical Issues for Telecommunications	0.5
EIC	256	Structured Cabling Systems Distribution Certification	0.5
EIC	257	Certification for Residential Voice/Data System Network	1.5
EIC	259	LAN Troubleshooting/ Repair/ and Certification	1
EIC	261	Project Management	1
EIC	262	Specifications Analysis	0.5
EIC	263	Specification Writing for Structured Cabling Systems	1
EIC	264	Cabling Systems Grounding and Bonding	1
EIC	282	Electrical Estimating	1
EIC	285	Voice/Data Cat Distribution	1
EIC	287	NICET Levels 1 and 2 Exam Preparation	2
EIC	288	RCDD Pre-study Course (Condensed)	1.5
EIC	289	RCDD Pre-study Course	2
EIC	291	Estimating for Voice/Data Low Voltage Integration and Systems	1.5

EIC	293	Voice/Data Engineering Design	2
EIC	298	Conest Software Telecommunications Estimating	1
Total			21

*Courses have special pricing please call Construction Technology (303.914.6511) for more information.

Fine Woodworking

This program provides theory and hands-on training for entry skills through craftsman-level competencies. Day and evening classes for part-time or full-time students range from the areas of millwork, cabinetmaking, furniture making, restoration and repair, toolmaking and related topics in fine woodworking from boat and musical instrument making to bending and veneering. Courses are competency based. Courses may be repeated up to three times to increase proficiency. All courses are sequenced as shown in the certificate.

Please scontact a Construction Technology advisor, 303.914.6511.

Degree: Associate of Applied Science Fine Woodworking

General Education Requirements	15
Construction Technology Requirements	10
	25

Required Major Courses

FIW	100	Fundamentals of Woodworking	4
FIW	125	Finishing Wood	4
FIW	118	Lathe Turning	4
FIW	201	Joinery	4
FIW	209	Cabinetmaking	4
FIW	215	Advanced Joinery	4
FIW	XXX	Elective	4
FIW	220	Advanced Furniture and Cabinet Construction	4
FIW	XXX	Elective	4
Total Required Credits			61

Certificate: Fine Woodworking

Required Major CoursesCredits

FIW	100	Fundamentals of Woodworking	4
FIW	125	Finishing Wood	4
FIW	118	Lathe Turning	4
FIW	201	Joinery	4
FIW	209	Cabinetmaking	4

FIW	215	Advanced Joinery	4
FIW	220	Advanced Furniture/Cabinet Construction	4
Electives			
FIW/CAR		Electives (must be approved by advisor)	4
Total Required Credits			32

Certificate: Post-Degree Specialization for Master Craftsman*

This program expands skills to the level of Master Craftsman. You are expected to develop individual portfolios; demonstrating your ability to set up and maintain equipment and design and build original pieces and demonstrate specific skills through presentations for each course. Design skills and drawing proficiency are required. If you cannot demonstrate adequate ability, additional courses are 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.

FIW	106	Planemaking	4
FIW	108	Toolmaking and Jigs	4
FIW	116	Cabriole Leg and Queen Anne Furniture	4
FIW	122	Wood Carving	4
FIW	125	Finishing Wood	4
FIW	128	Doormaking	4
FIW	150	Period Furniture Making	4
FIW	200	Veneering and Marquetry	4
FIW	205	Tablemaking	4
FIW	206	Chairmaking	4
FIW	210	Bending and Laminating	4
FIW	217	Advanced Cabinetmaking	4
Total Required Credits			48

*Prerequisite: Fine Woodworking certificate or degree or permission from the Fine Woodworking Department.

Fire Protection Technology

Degree: Associate of Applied Science

This degree prepares you for entry into a career in fire alarm systems design, a fire alarm systems technician, or fire sprinkler systems design. This degree is also useful for anyone working for building or fire departments doing 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.

CON	105	Construction Technology	4
CON	145	Construction Project Management	2
CON	230	Blueprint Reading	4
EIC	105	Basics of AC and DC Electricity	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	240	Fire Alarm Fundamentals	4
EIC	241	Advanced Fire Alarm Systems	4
EIC	242	National Fire Alarm Code	4
EIC	287	NICET I	2
CAD	119	Intermediate CADD Applications	3
General Education Classes			15
Total Degree Requirements			62

Fire Code Certificate

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
Total Required Credits			15

Fire Alarm and Detection Technician Certificate

CAD	119	Intermediate CADD Applications	3
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	Advanced Fire Alarm Systems	4
EIC	242	National Fire Alarm Code	4
EIC	287	NICET I	2
Total Required Credits			29

Interdisciplinary Certificates

Building Codes

Credit from any 2 of these classes:

CON	142	International Building Codes	4
EIC	130	National Electrical Code I	4

HVA 206	Mechanical	4
PLU 206	Uniform Plumbing Code	4
Total Required Credits		8

Basic Plumbing/Heating Maintenance

HVA 110	Fundamentals of Gas Heating	4
HVA 240	Servicing Forced Air Systems	4
HVA 247	Hot Water Heating Systems	4
PLU 100	Introduction to Plumbing	4
PLU 104	Plumbing Service	4
Total Required Credits		20

Certificate: Building Code Enforcement

A partnership with ICC (International Code Council). All courses available through CCCOnline

Required Major Courses

CON 140	Introduction to Building Code and Enforcement	3
CON 241	Overview of International Codes	3
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 Communications	3
EMP 244	Developing Volunteer Resources	3
EMP 291	Public Information Officer	3
Total		30

Degree: Associate of Applied Science Emphasis in Building Code Enforcement

A partnership with International Code Council. All courses available through CCCOnline.

Required Major Courses

CON 140	Introduction the Building Code Enforcement	3
CON 241	Overview of International Codes	3
CON 242	Residential and Non-Residential Plan Review	3
EMP 105	Emergency Planning	3
EMP 240	Leadership and Influence	3
EMP 241	Decision Making and Problem Solving	3
EMP 242	Effective Communications	3
EMP 244	Developing Volunteer Resources	3
EMP 291	Public Information Officer	3

General Education Requirements:		15
ENG 131	Technical Writing	3
MAT 106	Survey of Algebra	3
SPE 115	Principles of Speech Comm.	3
PHY 111	Algebra Based Physics	3
GEY 111	Physical Geology	3
Suggested Elective Courses(Other Choices available if approved by advisor)		
MAN 116	Principles of Supervision	3
MAN 226	Principles of Management	3
EMP 101	Intro to Emergency Planning	3
EMP 109	Incident Command Systems	3
ECO 201	Principles of Macroeconomics	3
EMP 247	Decision Making in a Crisis	3
Total		60

Degree: Associate of Applied Science Emphasis in Construction Management (Online Degree)

General Education Requirements

ENG 131	Technical Writing	3
MAT 100 or Higher		3
SPE 115	Principles of Speech Comm.	3
PHY 111	Algebra Based Physics	3
GEY 111	Physical Geology	3
Total General Education Requirements		15

Required Major Courses

CON 105	Construction Technology	4
CON 230	Blue Print Reading	4
CON 251	Construction Processes	4
CON 140	Intro to Building Code Enforcement	3
CON 145	Construction Project Management	2
CON 228	Estimating II	4
CON 241	Overview of International Code	4
CON 242	Res and Non-Res. Plan Review	3
MAN 216	Small Business Management	3
MAN 226	Principles of management	3
EMP 105	Emergency Planning	3
EMP 240	Leadership and Influences	3
EMP 241	Decision Making and Problem Solving	3
EMP 242	Effective Communication	3
Total Required Major Course		45
Total Required Courses		61

Manufacturing Technology

Degree: Associate of Applied Science

Competitive Colorado manufacturing must bring quality products to state, national and international markets in the shortest possible time. To do so, Colorado manufacturing 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 automated industrial environments require maintenance, diagnosis and troubleshooting of modern systems, in tandem with preventive maintenance techniques and competency for job safety. In Colorado, these sophisticated environments necessitate knowledge and skills from basic electrical and mechanical capabilities to integration of electro-mechanical systems.

Electro-Mechanical Industrial Maintenance Technology Option

Choose three for the four for a total of 60 credits

General Education Requirements	15
Major Course Requirements	
EIC 105 Basics of AC/DC Electricity	4
EIC 110 Electrical Installations I	4
EIC 120 Electrical Installations II	4
EIC 220 Industrial Electrical Controls	4
EIC 225 Programmable Controls **	4
HVA 102 Basic Refrigeration	4
HVA 110 Heating Fundamentals **	4
HVA 113 Refrigerant Recovery Training	1
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 162 Heating Controls	4
HVA 231 Pneumatic Controls	4
HVA 247 Hot Water Heating**	4
HVA 251 Building Automation **I	4
Total	60

Industrial Maintenance Technology: Certificate

EIC 105 Basics of AC/DC Electricity	4
EIC 110 Electrical Installations I	4
EIC 120 Electrical Installations II	4
EIC 220 Industrial Electrical Controls	4
EIC 225 Programmable Controls **	4
HVA 102 Basic Refrigeration	4
HVA 110 Heating Fundamentals **	4

HVA 113 Refrigerant Recovery Training	1
HVA 132 Air Conditioning and Refrigeration Controls	4
HVA 162 Heating Controls	4
HVA 231 Pneumatic Controls	4
HVA 247 Hot Water Heating **	4
HVA 251 Building Automation I **	4
Total	41

**Choose two of the four for a total of 41 credits.

Degree: Associate of Applied Science Applied Technology

Offered in conjunction with National Technology Transfer (NTT) and CCCOnline.

Associate of Applied Science Degree Requirements

See www.cconline.org

Industrial Electrical Technician's Certificate

9 credits required for certificate from the following list.

EIC 104 Basics of Industrial Electricity	1.5
EIC 124 Electrical Safety Requirements and Procedures	1.5
EIC 130 National Electrical Code	4
EIC 144 Grounding and Bonding	1.5
EIC 166 Tuning DDC/Process Control Loops	1
EIC 221 Trouble Shooting Electrical Control Circuits	1.5
EIC 222 Introduction to Instrumentation and Process Control	1.5
EIC 224 Understanding Programmable Logic Controllers	1.5
EIC 229 AC and DC Variable Speed Drive Technology	1.5
EIC 234 High Voltage Electrical Safety	1

Code and Standards Certification

7.5 credits required for certificate from following list.

EIC 124 Electrical Safety Requirements and Procedures	1
EIC 130 National Electrical Code	4
EIC 132 Building Inspection	1
EIC 134 Life Safety Code (NFPA 101)	1
EIC 144 Grounding and Bonding	1.5
EIC 234 High Voltage Electrical Safety	1
EIC 242 National Fire Alarm Code	4

Commercial/Industrial Heating and Cooling Certificate

7.5 credits required for certificate from the following list.

EIC	166	Tuning DDC/Process Control Loops	1
EIC	222	Introduction to Instrumentation and Process Control	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	1.5

Electro-Mechanical Technicians Certificate

9 credits required for certificate

EIC	104	Basics of Industrial Electricity	1.5
EIC	124	Electrical Safety Requirements and Procedures	1
EIC	144	Grounding and Bonding	1.5
EIC	166	Tuning DDC/Process Control Loops	1
EIC	221	Trouble Shooting Electrical Control Circuits	1.5
EIC	222	Introduction to Instrumentation and Process Control	1.5
EIC	224	Understanding Programmable Logic Controllers	1.5
EIC	226	Understanding Programmable Logic Controllers Advanced	1.5
EIC	227	Mechanical Drives	1.5
EIC	229	AC and DC Variable Speed Drive Technology	1.5
EIC	231	Electro-Pneumatics Training	1.5
EIC	234	High Voltage Electrical Safety	1.5
HVA	114	Centrifugal Pumps	1.5
HVA	124	Refrigeration and Air Conditioning	1.5
HVA	126	Refrigerant Retrofit Training	1.5

Plumbing (PLU)

This program gives you basic job-entry skills. It is also intended for job upgrading in special areas and for preparation of plumbers for all of the State Plumbing Exams. Please see a Construction Technology advisor, 303.914.6511.

Degree: Associate of Applied Science Emphasis in Construction Technology Plumbing

General Education Requirements	15
Construction Technology Requirements	10
	25

Required Major Courses

PLU	100	Introduction to Plumbing	4
PLU	101	Piping Skills	4
PLU	104	Plumbing Service	4
PLU	120	Residential Plumbing	4
PLU	130	Basic Waste and Vent	4
PLU	206	Uniform Plumbing Code	4
PLU	227	Medical Gas Certification	2
PLU	240	Commercial Plumbing Systems	4
PLU	250	Estimating Plumbing Costs	4
Elective			1
Total Degree Requirements			60

Certificate: Colorado Plumbing Code Test Preparation

PLU	108	Soldering and Brazing	0.5
PLU	206	Uniform Plumbing Code	4
Total Required Credits			4.5

Certificate: Residential Plumbing

CON	230	Blueprint Reading	4
PLU	100	Introduction to Plumbing	4
PLU	101	Piping Skills	4
PLU	104	Plumbing Service	4
PLU	120	Residential Plumbing	4
PLU	130	Basic Waste and Vent	4
PLU	205	Independent Study	2

PLU 206	Uniform Plumbing Code	4
Total Required Credits		30

Certificate: Journey-Level Plumbing

CON 251	Construction Process	4
PLU 227	Medical Gas Certification	2
PLU 240	Commercial Plumbing Systems	4
PLU 244	Commercial Plumbing Service	4
PLU 247	Hot Water Heating Systems	4
PLU 250	Estimating Plumbing Costs	4
Residential Certificate Credits		30
Journey Level Course Credits		22
Total Required Credits		52

Certificate: Residential Plumbing and Heating

Required Major Courses		
CON 230	Blueprint Reading	4
PLU 100	Introduction to Plumbing	4
PLU 101	Piping Skills	4
PLU 104	Plumbing Service	4
PLU 120	Residential Plumbing	4
PLU 130	Basic Waste and Vent	4
PLU 206	Uniform Plumbing Code	4
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	Mechanical Code	4
HVA 216	Mechanical Code Calculations	4
HVA 240	Servicing Forced Air Systems	4
Total Required Credits		60

Associate of Applied Science in Construction Technology

**in Partnership with United Association
of Plumbing and Pipefitting Emphasis**

Degree: RRCC/UA Plumber/Pipefitter

Through this program, UA members can earn an Associate of Applied Science degree after completing their UA apprenticeship.

Credits from Articulated Apprenticeship Program	43
General Education Requirements	15
Computer Skills	2
Total	60

Criminal Justice

Degrees:

**Associate of Applied Science
Associate of General Studies**

Certificates: Variable

**Investigations
Victim Assistance Administration
Victim Assistance Direct Service
Basic Law Enforcement Training
Academy**

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.

You may choose from the following emphasis areas: law enforcement, corrections, juvenile or victim assistance. Certificate programs in investigations, law enforcement, and victim assistance are available. The Associate of General Studies degree is articulated with Metropolitan State College of Denver 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 general education completed, completes the general education requirements for a bachelor's degree. CRJ 289 Capstone course must be taken the semester you plan to graduate. (summer graduates enroll spring)

Degree: Associate of Applied Science

Required Major Courses	
CRJ 110 Introduction to Criminal Justice	3
CRJ 111 Substantive Criminal Law	3
CRJ 112 Procedural Criminal Law	3

opportunities, options, excellence

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 289 Capstone	1

Total Required Credits 28

General Education Requirements

English/Speech	
ENG 121 English Composition 1	3
SPE 125 Interpersonal Communications	3
MAT (106 or above)	3
PHI 112 Ethics	3
Credit 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)	

Total General Education Credits 15

Other Required Courses (emphasis areas) 21

Note: You must select an emphasis area in the Criminal Justice Program. Course substitutions may be made with the permission of your 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 Required Credits 64

Area of Emphasis: Corrections

Required Courses

CRJ 146 Community Based Corrections	3
CRJ 150 Victims of Crime and Trauma	3
CRJ 225 Crisis Intervention	3
CRJ 239 Managing Emergency Worker Stress	3
CRJ 256 Classification and Treatment of Offenders	3

Required Courses for Adult Corrections

CRJ 116 Civil Liability	3
SOC 218 Sociology of Diversity	3

Required Courses for Juvenile Corrections

CRJ 216 Juvenile Law and Procedures	3
CRJ 235 Delinquent Behavior	3

Total Required Credits 21

Area of Emphasis: Law Enforcement

You must complete seven CRJ courses for a total of 21 credits. You must confer with your CRJ degree advisor to determine the appropriate courses. Specific courses required may vary, depending upon your background and work experience. The following courses are required for all law enforcement students:

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 Required Credits 21*

*With proof of successful completion of a POST-certified academy and passing the POST exam, you will receive credit for the following five courses:

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 246 Traffic Investigation	3

Total 15

Area of Emphasis: Victim Assistance

Required Courses

CRJ 150 Victims of Crime and Trauma	3
CRJ 225 Crisis Intervention	3
CRJ 239 Managing Emergency Worker Stress	3
PSY 237 Psychology of Death and Dying	3
SOC 265 Violence and Culture	3

Choose any two courses (6 credits)

CRJ 151 Domestic Violence	3
CRJ 152 Sexual Assault	3
CRJ 153 Violence Against Children	3
CRJ 269 Adult Survivors of Childhood Molestation	3

Total Required Credits 21

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 30 credits during this intense course of study. Fifteen 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: **303.914.6464** or **303.914.6462**

Required Courses

CRJ 101	Basic Law Enforcement Academy I	8
CRJ 102	Basic Law Enforcement Academy II	6
CRJ 105	Basic Law	6
CRJ 106	Arrest Control Techniques	3
CRJ 107	Law Enforcement Driving	3
CRJ 108	Firearms	3
PED 110	Fitness Center Activity I	1
Total Required Credits		30

Degree: Associate of General Studies

You are urged to consult with the criminal justice faculty advisor before beginning any program of study.

General Education Requirements

English/Speech

ENG 121	English Composition I	3
ENG 122	English Composition II	3
SPE 115	Public Speaking	3

Humanities (3 courses from 2 different disciplines; must include PHI 112) 9

ART 111, 112; HUM 121, 122, 123; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112; THE 211, 212

Mathematics (MAT 120, 121, 125, 201, 202): 3

Science 4

AST 101, 102; BIO 111, 112; CHE 101, 111, 112; GEY 111, 121; PHY 112, 211, 212

Social and Behavioral Sciences (1 HIS course and 2 courses from two different disciplines): 9

ANT 101, 111; ECO 201, 202; GEO 105; HIS 101, 102, 201, 202; POS 105; PSY 102

Total General Education Credits 34

Required Major Courses

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 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
Total Required Major Credits		28

Total Required Credits 62

Certificate: Investigations

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

Required Major Courses 21

CRJ 110	Introduction to Criminal Justice	3
CRJ 111	Substantive Criminal Law	3
CRJ 112	Procedural Criminal Law	3
CRJ 118	Report Writing	3
CRJ 210	Constitutional Law	3
CRJ 240	Criminal Investigations	3
CRJ 245	Interview and Interrogation	3

Elective Courses (Select two courses from the following) 6

CRJ 190	Financial Investigations	3
CRJ 218	Drug Investigative Strategies	3
CRJ 246	Traffic Investigation	3
FST 252	Fire Arson Investigation	3

Total Required Credits 27

Certificate: Victim Assistance Direct Service

You must have strong writing skills. You also need to be computer literate. If you do not have experience using a computer, you will need to take CIS 118, Microcomputer Applications (IBM), 4 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 225	Crisis Intervention	3
CRJ 239	Managing Emergency Worker Stress	3
CRJ 269	Adult Survivors of Childhood Molestation	3
PSY 237	Psychology of Death and Dying	3
SOC 265	Violence and Culture	3

Total Required Credits 30

Certificate: Victim Assistance Administration

CRJ 110	Introduction to Criminal Justice	3
CRJ 150	Victims of Crime and Trauma	3
CRJ 239	Managing Emergency Worker Stress	3
ACC 121	Accounting Principles I	5
MAN 200	Human Resources Management	3
MAN 226	Principles of Management	3

Drywall

(See Construction Technology)

Early Childhood Education Program

Red Rocks Community College provides four possible alternatives for students desiring training in the Early Childhood Education field. These alternatives are:

Preschool Group Leader Certificate	minimum 16 credits
Infant/Toddler Group Leader Certificate	minimum 16 credits
Director's Certificate	minimum 25 credits
AGS Degree in Early Childhood Educ.	minimum 60 credits

The AGS degree and certificates in Early Childhood Education (ECE) at Red Rocks Community College provide comprehensive training in both the underlying theories of Early Childhood Education and application of quality practices in early childhood care and learning environments.

The program emphasizes :

- 1) Practices that nourish and facilitate relationships between caregivers, children and families.
- 2) The concepts and applications of play-based, child centered, curriculum approaches.
- 3) Professional advocacy and participation in the organizations and early childhood issues in Colorado.
- 4) Meeting the diverse needs of families and children in a multicultural community.
- 5) Nurturing readiness in literacy, math and science and promoting social and emotional development.

Designed to meet the needs of students currently working in the field, ECE classes are offered nights, weekends, and Monday afternoons. Red Rocks Community College offers core classes for the AGS degree during the day, evenings or weekends. Self-paced and on-line options are available for many courses. Please contact the Early Childhood Professions Coordinator for advising before or soon after enrollment. Some financial assistance is available for individuals already employed in the field.

Certificate: Group Leader

This program prepares graduates for group leader positions in early childhood care and education settings. A grade of C or better is required in all classes leading to a certificate or degree. Upon completion of these classes, students receive a Colorado Group Leader Certificate from Red Rocks Community College.

In addition to the academic requirements, the Colorado Department of Human Services requires nine months (1,302 hours) of work experience. Group leaders must be at least 18 years old.

latest information: www.rrcc.edu

All courses leading toward the Group Leader Certificate, apply toward the requirements of the AGS degree with an emphasis in Early Childhood Education.

Program admission requirements:

All students enrolling in the Group Leader Certification Program must meet the minimum assessment scores required by the college, or prerequisite required by the program.

Choose one of the following two group leader options:

Certificate: Preschool Group Leader

ECE 101	Introduction to Early Childhood Professions	3
ECE 236	Child Growth and Development	4
ECE 103	Guidance Strategies for Children	3
ECE 220	Curriculum Dev.: Methods and Techniques	3
ECE 102	Early Childhood Lab Techniques (Capstone)	3
Total Required Credits		16

Certificate: Infant/Toddler Group Leader

ECE 101	Introduction to Early Childhood Professions	3
ECE 236	Child Growth and Development	4
ECE 111	Infant and Toddler Theory and Practice	3
ECE 103	Guidance Strategies for Children	3
ECE 112	Infant and Toddler Lab Techniques (Capstone)	3
Total Required Credits		16

Certificate: School Age

The school age certificate is a unique opportunity to earn a certificate in an on-line community. A group of 10-15 students move through the courses together forming relationships, exploring school-age care and learning from experienced instructors and each other. Courses run in ten-week sessions.

Required courses

ECE 191	School Age Theory and Practice	3
ECE 236	Child Growth and Development	4
ECE 255	Working with Parents, Families, and Community Systems	3
ECE 275	Special Topics: Promoting Positive Mental Health in School-Age Programs	3
ECE 275	Special Topics: Curriculum Development for School-Age Programs	3
Total Required Credits		16

Certificate: Director Early Childhood Education

This program prepares students for director-qualified positions in early childhood care and education programs. A grade of C or better is required in all classes leading to a certificate or degree. Upon completion of these classes, students will have met requirements for a Colorado Group Leader Certificate from Red Rocks Community College and an Early Childhood Director Certificate. This certificate meets director requirements for the Colorado Department of Human Services.

In addition to the academic requirements, the Colorado Department of Human Services requires 24 months (3,640 hours) of work experience. Directors must be at least 21 years old.

Successful (80%) development and completion of the capstone course portfolio is required for graduation. Any student not completing the capstone portfolio must complete a portfolio before approval for graduation.

All courses leading toward the Director Certificate apply toward the requirements of the AGS degree with an emphasis in Early Childhood Education.

Program admission requirements:

All students enrolling in the Director Certification Program must meet the minimum assessment scores required by the college or prerequisite required by the program.

Required Courses

ECE 101	Introduction to Early Childhood Professions	3
ECE 236	Child Growth and Development	4
ECE 103	Guidance Strategies for Children	3
ECE 102	Early Childhood Lab Techniques	3
ECE 205	Nutrition, Health and Safety	3
ECE 220	Curriculum Development: Methods and Techniques	3
ECE 240	Administration of Early Childhood Care and Education Programs (Capstone)	3
ECE 241	Human Relations for Early Childhood Professionals	3
Total Required Credits		25

Degree: Associate of General Studies Early Childhood Education

The following courses meet the requirements for a two-year Associate of General Studies in Early Childhood Education at Red Rocks Community College. A grade of C or better is required in all degree classes. Students completing degree requirements will have met the requirements for Preschool Group Leader Certificate, Infant/Toddler Group Leader Certificate, and Early Childhood Education Director Certificate.

Successful (80%) development and completion of the capstone course portfolio is required for graduation. Any student not

completing the capstone portfolio must complete a portfolio before approval for graduation.

Program admission requirements:

All students enrolling in the Director Certification Program must meet the minimum assessment scores required by the college or prerequisite required by the program.

Core Curriculum Requirements

English/Speech	6
ENG 121	
SPE 115	
Humanities	3
Select any two of the following	
ART 110, 111, 112, SPA* 101,102, 111,112; LIT 115, 201, 202; MUS 120, 121, 122; THE 105, 211, 212	
Mathematics/Business/ Computer Information Systems	3-5
Select any one of the following	
MAT 107, 120, 121, 135, 201, 202; BUS 110; CIS 118	
Science	4-5
Select one of the following	
AST 101, 102; BIO 105, 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 111, 112, 211, 212	

* Recommended

Required Major Courses

ECE 101	Introduction to Early Childhood Professions	3
ECE 102	Early Childhood Lab Techniques	3
ECE 236	Child Growth and Development	4
ECE 103	Guidance Strategies for Children	3
ECE 205	Nutrition, Health and Safety	3
ECE 220	Curriculum Development: Methods and Techniques	3
ECE 240	Administration of Early Childhood Care and Education Programs (Capstone)	3
ECE 241	Administration : Human Relations for Early Childhood Professions	3

Electives (any seven courses from below)

ECE 111	Infant and Toddler Theory and Practice	3
ECE 256	Working with Parents, Families and Community Systems	3
LIT 255	Children's Literature	3
ECE 225	Language and Cognition for the Young Child	3
ECE 215	Creativity and the Young Child	3
ECE 237	Theories and Techniques of Social and Emotional Growth	3
ECE 260	The Exceptional Child	3
ECE 228	Language and Literacy	3
ECE 275	Special Topics	3

Total Required Credits 61-64

Degree: Associate of Arts Early Childhood Education

This degree is appropriate for students planning to complete a Bachelor's Degree in Early Childhood Education. The following program is guaranteed to transfer to any Early Childhood Education program offered by a Colorado public institution of higher learning. The following courses meet the requirements for a two-year Associate of Arts Degree in Early Childhood Education at Red Rocks Community College. A grade of C or better is required in all degree classes. Check with the transfer school for approved ECE electives. You are urged to consult with an advisor before beginning this program of study. This degree is pending approval from the Colorado Commission on Higher Education.

Program admission requirements:

All students enrolling in any degree or certificate program must meet the minimum assessment scores required by the college.

General Education Requirements	38
English (6 credits):	
ENG 121 College Composition	3
ENG 122 Composition II	3
Mathematics (6 credits):	
MAT 155 Math for Elementary Education	3
MAT 156 Math for Elementary Education II	3
Humanities (6 credits):	
MUS 120 Music Appreciation	3
or	
ART 110 Art Appreciation	3
LIT 255 Children's Literature	3
or	
LIT 115 Introduction to Literature	3
Science (8 credits):	
GEY 111 Physical Geology	4
BIO 105 Science of Biology	4
or	
BIO 111 General College Biology	5
Social Sciences (9 credits):	
GEO 105 World Regional Geography	3
HIS 201 U.S. History I	3
POS 111 American Government	3
Speech (3 credits):	
SPE 115 Public Speaking	3
Early Childhood Education	22
ECE 101 Intro to Early Childhood Education	3
ECE 236 Child Growth and Development	4
ECE 102 Early Childhood Lab	3
ECE 205 Nutrition, Health and Safety	3
ECE 241 Human Relations for ECE	3

Transfer institution approved ECE elective credits	6
Total Required Credits	60

E-Business

(See Business Administration)

Economics

Degree: Associate of Arts

Economics is the study of how our 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 teaching 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. You are urged to consult with a faculty advisor before beginning any program of study.

Required Courses:

ECO 201 Principles of Macroeconomics	3
ECO 202 Principles of Microeconomics	3
Speech 115 or 125	3

Recommended Courses:

ACC 121 Accounting Principles I	4
ACC 122 Accounting Principles II	4
ECO 101 Economics of Social Issues	3

General Education Transfer Requirements Associates of Arts Degree:

Communications (6 credits)	
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Arts and Humanities (Select 3 courses from 2 areas):	9
ART 111, 112, LIT 115, 201, 202, MUS 120, 121, 121, 122, PHI 111, 112, THE 105, 211,212	
Mathematics	3-4
MAT 120, 121, 125, 135, 201, 202	
Social and Behavioral Sciences (Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, 111, GEO 105, HIS 101, 102, 201, 202, POS 105, PSY 102	
Physical and Life Sciences	8
AST 101, 102, BIO 111, 112, CHE 101, 102, 111, 112, GEY 111, 121, PHY 111, 112, 211, 212	
Electives	6
Total Required Credits	60

Electricity

(See Construction Technology)

Elementary Education

Degree: Associate of Arts

Students planning to become an elementary education teacher must take the first 45 credits outlined below with a "C" or better. Upon completion of the AA degree, these credits are guaranteed to transfer to any teacher education program that is offered by Colorado public institutions of higher learning. The remaining 15 credits for the AA are specific to individual transfer schools. You are urged to consult with a faculty advisor before beginning this program of study.

General Education Requirements:

Communications (6 credits):

ENG 121 English Composition I (B or better) 3

ENG 122 English Composition II 3

Humanities (3 credits):

LIT 115 3

LIT 201 3

LIT 202 3

Mathematics (6 credits):

MAT 155 Integrated Math I 3

MAT 156 Integrated Math II 3

Social and Behavioral Sciences (9 credits):

GEO 105 World Regional Geography 3

HIS 201 or HIS 202 American History 3

POS 111 American Government 3

Physical and Life Sciences (14 Credits):

BIO 111 General College Biology 5

GEY 111 Physical Geology 4

CHE 111 or CHE 112 or PHY 111 or PHY 211 5

Total 38

State-wide Education Requirements (9 credits):

SPE 115 Public Speaking 3

PSY 238 Child Development 3

EDU 221 Introduction to Education 3

Red Rocks Education Requirements (13 credits):

EDU 285 Field Based Experience 1

EDU 261 Teaching, Learning and Technology 3

Transfer institution approved electives 9

Total Required Credits 60

Degree: Associate of Applied Science Para-education

The No Child Left Behind Act strengthens paraeducator requirements to include two years of postsecondary education or, for an applicant with a high school diploma, the demonstration of necessary skills on an academic assessment. RRCC has developed a Paraprofessional Certificate and an educational track to assist paraprofessionals in meeting these new requirements. The following degree and certificate are pending approval.

Required Education Courses: (16 credits)

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

Recommended General Education Courses (44 credits)

Communications (6 credits):

ENG 121 English Composition I (B or better) 3

ENG 122 English Composition II 3

Humanities (3 Credits: select 1):LIT 115, LIT 201, LIT 202 3

Mathematics (6 credits):

MAT 155 Integrated Math I 3

MAT 156 Integrated Math II 3

Social and Behavioral Sciences (9 credits):

GEO 105 World Regional Geography 3

HIS 201 or HIS 202 American History 3

POS 111 American Government 3

Physical and Life Sciences (14 Credits):

BIO 111 General College Biology 5

GEY 111 Physical Geology 4

CHE 111, or CHE 112, or PHY 111, or PHY 211 5

State-wide Education Requirements (9 credits):

SPE 115 Public Speaking 3

PSY 238 Child Development 3

Certificate: Education Paraprofessional

Required Courses: (10 credits)

EDU 151 Literacy Interventions for Paras 4

EDU 152 Math Interventions for Paras 3

EDU 261 Teaching, Learning and Technology 3

Elective Credits

Recommended Courses: (11 credits from the following)

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EDU 110	Overview of Special Populations	3
EDU 154	ESL and Cultural Issues	3
ECE 238	Child Psychology	4
EDU 221	Introduction to Education	3
EDU 285	Field Based Experience	1
Approved EDU or ECE courses		
Total Required Credits		21

Emergency Management and Planning

Degree: Associate of Applied Science

(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 access flexibility and avoiding lengthy and costly travel. Registration for the program is accomplished over the Internet at www.ccconline.org. (Pick Red Rocks, then Emergency Management and Planning).

Information: 303.914.6462.

Major Courses

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	3
or		
EMP 247	Decision Making in a Crisis	(3)
EMP 242	Effective Communications	3
EMP 244	Developing Volunteer Resources	3

EMP 291	Public Information Officer	3
Total Required Major Credits		30
General Education Requirements		18
ENG 131	Technical Writing/English Composition I	3
or		
ENG 121	English Composition	(3)
MAT 106	Survey of Algebra	4
PSY 101	General Psychology	3
SOC 101	Introduction to Sociology	3
HUM 121	Survey of Humanities	3
Total General Education Credits		18

Electives

ENV* 101	Intro to Environmental Science	3
FST* 107	Hazardous Materials Awareness/Operations	3
FST 201	Instructional Methodology	3
MAN 200	Human Resource Management	3
CIS 115	Introduction to Computer Systems	3
or		
CIS 118	Introduction to Microcomputer Applications	(3)
MAN 226	Principles of Management (on the internet)	3
EMP 299	Independent Study	1-6
POS 211	Public Finance	3
EMP 280	Business Emergency Management	3

*Not available online

Total Elective Credits		24
Total AAS Degree 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. All courses except the internship and independent study courses are available over the Internet.

Major Courses

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	3
or		
EMP 247	Decision Making in a Crisis	(3)
EMP 242	Effective Communications	3

EMP 244	Developing Volunteer Resources	3
EMP 291	Public Information Officer	3
Total Required Credits		30

Emergency Medical Services

Meet with the emergency medical services faculty advisor before beginning a program of study.

Emergency Medical Technician Certificate I

To apply for a job as an EMT-Basic, one needs to pass the Colorado state certification exam. This college certificate program includes the courses needed to qualify to sit for the state exam.

EMS 125	Emergency Medical Technician Basic	9
EMS 170	Emergency Medical Technician Basic Clinical I	1
Total Required Credits		10

Emergency Medical Technician Certificate II

Prerequisites for application to the paramedic course include approximately one year of field experience as an EMT-Basic along with the following EMS courses. This college certificate program includes those courses needed to qualify to apply to most Denver Metro Paramedic training programs.

EMS 125	Emergency Medical Technician Basic	9
EMS 170	Emergency Medical Technician Basic Clinical I	1
EMS 130	EMT Intravenous Therapy	2
HPR 190	Basic EKG Interpretation	2
BIO 201	Human Anatomy and Physiology I	4
BIO 202	Human Anatomy and Physiology II	4
Total Required Credits		22

Degree: Associate of Applied Science in Paramedicine

In order to work as a paramedic in Colorado, one needs to complete a state-approved Paramedic course. Most EMS systems require managerial candidates to have at least an associate's degree. This program offers those already certified as a paramedic an opportunity to obtain a higher education degree.

Required Major Courses

EMS 125	Emergency Medical Technician – Basic	9
EMS 170	Emergency Medical Technician – Basic Clinical I	1

EMS 130	EMT Intravenous Therapy	2
HPR 190	Basic EKG Interpretation	2
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
Total Program-Specific Credits		59

General Education Courses

ENG 131	Technical Writing	3
SPE 125	Interpersonal Communications	3
MAT 107 (or above)	Career Math	3
BIO 106 (or 201 and 202)	Anatomy and Physiology	4
PSY 101	Intro to Psychology	3
Total General Education Credits		16
Total Degree Credits		75

Engineering

(Pre-Engineering)

Degree: Associate of Science in Pre-Engineering

The college offers courses that will transfer to many of the four-year institutions, including Colorado School of Mines, University of Colorado at Denver, Colorado State University, and the University of Colorado at Boulder. All transfer students are subject to a minimum grade point average of 3.0 (B) or better to compete successfully for admission to these institutions.

You are urged to consult with a Red Rocks Pre-Engineering/Mathematics faculty advisor before beginning any program of study.

Some courses might not be offered each semester.

Required Courses

CHE 111	General College Chemistry I	5
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CHE 111	General College Chemistry I Lab	
CHE 112	General College Chemistry I	5
CHE 112	General College Chemistry I Lab	
PHY 211	Physics: Calculus-based I	5
PHY 211	Physics: Calculus-based I Lab	
PHY 212	Physics: Calculus-based II	5
PHY 212	Physics: Calculus-based II Lab	
MAT 201	Calculus I	5
MAT 202	Calculus II	5
MAT 204	Calculus III	5
MAT 261	Differential Equations	4

General Education Transfer Requirements

English/Speech

ENG 121	English Composition I	3
ENG 122	English Composition II	3
Arts and Humanities (3 courses: Select courses from 2 different areas):		9

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212

Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102

Total Minimum Required Credits 60

Engineering Graphics Technology

Degrees: Associate of Applied Science Emphasis in Architectural or Mechanical

Certificates: Variable Credits

The Engineering Graphics Technology program offers Associate of Science degrees and certificates with emphases in architectural and mechanical drafting and design. This program prepares you for employment as a design drafter.

If you are seeking to upgrade or advance your current drafting and design knowledge and skills, classes can be tailored to fit your course work and schedule needs. Prerequisites may be waived or challenged for previous educational and occupational or related experience. The curricula are designed to develop communication, leadership and critical thinking skills and to

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provide a setting in order for you to experience a team approach to problem solving.

You will use CADD (Computer-Aided Design Drafting) to form the foundation for drafting standards, conventions, layouts, designs and details of working drawings and models. ASME (ANSI) and AIA specifications, handbooks and technical data applicable to engineering graphics are emphasized.

Lab fees are assessed. Consult with an Engineering Graphics Technology faculty advisor before beginning any program of study at **303 914-6385**.

Area of Emphasis: Architectural

Along with the Engineering Graphics course work, any 15 general education credits are required for the AAS degree. The following is a suggested sequence for completing an associate of applied science degree in Engineering Graphics Architectural for full time students. If you are a part time student, it will take you longer to complete the sequence. It might be helpful to remember that one credit is equal to 20 hours of class time.

Recommended courses for AAS degree

CAD 110	Basic CADD	6
CAD 119	Intermediate CADD	6
CAD 121	Inter. CADD Architectural	3
CAD 202	Three Dimensional CADD	3
CAD 123	3D CADD Architectural	3
CAD 221	Framing Methods	3
CAD 223	Roof Design	3
CAD 217	Studio Viz	6
CAD 227	Architectural Design/Drafting I	6
CAD 228	Architectural Design/Drafting II	6
MTE 110	Teamwork and Comm. for Industry	3
Plus required academic credits		15

Total required credits 60

You may also take advanced applications in Architectural Desktop and 3D VIZ to complete the forty-five program credits.

Area of Emphasis: Mechanical

Along with the Engineering Graphics coursework, any 15 general education credits are required for the AAS degree. The following is a suggested sequence for completing an Associate of Applied Science degree in Engineering Graphics Mechanical for full time students. If you are a part time student, it will take you longer to complete the sequence.

Recommended courses for AAS degree

CAD 110	Basic CADD	6
CAD 119	Intermediate CADD	3
CAD 152	Intermediate CADD Mechanical	3
CAD 202	Three Dimensional CADD	3
CAD 123	3D CADD Mechanical	3
CAD 251	Assembly and Detail	3

CAD 252	Mechanisms and Drives	3
CAD 217	Studio Viz	6
CAD 253	Mechanical Design/Drafting I	6
CAD 259	Mechanical Design/Drafting II	6
MTE 110	Teamwork and Comm. for Industry	3
Plus required academic credits		15
Total required credits		60

You may also take advanced applications such as Pro/E, SolidWorks, AutoCAD Inventor or 3D VIZ to complete the forty-five program credits.

Certificate: Engineering Graphics Architectural

The following is a suggested sequence for completing a Certificate in Engineering Graphics Architectural for full-time students. If you are a part-time student, it will take you longer to complete the sequence.

Recommended Courses

CAD 110	Basic CADD	6
CAD 119	Intermediate CADD	3
CAD 121	Intermediate CADD Architectural	3
CAD 202	Three Dimensional CADD	3
CAD 123	3D CADD Architectural	3
MTE 110	Comm. and Teamwork for Industry	3
Total Required Credits		18-27

Certificate: Engineering Graphics Mechanical

This is a suggested sequence for full-time students to complete a certificate. If you are a part-time student, it will take you longer to complete the sequence.

Recommended Courses

CAD 110	Basic CADD	6
CAD 119	Intermediate CADD	3
CAD 152	Intermediate CADD Mechanical	3
CAD 202	Three Dimensional CADD	3
CAD 157	3D CADD Mechanical	3
MTE 110	Teamwork and Comm. for Industry	3
Total Required Credits		18-27

Industry Upgrade AutoCAD

CAD 110	Basic CADD	6
CAD 119	Intermediate CADD	3
CAD 121	Intermediate CADD Architectural	3
CAD 152	Intermediate CADD Mechanical	3
CAD 202	Three Dimensional CADD	3
CAD 123	3D CADD Architectural	3

CAD 157	3D CADD Mechanical	3
CAD 217	3D VIZ Basic	6
CAD 218	3D VIZ Advanced	6

Industry Upgrade Pro/Engineer

CAD 203	Pro/Engineer Basic Part and Assembly I	6
CAD 204	Pro/Engineer Draw/Detail Fundamentals I	6
CAD 205	Pro/Engineer Fast Track	3
CAD 206	Pro/Engineer Advanced I	6
CAD 207	Pro/Engineer Current Version Update	3
CAD 208	Pro/Engineer Update	3

Industry Upgrade SolidWorks

CAD 256	SolidWorks Basics	6
CAD 257	SolidWorks Intermediate	6
CAD 258	SolidWorks Advanced	6

Industry Upgrade Inventor

CAD 241	Inventor Basics	6
CAD 242	Inventor Intermediate	6
CAD 243	Inventor Advanced	6
CAD 285	Independent Study (credits arranged with instructor)	1-6

English

Degree: Associate of Arts

Students who plan to transfer to a four-year college or university to complete a major in English should complete the following courses work. For those who do not plan to major in English, emphasis in this area provides an excellent general liberal arts background for many professions such as teaching, writing, community service, law and research. Students seeking an AA with an emphasis in English should meet with a full-time faculty member in English.

Required Courses (4 courses)

LIT 115	Introduction to Fiction	3
LIT 201	Masterpieces of Literature I	3
LIT 202	Masterpieces of Literature II	3
ENG 221	Creative Writing	3

Recommended Courses (Choose 4 courses)

LIT 125	Study of the Short Story	3
LIT 126	Study of Poetry	3
LIT 127	Study of the Novel	3
LIT 145	Women in Literature and Society	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
LIT	225	Introduction to Shakespeare	3
LIT	232	Gothic Literature	3
LIT	235	Science Fiction	3
LIT	255	Children's Literature	3
LIT	257	Literature and Film	3
ENG	131	Technical Writing	3
ENG	132	Technical Writing II	3
ENG	205	Technical Editing	3
ENG	226	Fiction Writing	3
ENG	227	Poetry Writing	3
ENG	230	Creative Non-Fiction	3

General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):

ENG 121	English Composition I	3
ENG 122	English Composition II	3

Arts and Humanities (3 courses : Select courses from 2 different areas): 9

ART 111, 112, LIT 115, 201, 202, MUS 120, 121, 122, PHI 111, 112, THE 105, 211, 212

Mathematics (1 course)

MAT 120, 121, 125, 135, 201, 202	3
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Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines): 9

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102

Physical and Life Sciences (2 courses) 8

AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212

RRCC Requirement for the Associates of Arts Degree:

SPE 115 or 125	3
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Total Required Credits 60

Entrepreneurship

(See Business Administration)

Estimating Facility Maintenance

(See Construction Technology)

Fine Woodworking

(See Construction Technology)

Fire Science Technology

Degree: Associate of Applied Science

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
- Advancement to a four-year college in pursuit of a bachelor of science degree in Fire Science Administration

The degree program consists of two options

Track I: for students new to the fire service or preparing for the fire service

Track II: for students experienced as firefighters and preparing for career advancement.

Emphasis is placed on modern methods of fire prevention and suppression and management of the fire service. Public and private fire protection systems, life safety of fire service personnel and civilians, protection of property through the application of code enforcement, and the increasing problems of hazardous materials and arson are studied.

Prior to enrollment, all students who are not presently members of the fire department are required to take assessment tests which will be administered in the Learning Development Center by the college assessment staff. The fire science instructor, upon consultation with assessment staff, will evaluate test results in order to assist students with proper placement in their course of study in fire science. Advanced students are expected to substitute advanced courses for introductory courses.

Information: 303.914.6333

Track I: Fire Science Technology Degree

Required Major Courses

FST	100	Firefighter I Academy - Essentials of Firefighting	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	151	Driver Operator	3
		or	
FST	152	Wildland Firefighting	
FST	XXX	Heavy Rescue electives	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
PED	110	Life Fitness I	1
PED	111	Life Fitness II	1
Total Required Major Credits			50
General Education Requirements			15
See General Requirements for AAS degree			
Electives			6
CRJ	225	Crisis Intervention	3
CRJ	239	Managing Emergency Worker Stress	3
EMS	126	Emergency Medical Technician-Basic Refresher and	9
EMS	170	EMT Basic Clinical	1
FST	101	Fire Academy II	3
FST	110	Job Assessment	3
FST	121	Technical Rope Rescue	4
FST	132	Structural Collapse Rescue	2
FST	133	Trench Rescue	2
FST	134	Confined Space Rescue	2
FST	135	Ice Water Rescue	2
FST	136	Swift Water Rescue	2
FST	137	Vehicle Extrication	2
FST	150	Introduction to Fire Prevention Education	3
FST	152	Wildland Firefighter (I and II)	3
FST	175	Special Topics	1-3
FST	180	Internship	1-6
FST	250	Chemistry for Fire Protection	3
FST	252	Arson Investigation (Fire Investigator)	3
FST	254	Hazardous Materials Technician	3
FST	256	Fire Service EMS Management	3
FST	258	Wildland Fire Incident Management and Organization	3
FST	260	Intermediate Fire Behavior S-290	2
FST	261	Fire Operations in the Urban Interface	2
FST	262	Wildland Fire Behavior	2
FST	263	Powersaws S-212	2

FST	264	Helicopter Crew S-217	2
FST	265	Ignition Operations S-234	2
FST	266	Crew Boss C-230	2
FST	270	Basic Air Ops S-270	2
FST	285	Independent Study	1-3
Total Credits for Degree			71

Track II: Fire Service Management Degree

Required Major Courses			33
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
General Education Requirements			
(See General Requirements for AAS degree)			15
Electives (see list under Track I)			12
Total for Degree			60

Certificate Programs

Fire Fighter I

FST	100*	FFI Essentials of Firefighting(Fire Academy)	9
FST	102	Intro to Fire Science and Suppression	3
PED	110	Life Fitness I	1
Total			13

Fire Instructor

FST	201	Instructional Methodology	3
SPE	115	Public Speaking	3
Total			6

Fire Officer I

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
Total			12

Fire Officer II

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
Total		12

Fire Officer III

FST 251	Fire Service and The Law	3
FST 257	Fire Department Administration	3
FST 275	Special Topics--Fire Analysis	3
Total		9

Driver Operator

FST 151	Driver Operator	3
FST 203	Fire Science Hydraulics	3
Total		6

Technical Heavy Rescue

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
Total		12

Wildland Management

FST 152	Wildland Firefighting	3
FST 253	Fire Ground Organization and Command (ICS)	3
FST 261	Fire Operations in the Urban Interface	3
Total		9

Fire Inspector

FST 105	Building Plans and Construction	3
FST 106	Fire Inspection Practices	3
FST 204	Codes and Ordinances	3
Total		9

Fire Investigator

(Police and fire personnel only)

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 Techniques	3
Total		15

Hazardous Materials

FST 107	Hazardous Materials Awareness Operations	3
FST 202	Firefighting Strategy and Tactics	3
FST 253	Fire Ground Organization and Command (ICS)	3
FST 254	Hazardous Materials Technician	3
Total		12

Foreign Languages

Degree: Associate of Arts

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 a foreign language. If you do not plan to major in a foreign language, knowledge of a second language may significantly improve changes of professional advancement in careers such as business, computer technology, medicine, engineering and in the natural and behavioral sciences.

You are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses

Choose one (FRE, GER, SPA)

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

General Education Transfer Requirements for the AA degree

Communications (2 courses):

ENG 121	English Composition I	3
ENG 122	English Composition II	3

Arts and Humanities (select 3 courses from 2 different areas):

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		9
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Mathematics (1 course)

MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202		3
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Social and Behavioral Sciences (1 HIS and 2 from 2 different disciplines):

ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		9
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Physical and Life Sciences (2 courses)

AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212		8
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RRCC Requirement for the Associates of Arts Degree:

SPE 115 or 125		3
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Geology

Degree: Associate of Science

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 geology. You are urged to consult with a geology faculty advisor before beginning any program of study. Some courses might not be offered each semester.

Recommended Courses		31
BIO 112	General College Biology II	5
CHE 111	General College Chemistry I	5
GEY 111	Physical Geology	4
GEY 121	Historical Geology	4
GEY XXX	Other GEY courses	6
MAT 121	College Algebra	4
MAT 122	College Trigonometry	3
General Education Transfer Requirements		
Communications (6 credits)		
ENG 121	English Composition I	3
ENG 122	English Composition II	3
Arts and Humanities (3 courses: Select courses from 2 different areas): 9		
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		
Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9		
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		
Electives		5
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.		
Total Required Credits		60

Graphics and Animation Technology

(See Multimedia Technology)

Heating

(See Construction Technology)

History

Degree: Associate of Arts

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 for you if you are interested in teaching, government service, law, research, business and industry, journalism, publishing, historical societies, museums, archives and library science.

You are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses		
ANT 101	Cultural Anthropology	3
ECO 201	Principles of Macroeconomics	3
GEO 105	World Regional Geography	3
HIS 101	Western Civilization I	3
HIS 102	Western Civilization II	3
HIS 247	Contemporary World History	3
HIS 201	U.S. History I	3
HIS 202	U.S. History II	3
POS 115	American Government	3
SOC 101	Introduction to Sociology I	3
General Education Transfer Requirements for the Associates of Arts Degree:		
Communications (2 courses):		
ENG 121	English Composition I	3
ENG 122	English Composition II	3
Arts and Humanities (3 courses : Select courses from 2 different areas): 9		
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		
Mathematics (1 course): 3		
MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202		
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines): 9		
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		
Physical and Life Sciences (2 courses)		
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212		
RRCC Requirement for the Associates of Arts Degree:		
SPE 115 or 125		3
Electives		5
Electives must be selected from college-level transfer courses. No more than 3 credits in physical education may be counted.		
Total Required Credits		60

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Health Professions

Certificate: Phlebotomy, 8 Credits

This CCHC 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 set-up and process, medical terminology specific to the laboratory, customer service skills, regulatory issues, venipuncture and fingerstick technique and numerous other collection procedures. The student gains knowledge in problem solving, legal implications, and other duties specifically associated with the health care industry, e.g. home health care, physician offices, hospital, etc. 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 are required before the start of the internship.

Required Course

HPR 112	Phlebotomy Certification	5
HPR 180	Phlebotomy Internship	3
Total Required Credits		8

Certificate: L.P.N. Refresher Program

A current Colorado LPN license, proof of immunizations, liability insurance, Health Care Provider C – BLS certification, and a letter from a physician stating you are physically and mentally able to participate in this course are required prior to participating in clinicals.

Required Major Courses

NUR 190	LPN Refresher	10
NUR 191	LPN Refresher Clinical	2
Total Required Credits		12

Certificate: R.N. Refresher Program

A current Colorado RN license, proof of immunizations, liability insurance, Health Care Provider C – BLS certification, and a letter from a physician stating you are physically and mentally able to participate in this course are required prior to participating in clinicals.

Required Major Courses	Credits
NUR 290 RN Refresher	10
NUR 291 RN Refresher Clinical	2
HPR 210 Physical Assessment	2
Total Required Credits	14

Holistic Health

Certificates: 16 Credits

Holistic Health Holistic Nursing

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 one 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. The required courses are:

Required Courses

HHP 229	Wellness Counseling	1
HHP 244	Holistic Health/Nursing I	1
HHP 254	Holistic Health/Nursing II	2
HHP 256	Holistic Health/Nursing III	2

(13 credits must be completed before participating in Holistic III)

Total Required Credits 6

Choose an additional **10 credits** from the list below to complete the requirements for the certificate. It is recommended that at least one course be chosen from each of the four sub-categories. Courses are added frequently; please call the Health Careers Office at **303.914.6621** for a current brochure.

Physical

HHP 125	Feldenkrais	0.5
HHP 130	Reiki Level I	1
HHP 145	Digestive Wellness	1
HHP 166	Introduction to Reflexology	1
HHP 167	Soft Hands	1
HHP 190	Crystals and Minerals in Healthcare	0.5
HHP 202	Aromatherapy	0.5
HHP 205	Herbology	1
HHP 221	High Level Wellness	1
HHP 224	Intro to Massage Therapy	1
HHP 236	Dance Therapy and Healing	0.5
HHP 239	Issues in Holistic Nutrition	0.5
HHP 242	Healing Touch Level 1	1
HHP 246	Reiki Level II	1
HPR 156	Introduction to Hospice Nursing	0.5
HPR 165	Approaches to Menopause	0.5

Emotional

HHP 103	Introduction to the Circle of Healing	1
HHP 215	The Role of Art in Healing	1
HHP 216	Humor Playshops	0.5
HHP 249	Journaling, the Healing Journey	1

HHP	267	Living Without Limits	0.5
HPR	269	Stress Management	0.5
Mental			
HHP	100	Complementary Healing Methods	1
HHP	110	Neurolinguistic Programming I	0.5
HHP	212	Neurolinguistic Programming II	0.5
HHP	214	Exploring Your Dreams	1
HHP	227	Communication Skills	0.5
HHP	262	Psychoneuroimmunology	0.5
HHP	263	Creating a Holistic Practice	0.5
HHP	265	Gift of Self-Esteem	1
Spiritual:			
HHP	104	The Healing Mind	0.5
HHP	135	Assessing Inner Resources I	1
HHP	140	Assessing Inner Resources II	1
HHP	160	Learn to Meditate	0.5
HHP	168	Turaya Meditation	1
HHP	213	Spiritual Care	0.5
HHP	241	Healing with Imagery	0.5
HHP	258	Journaling The Spiritual Journey	1
HHP	269	Healing Presence	1

Humanities

Degree: Associate of Arts

Humanities is the study of literature, philosophy, art, music and theatre. It provides an excellent background for professions such as teaching, writing, community service, law and research.

You are urged to consult with an advisor before beginning any program of study.

Recommended Courses

ART	111	Art History I	3
		or	
ART	112	Art History II	3
HIS	247	Contemporary World History	3
HUM	121	Survey of Humanities I)	3
HUM	122	Survey of Humanities II	3
HUM	123	Survey of Humanities III	3
LIT	115	Introduction to Literature	3
MUS	120	Music Appreciation	3
PHI	111	Introduction to Philosophy	3
THE	211	Development of Theatre I	3
		or	
THE	212	Development of Theatre II	3

General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):	6
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Mathematics (1 course):	3
MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202	
Physical and Life Sciences(2 courses):	8
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212	
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102	
RRCC Requirement for the Associates of Arts Degree:	
SPE 115 or 125	3
Electives	8
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.	
Total Required Credits	60

HVAC/R

(See Construction Technology)

International Studies

Degree: Associate of Arts

Required Courses

POS	205	International Relations	3
GEO	105	World Geography	3
HIS	137	Contemporary World History	3
ECO	201	Principles of Macroeconomics	3
		Foreign language (college level)	3

General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):		
ENG	121	English Composition I
ENG	122	English Composition II
Arts and Humanities (3 courses : Select courses from 2 different areas):		9
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		
Mathematics (1 course)		
MAT	120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202	3

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Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102	
Physical and Life Sciences (2 courses)	8
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212	
RRCC Requirement for the Associates of Arts Degree:	
SPE 115 or 125	3
Electives	10
Recommended Electives	
ECO 101, 235; PHI 115, 214; SOC 101, 102; SPE 220	
Total Required Credits	60

Journeyman Laborer

(See Construction Technology)

Maintenance Masonry

(See Construction Technology)

Management/Marketing

(See Business Administration)

Mathematics

Degree: Associate of Science

The completion of the following courses is appropriate for transfer to a four-year college or university to complete a major in mathematics. This program provides basic preparation leading to science-related careers as well as to teaching mathematics. You should consult with a mathematics faculty advisor before beginning any program of study. Some courses might not be offered each semester.

If you are planning to major in mathematics at a four-year college or university, you will find MAT 201 Calculus I is the lowest level mathematics course in which the credits earned will count toward a BA or a BS degree. If you are a student just entering and are not prepared to take MAT 201, you will need to take the prerequisite course(s). The credits earned in the prerequisite course(s) will not count toward a BA or a BS degree.

Required Courses

MAT 201	Calculus I	5
MAT 202	Calculus II	5
MAT 204	Calculus III	5
MAT 255	Linear Algebra	3
MAT 261	Differential Equations	4
General Education Transfer Requirements		
English/Speech		
ENG 121	English Composition I	3
ENG 122	English Composition II	3
Arts and Humanities (3 courses from 2 different areas):		
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		9
Social and Behavioral Sciences (1 HIS and 2 from 2 different disciplines):		
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		9
Science (Select two courses from one or two disciplines)		
AST 101, 102; BIO 111, 112; CHE 111, 112; GEY 111, 121; PHY 211, 212		10
Computer Science Elective (Select one course)		
CSC 160, 161		4
Total Required Credits		60

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. Prior to enrollment, basic-skills assessment must be done for both AAS and certificate students. Please call the Assessment Center, **303.914.6720**, for information on days and times. A minimum grade of a C must be achieved for all required courses in order to receive a certificate or degree. The TOEFL test is required for international applicants whose primary language is other than English. Proof of immunizations, a letter from a physician stating the student is physically and mentally able to participate in this program. CPR certification and immunizations are required prior to the start of any internships.

Medical Assisting

Certificate: 46 Credits

Degree: Associate of Applied Science, 61 Credits

The Medical Assisting program prepares you for a career as a multi-skilled professional in the allied health field performing front-and back-office procedures. The student will be trained in a full range of administrative and clinical duties. This program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), and all students who successfully complete the program are eligible to sit for the national certification exam to become a Certified Medical Assistant.

Certificate: Medical Assisting

Required Major Courses

HPR	106	Law and Ethics for Health Professionals	2
HPR	178	Medical Terminology	3
BIO	106	Basic Anatomy and Physiology	4
BTE	102	Keyboarding Applications (must type 25 wpm)	2
CIS	118	Introduction to PC Applications	4
MOT	110	Medical Office Administration	4
MOT	120	Medical Office Financial Management	3
MOT	150*	Pharmacology for Medical Assistants*	3
PSY	101	General Psychology	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
MOT	181	Administrative Internship	2
MOT	182	Clinical Internship or	3
MOT	183	Medical Assisting Internship	(5)
Total Required Credits			46

*Math prerequisite required; NUR 101 or MAT 030 or 060 for certificate; MAT 107 or higher for degree.

Degree: Associate of Applied Science

To earn an Associate of Applied Science degree in medical assisting you must complete all the courses in the certificate program as well as the courses listed below.

General Education Requirements

ENG	121	English Composition I	3
or			
SPE	115	Public Speaking	(3)
MAT	106	Survey of Algebra (or higher)	4

Nine credits from any two of the following three areas:

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

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

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

Total General Education Credits 16

Total Required Credits 61

Medical Office (Front Office)

Certificate: 36 Credits

Degree: Associate of Applied Science, 60 Credits

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.

Certificate: Medical Office

HPR	106	Law and Ethics for Health Professionals	2
HPR	178	Medical Terminology	3
BIO	106	Basic Anatomy and Physiology	4
BTE	102	Keyboarding Applications (must type 25 wpm)	2
CIS	118	Introduction to PC Applications	4
MOT	110	Medical Office Administration	4
MOT	120	Medical Office Financial Management	3
BUS	217	Business Communications and Report Writing	3
ACC	101	Fundamentals of Accounting	3

MAN 116	Principles of Supervision	3
	or	
BUS 115	Introduction to Business	3
MOT 130	Insurance Billing and Coding	3
MOT 181*	Administrative Internship	2
Total Required Credits		36

* A TB test is required prior to start of internship.

Degree: Associate of Applied Science

To earn an Associate of Applied Science degree in medical office you must complete all the courses in the certificate program as well as the courses listed below.

Elective		8
General Education Requirements		
ENG 121	English Composition I	3
	or	
SPE 115	Public Speaking	3
MAT 106	Survey of Algebra (or higher)	4
Nine credits from any two of the following three areas:		
Humanities (ART, FRE, GER, SPA,, HUM, LIT, MUS, PHI, THE)		
Science (AST, BIO, CHE, GEY, PHY)		
Social and Behavioral Sciences (ANT, ECO, GEO, HIS, POS, PSY, SOC)		
Total General Education Credits		16
Total Required Credits		60

Multimedia Technology

Degree: Associate of Applied Science

Graphics and Animation Technology
Production and Design Technology
Motion Graphics Animation

Degree: Associate of General Studies

Graphics and Animation Technology
Production and Design Technology
Motion Graphics Animation

latest information: www.rrcc.edu

Certificates

Graphics and Animation Technology
Production and Design Technology
Motion Graphics Animation
Web Page Design
Advanced Web Page Design

The college offers both associate degrees and certificates in Multimedia through the Art Department. If you plan to transfer to a baccalaureate institution you should consider the Associate of General Studies. The Certificate program and Associate of Applied Science degree prepares the student to enter the work force upon graduation.



"I chose Red Rocks because of its location. I stayed because of great professors, small class sizes and wonderful educational resources."

Heather May Bierhaus
Spring Gulch, CO

Degree: Associate of Applied Science Graphics and Animation Technology

The Graphics and Animation emphasis within the Multimedia Technology Department prepares students for work in the traditional graphic design and printing industries. Students use the computer for electronic production and basic design techniques. In addition to printed graphics, students produce web pages, multimedia presentations exploring digital video editing, QuickTime streaming, 3-D modeling and animation, and other cutting edge technology.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 102	Intro. to Multimedia	3
MGD 103	Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 113	QuarkXPress	3
MGD 118	Digital Color Theory	3
MGD 121	Painter for Digital Media	3
MGD 153	3D Animation I	3
MGD 161	Director I	3
MGD 211	Adobe Photoshop II	3
MGD 213	Electronic Prepress	3
MGD 259	Management and Production	3
Faculty Advisor Approved Electives from MGD		6

Required General Education Courses

English/Speech		
ENG 121 or SPE 115		3
Mathematics		
MAT 107 or above		3
General Education Elective		3
Choose from any two of the following three areas:		6
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)		
Humanities (ART, LIT, MUS, PHI, THE)		
Science (AST, BIO, CHE, GEY, PHY)		
Total Required Credits		60

Degree: Associate of Applied Science Production and Design Technology

The Production and Design emphasis within the Multimedia Technology Department prepares students for work in various multimedia arenas including: informational kiosks, corporate

and educational training, interactive games and interactive CD-ROM production. Students are exposed to many other exciting aspects of multimedia production such as sound and digital editing, web page and site design and production and motion graphics.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 102	Intro. to Multimedia	3
MGD 103	Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 113	QuarkXPress	3
MGD 118	Digital Color Theory	3
MGD 121	Painter for Digital Media	3
MGD 123	Bryce	3
MGD 161	Director I	3
MGD 163	Sound Design I	3
MGD 164	Digital Video Editing I	3
MGD 165	After Effects I	3
MGD 259	Management and Production	3
Faculty Advisor Approved Electives from MGD		6

Required General Education Courses

English/Speech		
ENG 121 or SPE 115		3
Mathematics		
MAT 107 or above		3
General Education Elective		3
Choose from any two of the following three areas:		6
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)		
Humanities (ART, LIT, MUS, PHI, THE)		
Science (AST, BIO, CHE, GEY, PHY)		

Total Required Credits 60

Degree: Associate of Applied Science Motion Graphics Animation

The Motion Graphics Animation emphasis within the Multimedia Technology Department prepares students for work in digital 3-D animation modeling environments. Students combine traditional artistic skills of drawing, design and sculpture with a touch of video, lighting and special effects training. The student mix these skills with their expertise in object modeling and computer generated animation techniques to produce complete 3-D animation projects.

Required Multimedia Courses

MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 122	Sculpting for Digital Media	3
MGD 153	3D Animation I	3
MGD 155	LightWave I	3

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MGD 164	Digital Video Editing I	3
MGD 175	Maya I	3
MGD 253	3D Animation II	3
MGD 255	LightWave II	3
MGD 257	Animation Production	3
Faculty Advisor Approved Electives from MGD		6

Required Art Courses

ART 121	Drawing I	3
ART 132	3-D Design	3
ART 156	Figure Drawing I	3

Required General Education Courses

English/Speech (ENG 121 or SPE 115)	3
Mathematics (MAT 107 or above)	3
General Education Elective	3
Choose from any two of the following three areas:	6
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)	
Humanities (ART, LIT, MUS, PHI, THE)	
Science (AST, BIO, CHE, GEY, PHY)	

Total Required Credits 60

Articulation with Metropolitan State College of Denver: up to 66 semester hours of the Associate of General Studies Degree will be accepted toward MSCD's bachelor's degree in Technical Communication.

Degree: Associate of General Studies Graphics and Animation Technology

The Graphics and Animation emphasis within the Multimedia Technology Department prepares students for work in the traditional graphic design and printing industries. Students use the computer for electronic production and basic design techniques. In addition to printed graphics, students produce web pages, multimedia presentations exploring digital video editing, QuickTime streaming, 3-D modeling and animation, and other cutting edge technology.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 103	Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 113	QuarkXPress	3
MGD 118	Digital Color Theory	3
MGD 259	Management and Production	3

Faculty Advisor Approved Electives from MGD 6

Required General Education Courses

English/Speech	6
ENG 121 English Composition I	3

ENG 122 English Composition II	3
Mathematics	3-5
MAT 120 or above	3
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)	9
Arts and Humanities (ART, LIT, MUS, PHI, THE)	9
Science (AST, BIO, CHE, GEY, PHY)	8
Total Required Credits	60

Degree: Associate of General Studies Production and Design Technology

The Production and Design emphasis within the Multimedia Technology Department prepares students for work in various multimedia arenas including; informational kiosks, corporate and educational training, interactive games and interactive CD-ROM production. Students are exposed to many other aspects of multimedia production such as sound and digital editing, web page and site design and production and motion graphics.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 103	Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 113	QuarkXpress	3
MGD 118	Digital Color Theory	3
MGD 161	Director I	3
MGD 259	Management and Production	3

Faculty Advisor Approved Electives from MGD 3

Required General Education Courses

English/Speech	6
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Mathematics	3-5
MAT 120 or above	3
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)	9
Arts and Humanities (ART, LIT, MUS, PHI, THE)	9
Science (AST, BIO, CHE, GEY, PHY)	8

Total Required Credits 60

Degree: Associate of General Studies Motion Graphics Animation

The Motion Graphics Animation emphasis within the Multimedia Technology Department prepares students for work in digital 3-D animation modeling environments. Students combine traditional artistic skills of drawing, design and sculp-

ture with a touch of video, lighting and special effects training. The student mix these skills with their expertise in object modeling and computer generated animation techniques to produce complete 3-D animation projects.

Required Multimedia Courses

MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 153	3D Animation I	3
MGD 155	LightWave I	3
MGD 165	After Effects I	3
MGD 175	Maya I	3

Required Art Courses

ART 121	Drawing I	3
ART 132	3D Design	3
ART 156	Figure Drawing I	3

Required General Education Courses

English/Speech		6
ENG 121	English Composition I	3
ENG 122	English Composition II	3
Mathematics		3-5
MAT 120	or above	3
Social and Behavioral Science (ANT, GEO, HIS, POS, PSY)		9
Arts and Humanities (ART, LIT, MUS, PHI, THE)		9
Science (AST, BIO, CHE, GEY, PHY)		8
Total Required Credits		60

Certificate: Graphics and Animation Technology

The Graphics and Animation area prepares students for careers in printing, graphic design, and web publishing. An established industry, the printing/graphics industry has many job opportunities and exciting projects to work on in the Denver Metro area.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 103	Production Design	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 113	QuarkXPress	3
MGD 118	Digital Color Theory	3
MGD 153	3D Animation I	3
MGD 211	Adobe Photoshop II	3
MGD 213	Electronic Prepress	3
Faculty Advisor Approved Electives from MGD		3
Total Required Credits		30

Certificate: Production and Design Technology

The Production Design Technology area prepares students for the production of CD-ROM and DVD titles. There are many ways to take advantage of this technology, some we probably haven't even thought of yet. The most common projects are: electronic books and magazines, informational kiosks, interactive games, and corporate training. This exciting new industry is exploding and our students will have the necessary skills.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 102	Intro. to Multimedia	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 161	Director I	3
MGD 163	Sound Design I	3
MGD 164	Digital Video Editing I	3
MGD 165	After Effects I	3
MGD 259	Management and Production	3
Faculty Advisor Approved Electives from MGD		3
Total Required Credits		30

Certificate: Motion Graphics Animation

The Motion Graphics Animation area prepares students for 3-D Animation production work. Students gain skills for entry-level jobs in the fields of TV and movie production as well as presentation design.

Required Multimedia Courses

MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 153	3D Animation I	3
MGD 155	LightWave I	3
MGD 165	After Effects I	3
MGD 175	Maya I	3
MGD 255	LightWave II	3
Required Art Courses		
ART 121	Drawing I	3
ART 132	3-D Design	3
ART 156	Figure Drawing I	3
Total Required Credits		30

Certificate: Web Page Design

Web Page Design Certificate within the Multimedia Technology Department prepares students for work in various levels of website production. Students learn the importance of page layout and design as well as site design.

Required Multimedia Courses

MGD 101	Intro. to Computer for Graphics	3
MGD 111	Adobe Photoshop I	3
MGD 112	Adobe Illustrator I	3
MGD 141	Web Design I	3
MGD 241	Web Design II	3
Total Required Credits		15

Certificate: Advanced Web Page Design

Students evaluate the look and feel of sites and learn HTML and HTML editors. Students are exposed to pre-production, production, and post-production concepts. Motion graphic techniques, scripting and data base skills will be developed.

Required Multimedia Courses

MGD 143	Web Motion Graphics Design I	3
MGD 145	QuickTime Technologies	3
CWB 205	Complete Web Scripting	3
MGD 258	Web Design Production	3
Elective with faculty advisor approval		3
Total Required Credits		15

Nurse Aide

Certificate: 5 Credits

Proof of immunizations, health care Provider C - BLS, and a letter from a physician stating you are physically and mentally able to participate in this course are required prior to participating in clinicals.

Information: 303.914.6621.

Required Courses

NUA 101	Nurse Aide Theory/Lab	4
NUA 170	Nurse Aide Clinical	1

Painting

(See Construction Technology)

Park Ranger Technology

Certificate Programs

The Park Ranger Technology Program provides training for those of you 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 of concentration 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. Consult with the PRT program advisor 303.914.6238.

Certificate: Law Enforcement Concentration

The Law Enforcement Certificate is for those students wishing to increase their job opportunities by being qualified for full law enforcement responsibilities in the field.

Required Courses

CRJ	Post Law Enforcement Academy	30
PRA 102	Introduction to Park Ranger Technology	3
PRA 280	Park Ranger Internship	3
Total Required Credits		36

Certificate: Public Safety Concentration

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.

Required Courses

PRA	102	Introduction to Park Ranger Technology	3
PRA	280	Park Ranger Internship	3
EMS	125	EMT Basic	9
EMS	170	EMT Basic Clinical	1
FST	121	Technical Rope Rescue	4
FST	152	Intro to Wildland Firefighting	3
FST	261	Fire Operations in the Urban Interface	2

Total Required Credits 25

Certificate: Outdoor Recreation Concentration

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.

Required Courses

PRA	102	Introduction to Park Ranger Technology	3
PRA	205	Resource Interpretation	3
PRA	280	Park Ranger Internship	3

Elective Courses

HWE	121	Outdoor Emergency Care	3
HWE	129	Wilderness First Responder	4
PRA	218	Outdoor Recreation Leadership	3
PER	152	Avalanche Safety Level I	1
PED	131	Nordic Skiing	2
PED	150	Rock Climbing I	2
PED	151	Rock Climbing II	2
PED	153	Hiking	1
PED	155	Outdoor Expedition	3
PED	156	Snow and Glacier Climbing	3
PED	157	Basic Mountaineering	3
PED	129	Scuba Diving	1
PER	161	Backcountry Cooking	1
PED	163	Orienteering/Routefinding	2
PED	162	Map and Compass for the Outdoors	3
PED	154	Backpacking	2
PED	132	Snowshoeing	1

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PER	168	Outdoor Equipment and Facilities	2
PER	160	Wilderness Ethics	3
PED	165	Wilderness Survival Skills	3
PED	166	Winter Wilderness Survival Skills	2
PED	237	Paddle Sports	2
PER	240	Whitewater Rafting Guide	2
PER	253	Outdoor Leadership	2

Total Required Credits 30

Certificate: Resource Interpretation Concentration

The Resource Interpretation Certificate is for those working with resource interpretation, naturalist or other nature center work with the public.

Required Courses

PRA	102	Introduction to Park Ranger Technology	3
PRA	203	Natural Resource Management	3
PRA	205	Resource Interpretation	3
PRA	280	Park Ranger Internship	3

Total Required Credits 12

Philosophy

Degree: Associate of Arts

Philosophy is the study of basic concepts with which we construct meaning in life. It examines reasoning processes, ways of knowing, concepts of right and wrong, interpretations of reality and views of the self. The following sequence of courses provides a broad introduction to the field and prepares you for further education.

You are encouraged to consult with a Red Rocks philosophy faculty advisor before beginning any program of study.

Suggested Sequence for Full-time Students

This is a suggested sequence for completing the degree. If you are a part-time student, it will take you longer to complete the sequence. Some courses might not be offered each semester.

First Session

PHI	111	Introduction to Philosophy	3
ENG	121	English Composition I	3
SPE	115	Public Speaking	3
SOC	101	Introduction to Sociology I	3
PSY	101	General Psychology I	3

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Second Session

PHI	113	Logic	3
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SPE	230	Argumentation and Debate	3
HIS	101	Western Civilization I	3
ENG	122	English Composition II	3
MAT		Mathematics (120 or higher)	3-5

15-17

Third Session

HIS	102	Western Civilization II	3
PHI	112	Ethics	3
PHI	115	Comparative Religion	3
ANT	101	Cultural Anthropology	3

Science course⁴

16-17

Fourth Session

POS	105	Introduction to Political Science	3
		Humanities course (except Philosophy)	3
		Transferable Electives	8

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Electives

Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.

Total Required Credits 60

PED	165	Wilderness Survival Skills	3
PED	166	Winter Wilderness Survival Skills	2
PED	237	Paddle Sports	2
PER	253	Outdoor Leadership	2

Required Program Credits 16

Required General Education Courses

Communications (3 courses)	9
ENG 121 and ENG 122, SPE 115 or SPE 125	
Mathematics (1 course)	3
MAT 120, 121, 125, 135, 201, 202	
Physical Education(1 course)	1
PED 104, 106, 110, 111, 147, 153, 132 or 170	
Arts and Humanities (3 courses from 2 disciplines)	9
ART 111,112, LIT 115, 201, 202, MUS 120, 121, 122, PHI 111,112, THE 105, 211, 212	
Social and Behavioral Sciences (1 HIS and 2 others from different disciplines)	9
ANT 101, 111, GEO 105, HIS 101, 102, 201, 202, POS 105, PSY 102	
Physical Science (2 courses)	8
AST 101, 102, BIO 111, 112, CHE 101, 102, 111, 112, GEY 111, 121, PHY 112, 211, 212	
Electives from approved list	5
Total Required Credits	60

Physical Education/ Outdoor Education

Degree: Associate of Arts Emphasis in Outdoor Physical Education

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 in Physical Education with an emphasis in Outdoor Education, or to prepare yourself to apply to the Professional Teacher Education Program (PTEP). Please consult with your academic advisor and the Outdoor Physical Education faculty advisor (303.914.6238) before beginning this program. The Associate of Arts Degree with an emphasis in Outdoor Physical Education is also a stand-alone program to allow you to enter a career as an outdoor educator, wilderness guide, or to work in the outdoor retail industry.

Required Outdoor Education Program Courses

PED	150	Rock Climbing I	2
PED	151	Rock Climbing II	2
PED	162	Map and Compass	3

Outdoor Education Department Certificate Program in Outdoor Recreation Leadership

(Pending final approval)

Students completing the Outdoor Recreation Leadership Certificate Program 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 be interested in employing 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 (hard) skills, students will prepare to be future trip leaders by examining and developing the interpersonal (soft) skills needed for positions in outdoor leadership.

In order to complete the Outdoor Recreation Leadership Certificate, students must complete the following required courses and at least one area of emphasis.

Required courses	15
PER 160 Wilderness Ethics	3
PED 162 Map and Compass (GPS)	3

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PED	165	Wilderness Survival Skills	3
PER	253	Outdoor Leadership	2
HWE	121	Outdoor Emergency Care and CPR or	3
HWE	129	Wilderness First Responder	4

Emphasis: Winter Skills Specialist

This program will prepare students for work in the winter outdoor industry. Students will train for work in all traditional areas of winter outdoor safety and skills as they relate to the ski and snowboard industry, backcountry guide services, community and university outdoor programs, survival schools, and other adventure programs operating during the winter

(select 13 credits from these courses)

PED	157	Basic Mountaineering	3
PER	152	Avalanche Safety Level I	1
PED	166	Winter Wilderness Survival Skills	2
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
Total Credits (includes required courses)			27

Emphasis:

Water-based Skills Specialist

This program of study and experience will prepare you to receive individual certification from state and national agencies such as Professional Association of Diving Instructors, American Camping Association, American Canoe Association, American Sailing Association, and the state of Colorado. Students have the option to train to work in the whitewater rafting industry by meeting the qualifications as required by Colorado Statute 33-32-105.5 for Professional River Guides

(select 10 credits from these courses)

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
PED	237	Paddle Sports	2
PER	240	Whitewater Rafting/Guide	2
PED	280	Internship	3
Total Credits (includes the required courses)			25

Emphasis:

Mountaineering Skills Specialist

Students in our mountaineering skills program will have the opportunity to become familiar with all aspects of traditional climbing, mountaineering, and year-round backcountry travel. Emphasis is on modern climbing techniques, safety at high altitude, trip planning, backcountry routefinding, and expedition leadership.

(select 14 credits from these courses)

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
Total Credits (includes the required courses)			29

Emphasis:

Outdoor Recreation Generalist

Students can design their own course of study by choosing at least four credits from each of the three programs of emphasis above, in addition to the required 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 Credits (includes the required courses) 29

Physician Assistant

Certificate: 78 Credits

Master's Degree Option

Physician assistants (PAs) are healthcare providers who are authorized to practice medicine under the supervision of a licensed physician. Many PAs have already enjoyed careers as allied health personnel.

A primary mission of the Red Rocks PA Program is to prepare PAs to work in communities and patient populations deemed to be medically underserved.

The rigorous, year-round, full-time, 24-month curriculum leads to a certificate that qualifies its graduates to sit for the Physician Assistant National Certifying Examination (PANCE).

The first 12 months are devoted to classroom, laboratory and small-group work, most of which is on campus. The second 12 months are devoted to a series of off-campus clinical rotations, some of which may be scheduled at sites outside of metropoli-

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tan Denver. 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.

Program Application and Prerequisites

Candidates must submit an application through the Centralized Application Service for Physician Assistants (CASPA) and a supplemental Red Rocks PA application. A personal interview is required. The annual application deadline is December 19th, for admission the following August of each year.

At the time of application, candidates must have completed a minimum of 90 credits at a regionally accredited institution of higher education with a minimum grade point of 3.0 in the last 45 credits. At the time of application, the following courses must have been completed with a grade of C or better:

Minimum Course Credits

College algebra or higher math	4
English electives	6
Human anatomy and physiology	6
Microbiology	3
Introduction to Statistics	3
Chemistry (with either organic or biochemistry)	10
Psychology or social science electives	6

If you are selected for the Program, you will be required to take our medical terminology course in the summer before the program begins. Computer literacy must be demonstrated, either by coursework or through letters of reference.

At the time of application, candidates must have had at least 2,000 hours of direct human patient care in a formal health care setting. The many professions that meet this requirements include: pharmacist, EMT, nurse, respiratory therapist, nurse's aide, medical office assistant with direct patient care duties, x-ray or surgical technologist or exercise physiologist.

One class of 28 students is admitted in August of each year. Advanced placement and credit for prior learning are not available. Tuition is approximately \$270.55/credit for Colorado residents and \$393.90/credit for nonresidents. Student fees average \$300 per semester for all students. Tuition and fees are subject to change.

Prior to Clinical Rotations, students must undergo health screening and produce evidence of current CPR certification, and of immunization or immunity to diphtheria, tetanus, measles, mumps, rubella, varicella and hepatitis B (positive titer or immunization series), or sign a declination form and current TB screening.

Required First Year Courses

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 Laboratory Medicine	1
PAP 218	Eval. of the 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 228	Problem-Based Learning	2
PAP 230	Pharmacology I	1
PAP 231	Pharmacology II	3
PAP 235	Human Pathology,	4
PAP 240	Behavioral Science in Primary Care	3
Total first Year Credits		42

Required Second Year Course

PAP 261 - 269	36
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Clinical rotations in family medicine, internal medicine, pediatrics, emergency medicine, surgery, women's health, orthopedics, geriatrics and psychiatry.

Total Certificate Credits	78
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International transcripts must be evaluated by an agency acceptable to Red Rocks. A TOEFL test with a paper-based score of at least 600 is required of international candidates whose primary language is other than English or whose transcripts reflect course work not taught in English. An essential packet of materials, including CASPA information, is available online at www.rbcc.edu/pa, or by calling 303.914.6386.

Physics

Degree: Associate of Science

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. You are urged to consult with a physics faculty advisor before beginning any program of study. Some courses might not be offered each semester.

If you are planning to major in physics at a four-year college or university, you will find MAT 201 Calculus I is the (lowest level) mathematics course in which the credits earned will count toward a BA or a BS degree. If you are a student just entering and are not prepared to take MAT 201, you will need to take the pre-requisite course(s) The credits earned in the pre-requisite course(s) will not count toward a BA or a BS degree.

Recommended Courses		36
CHE 111	General College Chemistry I	5
CHE 112	General College Chemistry II	5
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
General Education Transfer Requirements		
Communications (2 courses)		
ENG 121	English Composition I	3
ENG 122	English Composition II	3
Arts and Humanities (3 courses: Select courses from 2 different areas): 9		
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		
Social and Behavioral Sciences (3 courses: Select 1 HIS and 2 from 2 different disciplines): 9		
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		
Total Required Credits		60

Pipefitting/Pipe Trade Plumbing

(See Construction Technology)

Political Science

Degree: Associate of Arts

Political science is the study of how political systems are created, the nature of the social contracts between people and governments, political parties, political behavior and the evolution of political institutions. 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 political science.

You are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses

ECO 201	Principles of Macroeconomics	3
ECO 202	Principles of Microeconomics	3
HIS 137	Contemporary World History	3
HIS 201	U. S. History I	3
HIS 202	U. S. History II	3
POS 105	Introduction to Political Science	3
POS 111	American Government	3

General Education Transfer Requirements for the AA degree:

Communications (2 courses)		
ENG 121	English Composition I	3
ENG 122	English Composition II	3

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Arts and Humanities (3 courses from 2 areas) 9		
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212		
Mathematics (1 course) 3		
MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202		
Social and Behavioral Sciences (1 HIS, 2 from different disciplines) 9		
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102		
Physical and Life Sciences (2 courses)		
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212		
RRCC Requirement for the Associates of Arts Degree		
SPE 115 or 125 3		
Electives		
Electives must be selected from college-level transfer courses. No more than three credits in physical education may be counted.		
Total Required Credits		60

Pre-Nursing

If you are interested in nursing, you may take courses which will transfer. Admission and course requirements vary among nursing programs; therefore, you are encouraged to work closely with an advisor in the college or university offering the program.

Recommended courses

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

Electives

Electives must be selected from art, foreign languages, history, humanities, philosophy, political science, medical terminology and ethics in health care.

Note: Completion of course work at Red Rocks does not guarantee acceptance into a nursing program.

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Production and Design Technology

(See Multimedia Technology)

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. 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 psychology.

You are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses

PSY 101	General Psychology I	3
PSY 102	General Psychology II	3
Choose from one of the 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

General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):	6
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Arts and Humanities (3 courses : Select courses from 2 different areas):	9
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212	
Mathematics (1 course)	3
MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202	
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102	
Physical and Life Sciences(2 courses):	8
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212	

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RRCC Requirement for the Associates of Arts Degree

SPE 115 or 125	3
Electives	23
Biology and chemistry are highly recommended for psychology majors transferring to the university level. All psychology majors should check with the Transfer Center on campus to help determine the best electives for the university they will be attending. All electives must be chosen from transfer courses.	
Total Required Credits	60

Public Administration

Degree: Associate of Arts

(Offered through CCCOnline only; for more information go to www.cconline.org).

Radiologic Technology

(In cooperation with Exempla Lutheran Medical Center and Exempla St. Joseph's Hospital)

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, these positions may allow the technologist to participate in advanced level examinations, as well 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.

Please note that interested students must apply directly to the radiography program to gain admission.

Information: **303.914.6624**.

Required Major Courses

RTE 101	Introduction to Radiology/Patient Care	2
RTE 121	Radiologic Procedures I	3
RTE 141	Radiographic Equipment and Imaging I	3
RTE 181	Clinical Internship I	5
RTE 111	Patient Care II	2
RTE 122	Radiologic Procedures II	3
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	11
RTE	289	Registry Review (Capstone)	3

Total **60**

General Education Requirements:

MAT	106	Survey of Algebra	4
PSY	101	General Psychology	3
		or	
SOC	101	Introduction to Sociology	3
BIO	106	Basic Anatomy and Physiology	4
		or	
BIO	201	Human Anatomy and Physiology I and	4
BIO	202	Human Anatomy and Physiology II	4
ENG	121	English Composition I	3
CIS	118	Introduction to PC Applications	4
		or	
CIS	124	Introduction to Operating Systems	1.33

Total **15-22**

Real Estate and Small Business Management

(See Business Administration)

Sociology

Degree: Associate of Arts

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 are appropriate for those who plan to transfer to a four-year college or university to complete a major in sociology.

You are urged to consult with a faculty advisor before beginning any program of study.

Required Courses

SOC	101	Introduction to Sociology I	3
SOC	102	Introduction to Sociology II	3

Recommended Courses

SOC	205	Sociology of Family Dynamics	3
SOC	215	Contemporary Social Problems	3

PSY	226	Social Psychology	3
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General Education Transfer Requirements for the Associates of Arts Degree:

Communications (2 courses):			
ENG	121	English Composition I	3
ENG	122	English Composition II	3
Arts and Humanities (3 courses : Select courses from 2 different areas):			
9			

ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212			
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Mathematics (1 course):			
3			

MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202			
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Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):

9:			
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102			

Physical and Life Sciences(2 courses):			
8			

AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212			
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RRCC Requirement for the Associates of Arts Degree:

SPE 115 or 125			
3			

Total Required Credits **60**

Speech Communication

Degree: Associate of 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 Communication. This program provides basic preparation leading to communication-related careers such as sales, journalism, public relations, personnel, service and political careers, teaching and broadcasting.

You are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses

SPE	115	Public Speaking	3
ASL	121	American Sign Language	5
ASL	122	American Sign Language II	5
SPE	125	Interpersonal Communication	3
SPE	216	Principles of Speech Communication II	3
SPE	217	Group Communication	3
SPE	220	Intercultural Communication	3
SPE	230	Argumentation and Debate	1-3
or			

opportunities, options, excellence

SPE 275 Special Topics	1
General Education Transfer Requirements for the Associates of Arts Degree	
Communication (2 courses):	6
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Arts and Humanities (3 courses from 2 different areas):	9
ART 111, ART 112, LIT 115, LIT 201, LIT 202, MUS 120, MUS 121, MUS 122, PHI 111, PHI 112, THE 105, THE 211, THE 212	
Mathematics (1 course):	3
MAT 120, MAT 121, MAT 125, MAT 135, MAT 201, MAT 202	
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, ANT 111, GEO 105, HIS 101, HIS 102, HIS 201, HIS 202, POS 105, PSY 102	
Physical and Life Sciences (2 courses):	8
AST 101, AST 102, BIO 111, BIO 112, CHE 101, CHE 102, CHE 111, CHE 112, GEY 111, GEY 121, PHY 111, PHY 112, PHY 211, PHY 212	
RRCC Requirement for the Associates of Arts Degree:	
SPE 115 or 125	3

General Education Transfer Requirements for the Associates of Arts Degree:	
Communications (2 courses):	
ENG 121 English Composition I	3
ENG 122 English Composition II	3
Arts and Humanities (3 courses : Select 3 courses from 2 different areas):	9
ART 111, 112; LIT 115, 201, 202; MUS 120, 121, 122; PHI 111, 112; THE 105, 211, 212	
Mathematics (1 course)	
MAT 120, 121, 125, 135, 201, 202	3
Social and Behavioral Sciences (3 courses : Select 1 HIS and 2 from 2 different disciplines):	9
ANT 101, 111; GEO 105; HIS 101, 102, 201, 202; POS 105; PSY 102	
Physical and Life Sciences (2 courses):	8
AST 101, 102; BIO 111, 112; CHE 101, 102, 111, 112; GEY 111, 121; PHY 111, 112, 211, 212	
RRCC Requirement for the Associates of Arts Degree:	
SPE 115 or 125	3
Total Required Credits	60

Theatre Arts

Degree: Associate of 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. Students are urged to consult with a faculty advisor before beginning any program of study.

Recommended Courses

THE 105	Introduction to Theatre Arts	3
THE 111	Acting I	3
THE 116	Technical Theatre	3
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:

DAN 154	Dance and Stage Movement	3
DAN 224	Dance for the Musical Theatre	3
THE 210	Singing for Actors	3
THE 215	Playwriting	3

Choose two courses from the following for a total of 6 credits:

THE 131	Theatre Production I	3
THE 132	Theatre Production II	3
THE 231	Theatre Production III	3
THE 232	Theatre Production IV	3

or any THE course not listed above

Degree: Associate of Arts Emphasis in Musical Theatre

The following courses prepare students for musical stage performance and are appropriate for those who plan to transfer to a four-year college or university to complete a major in musical theatre performance. Required for the Associate of Arts are 38 credits in the general education transfer curriculum. To complete the emphasis in musical theatre, 22 credits in theatre arts are required. These 22 credits are as follows:

THE 105	Introduction to Theatre Arts	3
THE 111	Acting I	3
THE 125	Individual Singing Lessons for Musical Theatre	0.5
	or	
THE 206	Voice Practicum	1-3
THE 126	Auditioning for Musical Theatre	3
	or	
THE 145	Audition	1
THE 135	Stage Makeup I	2
THE 136	Stage Makeup II	2
DAN 154	Dance and Stage Movement	3
THE 210	Singing for Actors	3
	or	
THE 240	Voice and Diction	3
DAN 224	Dance for Musical Theatre	3
	or	

Any THE course not listed here

Theatre Technology

Degree: Associate of Applied Science

Certificate: Variable Credits

This program, a two-year course of study, will prepare students 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 for students who want to pursue advanced degrees at four-year institutions in theatre design and technology.

Required Courses

THE	105	Introduction to Theatre Arts	3
THE	116	Technical Theatre	3
THE	130	Safety: Tools and Materials	3
THE	131	Theatre Production I	3
THE	135	Stage Makeup I	2
THE	120	Drafting for the Performing Arts	3
		or	
THE	200	Painting, Drawing, Rendering, Model Techniques	3
		or	
		Any ART drawing class or basic drafting course	
THE	136	Stage Makeup II	2
THE	151	Stagecraft I	3
THE	216	Theatre Lighting and Design	3
THE	211	Development of Theatre I	3
THE	152	Production Stage Management I	3
THE	132	Theatre Production II	3
THE	212	Development of Theatre II	3
THE	221	Set Design	3
THE	241	Stage Properties	3
THE	245	Basic Costume Design and Construction	3
		or	
THE	104	Basic Costume Construction	3
THE	270	Resume and Portfolio Development	1
THE	284	Theatre Technology Internship (Field Education)	1-6
		General Education Requirements	15

Certificate: Costume and Fashion Design

Students who earn this certificate will be prepared for entry-level employment in costume and fashion-design careers as stitchers, wardrobe managers, costume shop managers, workers in alterations and tailoring, makeup artists, window dressers, and other fashion and entertainment-related positions. This certificate also prepares students interested in pursuing an advanced degree in costume design and in the fashion industry.

THE	104	Basic Costume and Apparel Construction	3
THE	105	Introduction to Theatre Arts	3
THE	109	Basics of Pattern Drafting	3
THE	132	Theatre Production II	3
THE	135	Stage Makeup I	2
THE	136	Stage Makeup II	2
THE	165	The Costume and Fashion Industry	3
THE	237	History of Costumes and Fashion	3
THE	235	Costume Shop Organization	2
THE	245	Basic Costume Design and Construction	3
THE	284	Theatre Internship	1-6
		Total Required Credits	28-33

Certificate: Stage Carpentry

This course of study trains students for entry-level positions as backstage technicians, running crew members, shop assistants, crew leaders, properties assistants, and set builders. Related professions that students might consider after earning this certificate are carpentry, cabinet making, and careers requiring construction skills.

SPE	125	Interpersonal Communications	3
THE	105	Introduction to Theatre Arts	3
THE	116	Technical Theatre	3
THE	130	Safety: Tools and Materials	3
THE	132	Theatre Production II	3
THE	151	Stagecraft I	2
THE	216	Theatre Lighting and Design	3
THE	221	Set Design	3
THE	241	Stage Properties	3
THE	284	Theatre Internship	1-6
		Total Required Credits	28-33

Water Quality Management Technology

Degree: Associate of Applied Science

The Water Quality Management Technology Program is a comprehensive study for all levels and areas of operations in the water and wastewater industry. In the program, students who are entering the industry can be introduced to the many functions and career opportunities within the field. They can then establish an educational program that best fits their goals and interests. Students who are working in the industry 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 a student all the instruction necessary for supervisory and management positions.

Information: **303.914.6325**.

Required Major Courses 34

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 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

General Education Requirements 15

English/Speech (ENG, SPE)	3
Mathematics (100 or above)	3
Courses from 2 of these areas:	9

Humanities (ART, FRE, GER, HUM, LIT, MUS, PHI, SPA, THE), Science (AST, BIO, CHE, GEY, PHI), Behavioral science (ANT, ECO, GEO, HIS, POS, PSY, SOC)

Other Required Courses

CIS 118	Introduction to PC Applications	4
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Elective Courses (or other courses as approved) 9

WQM 106	Mechanical-Physical Treatment	3
WQM 107	Biological Treatment	3
WQM 108	Sludge Treatment	3
WQM 109	Water Distribution	3
WQM 115	Water Sources and Supply	3

WQM 116	Water Pre-treatment	3
WQM 117	Domestic Water Treatment Process	3
WQM 118	Wastewater Collection Systems	3
WQM 121	Environmental Sampling and Volume Measurement	3
WQM 122	Basic Electricity for Water Quality Systems	3
WQM 124	Water Certification Review for Class C and D2	
WQM 125	Water-Wastewater Certification Review for Class C and D	2
WQM 207	Operations and Control of Activated Sludge Systems	4
WQM 208	Advanced Wastewater Treatment	3
WQM 230	Industrial Monitoring and Treatment	3
WQM 299	Independent Study	1-6
Total Required Credits		62

Woodworking

(See Construction Technology)



Course Descriptions

Here you'll 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 students to select courses and transfer between state colleges.

AAA- Academic Achievement

AAA 090 Academic Achievement Strategies 3 credits

Develops personalized approaches to learn and succeed for easier transition into college. Topics include goal-setting, time management, textbook reading strategies, note-taking, test-taking, listening techniques, concentration and memory devices, and critical thinking for student success.

ACC- Accounting

www.rccc.edu/business

ACC 101 Fundamentals of Accounting 3 credits

This course 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 121 Accounting Principles I 4 credits

Prerequisites: College-level reading, study skills and general mathematics

This course 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 Accounting Principles I or equivalent

This course 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 131 Income Tax 3 credits

Prerequisite: ACC 121 strongly recommended

This course 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 or spreadsheet experience

This course introduces spreadsheets as an accounting tool. Using an accounting perspective, you apply fundamental spreadsheet concepts. The spreadsheets are used as a problem solving and decision making tool.

ACC 138 Payroll and Sales Tax 3 credits

Prerequisite: ACC 101, ACC 121 or equivalent knowledge

This course acquaints students with laws pertaining to payroll and sales taxes including record keeping rules. Students 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

This course 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

This course 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

This course 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 or equivalent with minimum grade of C

This course 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

This course continues 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

This course integrates accounting principles and practices with a computerized accounting package such as Peachtree, DacEasy, or other professional package. 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

This course provides students with a vehicle to pursue in depth exploration of special topics of interest.

ACC 285 Independent Study

1-3 credits

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

ACC 287 Cooperative Education

1-3 credits

Prerequisite: Permission of instructor

This course provides an opportunity to gain practical experience in applying occupational skills and/or to develop specific skills in a practical work setting. The instructor works with you to select an appropriate work site, establish learning objectives, and coordinate learning activities with the employer or work site supervisor. For accounting majors only.

ASL- American Sign Language

www.rccc.edu/languages

ASL 121 American Sign Language I

5 credits

Exposes you to American Sign Language. Readiness activities are conducted focusing on visual/receptive skills and basic communication. Uses the direct experience method. Students 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.

Co-requisite: Permission of instructor.

Develops a basic syntactic knowledge of American Sign Language (ASL), basic vocabulary and basic conversational skills. Incorporates vital aspects of deaf culture and community. The direct experience method is used to enhance the learning process. Students 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.

ANT- Anthropology

www.rccc.edu/humanities/ant

ANT 101 Cultural Anthropology

3 credits

Studies human cultural patterns and learned behavior. Includes linguistics, social and political organization, religion, culture and personality, culture change, and applied anthropology.

ANT 111 Physical Anthropology

3 credits

Studies human biology and its effects on behavior. Includes principles of genetics and evolution, vertebrates and primates, human origins, human variation, and ecology.

ARE- Apprentice-Related Technology

ARE 112 Electrical I

3 credits

Presents general safety, tools of the electrical trade, contractor owned tools, trade history and introduces electrical theory, conduit outlet boxes and the National Electrical Code. Explores the sources of electricity, trade math, laws of electricity, series circuits, parallel circuits and series parallel circuits. Other topics include organization of the National Electrical Code, magnetism laws, wire devices, service boxes connectors, conduit bending, conductors and insulators, insulation and pulling large and small wires.

ARE 122 Electrical II

4 credits

Prerequisite: ARE 112 or permission of coordinator

Presents general safety, tools of the electrical trade, contractor owned tools, trade history and introduces electrical theory, conduit outlet boxes and the National Electrical Code. Explores the sources of electricity, trade math, laws of electricity, series circuits, parallel circuits and series parallel circuits. Covers magnetism laws, wire devices, service boxes connectors, conduit bending, conductors and insulators, insulation and pulling large and small wires.

ARE 132 Electrical III

4 credits

Prerequisite: ARE 122 or permission of coordinator

Covers blueprint symbols, blueprint reading, schedules and specifications, instruments and meters, characteristics of induction and AC capacitance. Includes series circuits (AC), parallel circuits (AC), over-current protection, fuses, circuit breakers, ducting, installing cable tray, wireways and surface metal raceways, main service equipment subpanels, grounding conductors, metallic sheathed cable and special wires and cords. In addition, this course introduces alternating current, Ohm's Law for Alternating Current, the theory of grounding and the general requirements of wiring.

ARE 142 Electrical IV**4 credits**

Prerequisite: 132 or permission of coordinator

Covers blueprint symbols, blueprint reading, schedules and specifications, instruments and meters, characteristics of induction and AC capacitance.

Other topics include series circuits (AC), parallel circuits (AC) over-current protection, fuses, circuit breakers, ducting, installing cable tray, wireways and surface metal raceways, main service equipment subpanels, grounding conductors, metallic sheathed cable and special wires and cords.

Introduces alternating current, Ohm's Law for Alternating Current, the theory of grounding and the general requirements of wiring.

ARE 152 Electrical V**4 credits**

Prerequisite: ARE 142 or permission of coordinator

Presents hazardous locations, electrical safety, reading diagrams, lighting fundamentals, fluorescent lighting, high intensity discharge lighting, fundamentals of DC motors, DC motors and generators, fixed generators and portable generators. Explores residential calculations, fixed electric space heating, fundamentals of AC motors, control of motor starting, single phase motors and polyphase motors. Covers the general requirements for commercial wiring and busways, as well as motor circuit, code, types of motors, wire sizing, overload protection, motor connections and over-current protection.

ARE 157 Electrical VI**4 credits**

Prerequisite: ARE 152 or permission of coordinator

Presents hazardous locations, electrical safety, reading diagrams, lighting fundamentals, fluorescent lighting, high intensity discharge lighting, fundamentals of DC motors, DC motors and generators, fixed generators and portable generators. Explores residential calculations, fixed electric space heating, fundamentals of AC motors, control of motor starting, single phase motors and polyphase motors. In addition, this course covers the general requirements for commercial wiring and busways, as well as motor circuit, code, types of

motors, wire sizing, overload protection, motor connections and over-current protection.

ARE 167 Electrical VIII**4 credits**

Prerequisite: ARE 162 or permission of coordinator

Explores tool and material takeoffs, electrical safety, reading diagrams, journey person responsibilities, low voltage lighting control, emergency lighting, special systems, transformer connections, solid state fundamentals and advanced meter applications. This course also covers high voltage fundamentals, special occupancies and equipment, resistive heating cables and special terminations.

ARE 113 Masonry I**4 credits**

Introduces students to the masonry trade. Covers the history of the trade, safety, tools and equipment, masonry math, mortar joints and applications, and brick materials layout. The ability to lift 80 pounds and climb a 25-foot ladder is required.

ARE 123 Masonry II**4 credits**

Prerequisite: ARE 113 or permission of coordinator

Introduces students to the masonry trade. Covers the history of the trade, safety, tools and equipment, masonry math, mortar joints and applications, and brick materials layout. The ability to lift 80 pounds and climb a 25-foot ladder is required.

ARE 133 Masonry III**4 credits**

Prerequisite: ARE 123 or permission of coordinator

Covers materials handling and storage, advanced laying techniques, control joints, corners and poles, flashing and lintels, elevated masonry, commercial and residential drawings, all-weather masonry, wall insulation, openings, columns, sample panels and prisms. Evaluation ends the second year of Masonry.

ARE 143 Masonry IV**4 credits**

Prerequisite: ARE 133 or permission of the coordinator

Covers materials handling and storage, advanced laying techniques, control joints, corners and poles, flashing and lintels, elevated masonry, commercial and residential drawings, all-weather masonry, wall insulation, openings, columns, sample panels and prisms. Evaluation ends the second year of Masonry.

ARE 153 Masonry V**4 credits**

Prerequisite: ARE 143 or permission of the coordinator

Covers safety panels and prisms, brick creativity, stone work, residential masonry, glass block, acid brick and refractories, structured glazed tile, repair and restoration, panel construction, welding and brick paving.

ARE 163 Masonry VI**4 credits**

Covers safety panels and prisms, brick creativity, stone work, residential masonry, glass block, acid brick and refractories, structured glazed tile, repair and restoration, panel construction, welding and brick paving.

Prerequisite: ARE 153 or permission of coordinator

ARE 111 Painting I**4 credits**

Covers safety, math, careers, hand and power tools, blueprints, rigging, ladders, scaffold, lifts, fall protection, materials and conditions, preparation, sealants and fillers, paints and coatings, brushing and rolling paints, and coatings.

ARE 121 Painting II**4 credits**

Prerequisite: ARE 111 or permission of coordinator

Focuses on safety, math, careers, hand and power tools, blueprints, rigging, ladders, scaffold, lifts, fall protection, materials and conditions, preparation, sealants and fillers, paints and coatings, brushing and rolling paints, and coatings.

ARE 131 Painting III**4 credits**

Prerequisite: ARE 121 or permission of coordinator

Focuses on job planning, stains, coatings, water and chemical cleaning, spray painting, remedies, wall coverings, wood finishing, graphics, and glazing and antiquing.

ARE 141 Painting IV**4 credits**

Prerequisite: ARE 131 or permission of coordinator

Focuses on job planning, stains, coatings, water and chemical cleaning, spray painting, remedies, wall coverings, wood finishing, graphics, and glazing and antiquing.

ARE 151 Painting V**4 credits**

Prerequisite: ARE 141 or permission of coordinator

Covers trade history, math and measurement, color and sheen, spraying special devices, wallcovering failures and remedies, surface preparation, adhesives and installation, stenciling, gliding lining and stripping, texturing, caulks, roof coatings, finishing, waterproofing, and floor coatings.

ARE 156 Painting VI**4 credits**

Prerequisite: ARE 151 or permission of the coordinator

Covers trade history, math and measurement, color and sheen, spraying special devices, wallcovering failures and remedies, surface preparation, adhesives and installation, stenciling, gliding lining and stripping, texturing, caulks, roof coatings, finishing, waterproofing, and floor coatings.

ARE 114 Plumbing I**4 credits**

Introduces the plumbing trade and covers topics including plumbing careers, trade regulations and safe and effective use of tools. Focuses on First Aid, OSHA, plumbing math, related science and installation practices. Beginning blueprint reading completes year one of Plumbing and Pipefitting. The ability to lift 80 pounds and climb a 25 foot ladder is required.

ARE 124 Plumbing II**4 credits**

Prerequisite: ARE 114 or permission of coordinator

Introduces the plumbing trade and covers topics including plumbing careers, trade regulations and safe and effective use of tools. Covers first aid, OSHA, plumbing math, related science and installation practices. Beginning blueprint reading completes year one of Plumbing and Pipefitting. The ability to lift 80 pounds and climb a 25 foot ladder is required.

ARE 134 Plumber and Pipefitter III**4 credits**

Prerequisite: ARE 124

Teaches the specific aspects of water piping materials, additional plumbing math, sewage disposal, blueprint reading, shielded welding and water properties. Safety and rigging concepts end the second year of this course.

ARE 144 Plumber and Pipefitter IV**4 credits**

Prerequisite: ARE 134 or permission of the coordinator

Teaches the specific aspects of water piping materials, additional plumbing math, sewage disposal, blueprint reading, shielded welding and water properties. Safety and rigging concepts ends the second year of this course.

ARE 154 Plumber and Pipefitter V**4 credits**

Prerequisite: ARE 144 or permission of the coordinator

Covers additional installation practices and trade math, and explores fuel piping, gas codes studies and energy and temperature transfer. Aspects of water treatment and further blueprint reading completes this course.

ARE 158 Plumber and Pipefitter VI**4 credits**

Prerequisite: ARE 154 or permission of coordinator

Covers additional installation practices and trade math, and explores fuel piping, gas codes studies and energy and temperature transfer. Aspects of water treatment and further blueprint reading complete this course.

ARE 164 Plumber and Pipefitter VII**4 credits**

Prerequisite: ARE 158 or permission of coordinator

Covers aspects of drainage, fuel gas piping, sizing, waste systems, one-and two-pipe systems and hydraulics. Shop drawings, plumbing code definitions and portable water systems complete this course.

ARE 168 Plumber and Pipefitter VIII**4 credits**

Prerequisite: ARE 164 or permission of coordinator

Covers aspects of drainage, fuel gas piping, sizing, waste systems, one-and two-pipe systems and hydraulics. Shop drawings, plumbing code definitions and portable water systems complete this course.

ARE 115 Sheet Metal I**4 credits**

Introduces safety, shop/trade mathematics, the principles of layout, the elements of blueprint reading and fabrication. This course also covers the various tools, fasteners, metals and sheet metal processes.

ARE 125 Sheet Metal II**4 credits**

Prerequisite: ARE 115 or permission of the coordinator

Introduces safety, shop/trade mathematics, the principles of layout, the elements of blueprint reading and fabrication. This course also covers the various tools, fasteners, metals and sheet metal processes.

ARE 135 Sheet Metal III**4 credits**

Prerequisite: ARE 125 or permission of the coordinator

Introduces parallel line development, triangulation, radial line development and expands your knowledge of trade mathematics. Presents soldering and brazing, hangers and supports, insulation, gutters and downspouts, flashing and hoods and ventilators.

ARE 145 Sheet Metal IV

4 credits

Prerequisite: ARE 135 or permission of the coordinator

Introduces parallel line development, triangulation, radial line development and expands your knowledge of trade mathematics. This course also presents soldering and brazing, hangers and supports, insulation, gutters and downspouts, flashing and hoods and ventilators.

ARE 155 Sheet Metal V

4 credits

Prerequisite: Are 145 or permission of the coordinator.

Introduces welding, brazing and cutting. The principles of air flow, equipment, fiberglass and PVC ducts, blue-print specifications and field measuring and fitting are also explored in this course.

ARE 159 Sheet Metal VI

4 credits

Prerequisite: ARE 155 or permission of coordinator

Introduces welding, brazing and cutting. The principles of air flow, equipment, fiberglass and PVC ducts, blue-print specifications and field measuring and fitting are also explored in this course.

ARE 165 Sheet Metal VII

4 credits

Prerequisite: ARE 159 or permission of coordinator

Explores shop production and organization, air balance, duct design fundamentals and duct standards. This course also covers carbon arc welding, bend allowances, louvers, dampers and access doors, rigging and hoisting, fume and exhaust systems design and the principles of refrigeration.

ARE 169 Sheet Metal VIII

4 credits

Prerequisite: ARE 165 or permission of coordinator

Explores shop production and organization, air balance, duct design fundamentals and duct standards. This course also covers carbon arc welding, bend allowances, louvers, dampers and

access doors, rigging and hoisting, fume and exhaust systems design, and the principles of refrigeration.

ART- Art

www.rrcc.edu/art

ART 110 Art Appreciation

3 credits

Introduces the cultural significance of the visual arts, including media, processes, techniques, traditions, and terminology.

ART 111 Art History I

3 credits

Provides the knowledge base to understand the visual arts, especially as related to Western culture. Surveys the visual arts from the Ancient through the Medieval periods.

ART 112 Art History II

3 credits

Provides the knowledge base to understand the visual arts, especially as related to Western culture. Surveys the visual arts from the Renaissance through the Modern periods.

ART 121 Drawing I

3 credits

Investigates the various approaches and media that students need in order to develop drawing skills and visual perception.

ART 122 Drawing II

3 credits

Prerequisite: ART 121 or permission of instructor

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

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

Continues the study of watercolor techniques, emphasizing original compositions and experimentation with materials. Color theory is included.

ART 131 2-D Design

3 credits

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

Focuses on learning to apply the elements and principles of design to three-dimensional problems.

ART 141 Jewelry and Metal Work I

3 credits

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

Emphasizes conceptual design development, using casting and specialized techniques.

ART 146 Stained Glass I

3 credits

Develops a basic understanding of and approach to stained glass. Students 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

A continuation of Stained Glass I. Students advance to a clearer but still basic understanding of and approach to stained glass. Students gain a greater

understanding of and appreciation for the properties of glass and the nature of finished stained glass construction.

ART 154 Sculpture I

3 credits

Prerequisite: ART 131, ART 132, or permission of instructor

Introduces the fundamentals of sculpture such as modeling, casting, carving, and the processes of assemblage.

ART 155 Sculpture II

3 credits

Prerequisite: ART 154 or permission of instructor

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

Introduces the basic techniques of drawing the human figure.

ART 157 Figure Painting I

3 credits

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 161 Ceramics I

3 credits

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

A continuation of ART 161, this course emphasizes skill, technique and form.

ART 163 Handbuilt Clay I

3 credits

Provides instruction in several methods of handbuilding and the study of functional and decorative design elements.

ART 164 Handbuilt Clay II

3 credits

Prerequisite: ART 163

Provides continued instruction in various methods of handbuilding.

ART 175 Special Topics

1-6 credits

Prerequisite: Permission of instructor

Covers specific topics in art. This course is offered as needed for credit appropriate to the topic and each offering includes a description of the topic(s).

ART 185 Independent Studies

1-6 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

ART 211 Painting I

3 credits

Prerequisite: ART 121, ART 131 or permission of instructor

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

This course 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

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

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

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

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

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

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

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. May include introduction to relief, intaglio, lithography and screen printing techniques.

ART 226 Printmaking II**3 credits**

Prerequisite: ART 225 or permission of instructor

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. May include introduction to relief, intaglio, lithography and screen printing techniques.

ART 231 Advanced 2D Design**3 credits**

Prerequisite: ART 131

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

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 241 Jewelry and Metal Work III**3 credits**

Prerequisite: ART 142 or permission of instructor

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

Provides continued study of the properties of metal and stone in creating decorative work. Students 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 246 Stained Glass III**3 credits**

Prerequisite: ART 147

Provides continued instruction in which students advance to a clearer and more advanced understanding and approach to stained glass. Students gain a greater understanding of and appreciation for the properties of glass and the nature of finished stained glass construction. Emphasizes original, personal expression.

ART 247 Stained Glass IV**3 credits**

Prerequisite: ART 246

Continues instruction in stained glass with students advancing to a clearer understanding and approach. Students gain greater appreciation for the properties of glass and the nature of finished stained glass construction. Focuses on original, personal expression. Student independence is emphasized with regard to use of material and tools and a wide variety of glass.

ART 254 Sculpting the Figure**3 credits**

Focuses on sculpting the human figure using modeling techniques in clay.

ART 256 Advanced Figure Drawing**3 credits**

Prerequisite: ART 156

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

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

Encourages students 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

Continues advanced work with emphasis on various clay bodies, unique glazes and engobes, combining different textures and shapes, and development of personal forms.

ART 263 Handbuilt Clay III**3 credits**

Prerequisite: ART 164

Covers advanced problems with importance placed on large-scale pieces that promote creativity with techniques and combinations of different textures.

ART 264 Marketing for the Visual Artist**3 credits**

Prerequisite: 12 credits of any combination of ART courses

Provides students 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. 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

Focuses on advanced individual sculpture projects, emphasizing experimentation with materials, accomplished technique and conceptual significance.

ART 269 Ceramic Sculpture**3 credits**

Explores a variety of processes to create three-dimensional images in clay. Focuses on hand-built sculptures, without using a potter's wheel and relying on very basic tools. Encourages creative experimentation and engagement in the process.

ART 275 Special Topics**1-6 credits**

Prerequisite: Permission of instructor

Covers specific topics in art. This course is offered as needed for credit appropriate to the topic and each offering includes a description of the topic(s).

ART 277 Studio Art

3 credits

Designed for advanced students interested in further exploring an art discipline to develop a more comprehensive portfolio.

ART 280 Internship

1-6 credits

Prerequisite: Permission of instructor

Provides the opportunity for students 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.

ART 286 Independent Study

1-6 credits

Prerequisite: Permission of instructor

Provides the opportunity for students to undertake special project(s) or research in any of the disciplines involving the visual arts, including, but not limited to, gallery or museum administration, art history, graphic design, or other studio work. Instruction is provided by the instructor, and is totally based on your independent study agreement.

AST- Astronomy

AST 101 Astronomy I

4 credits

Focuses on the history of astronomy, the tools of the astronomer and the contents of the solar system, including the planets, moons, asteroids, comets, and meteoroids. Incorporates laboratory experience.

AST 102 Astronomy II

4 credits

Emphasizes the structure and life cycle of the stars, the sun, galaxies, and the universe as a whole, including cosmology

and relativity. Incorporates laboratory experience.

ACT- Automotive Collision Technology

ACT 101 Introduction to Automotive Collision Technology

4 credits

Designed as an orientation to the automotive collision repair industry.

Students 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. Focuses on general collision repair and refinishing shop safety procedures with an emphasis on personal and environmental safety issues. Students also learn the proper handling and disposal of hazardous materials.

ACT 110 Safety In Collision Repair

2 credits

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

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

Prerequisite: ACT 101 or Faculty Consent

Co-requisite: ACT 123, 221

ACT 122 Panel Repair and Replacements

3 credits

Prerequisite:: ACT 101 or Faculty Consent

Co-requisite: ACT 111, 211

Covers straightening techniques including tension pulls/stress relief, metal finishing, metal shrinking and use of fillers. Emphasizes the identification, handling and replacement of parts such as adjustment and alignment of bolt-on parts, fixed parts and accessories. Training covers the use of adhesives, sound deadeners and welding methods performed during repairs.

ACT 123 Metal Finishing and Body Filling

3 credits

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 131 Structural Damage Diagnosis

3 credits

Prerequisite:: ACT 101 or Faculty Consent

Co-requisite: ACT 132, 232

Focuses on methods of frame measurement using dimension charts and service manuals. 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. 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 or Faculty Consent

Co-requisite: ACT 131, 232

Continues the study and application of frame measurement and repair. The student applies 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

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 or Faculty Consent

Co-requisite: ACT 143

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 the student learns skills for proper removal and storage of exterior trim and protection of adjacent panels.

ACT 143 Spray Equipment Operation

2 credits

Prerequisite:: ACT 101 or Faculty Consent

Co-requisite: ACT 142

Covers the inspection, cleaning and determination of the condition of spray guns and related equipment. Students learn skills for adjusting spray guns by setting-up and testing spray gun operations.

ACT 144 Refinishing I

2 credits

Prerequisite:: ACT 142, 143

Co-requisite: ACT 242

Provides the knowledge needed for application and use of automotive paint systems. 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, the student practices correct masking and detailing techniques.

ACT 151 Plastics and Adhesives I

1 credit

Prerequisite:: ACT 101 or Faculty Consent

Co-requisite: ACT 251, 257

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 160 Custom Painting

3 credits

This course provides instruction in basic custom paint application such as pearl paints, candy colors, metal flakes, etc.

ACT 161 Automotive Graphics and Designs

3 credits

Prerequisite:: ACT 160

This course provides instruction in the application of graphics and designs to an automotive finish. These designs include striping, flames, paint fades, and graphics, etc.

ACT 162 Automotive Air Brushing and Murals

3 credits

Prerequisite:: ACT 161

This course provides instruction in the use of airbrush equipment to produce murals. Instruction in mural layout background, foreground, and fine detail will be provided.

ACT 163 Automotive Special Effects and Refinishing

3 credits

Prerequisite: ACT 162

This course provides instruction in the different types of design effects that can be achieved through special techniques.

ACT 170 Automotive Collision Technology Lab Experiences I

1-9 credits

Prerequisite: Completion of all courses in ACT specialization area.

Designed to prepare the student 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.

Course 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.

Course 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

1-9 credits

Assists students who are interested in individual topics within the normal curriculum. The student identifies and selects objectives that he/she needs 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 176 Special Topics

0-6 credits

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

ACT 177 Special Topics

0-6 credits

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

ACT 180 Automotive Collision Repair Internship Level I

1-9 credits

Prerequisite: Completion of coursework in specialized area.

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

Prerequisite: Completion of all courses in ACT specialization area

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: All of the 100 level courses and ACT 232

Initiates written estimates on damaged vehicles. Students 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 or Faculty Consent

Co-requisite: ACT 111, 122

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: ACR 219 (may be taken concurrently) or Faculty Consent

Designed as a continuation of ACR 219. Students 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 221 Moveable Glass and Hardware
2 credits

Prerequisite: ACT 101 or Faculty Consent

Co-requisite: ACT 121, 123

Covers door glass, vent windows and glass mechanisms (both electric and mechanical) with emphasis on removal and replacement. In addition, interior trim panels, seats and headliners are removed and replaced. Student learns proper care and treatment of vehicle seat protectors plus the proper use of tools required to perform these tasks.

ACT 226 Production
4 credits

Prerequisite: ACR 220 (may be taken concurrently) or Faculty Consent

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. Students also develop leadership abilities and time management skills.

ACT 231 Advanced Structural Damage Diagnosis and Repair
3 credits

Prerequisite: ACT 131, 132, 232

Co-requisite: ACT 237

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 or Faculty Consent

Co-requisite: ACT 131, 132

Covers the removal and replacement of fixed glass using manufacturer's specifications, proper tools and recommended materials. Application of skills are demonstrated and utilized for the removal and replacement of modular glass using manufacturer's specifications and procedures.

ACT 241 Paint Defects
3 credits

Prerequisite: ACT 144, 242

Co-requisite: ACT 247

Covers paint defects. Emphasizes the causes of paint defects with methods to cure problems during and after refinishing procedures. Students 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 142, 143

Co-requisite: ACT 144

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 241, 247

In this advanced course students 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

Prerequisite: ACT 101 or Faculty Consent

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

Prerequisite: ACT 101 or Faculty Consent

Co-requisite: ACT 151, 257

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 is covered.

**ACT 266 Restraint Systems
1 credit**

Students 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.

**ACT 275 Special Topics
1-9 credits**

Assists students who are interested in individual topics within the normal curriculum. The student identifies and selects objectives that he/she needs 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 276 Special Topics
0-9 credits**

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

**ACT 280 Automotive Collision
Repair Level III Internship
1-9 credits**

Prerequisite: Completion of all courses in ACT specialization area.

Individualized instruction at job site continues in this final internship. The student is encouraged to develop skills needed to enter employment in the automotive collision repair field.

**ACT 284 Automotive Collision
Repair Internship Level IV
1-9 credits**

Prerequisite: Completion of all courses in ACT specialization area

Individualized instruction at job site continues in this final internship. The student is encouraged to develop skills needed to enter employment in the automotive collision repair field.

ASE– Automotive Service Technology

**ASE 101 Auto Shop Orientation
2 credits**

Provides students 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**

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**

Covers basic operation of automotive braking systems. Includes operation, diagnosis, and basic repair of disc brakes, drum brakes, and basic hydraulic systems.

**ASE 120 Basic
Automotive Electricity
2 credits**

Introduces automotive electricity and includes basic electrical theory, circuit designs, and wiring methods. Focuses on multi-meter usage and wiring diagrams.

**ASE 123 Automotive Battery,
Starting, and Charging Systems
2 credits**

Prerequisite: ASE 120

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**

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

Focuses on lecture 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

Focuses on lecture and laboratory experiences in the diagnosis and repair of automotive emission control systems.

**ASE 140 Suspension and Steering I
3 credits**

Focuses on lecture 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**

Studies the operating principles and repair procedures relating to axle-shaft and universal joints.

**ASE 151 Automotive Manual
Transmission/Transaxles and
Clutches
2 credits**

Focuses on lecture and related laboratory experiences in the diagnosis and repair of automotive manual transmissions, transaxles and clutches and related components.

**ASE 152 Differentials and
4WD/AWD Service
2 credits**

Focuses on lecture and related laboratory experiences in the diagnosis and repair of automotive differentials, four wheel and all wheel drive units.

**ASE 160 Automotive Engine
Removal and Installation**

1 credit

Focuses on lecture and laboratory experiences in the removal and installation procedures of the automotive engine from and into front wheel and rear wheel drive vehicles.

**ASE 161 Engine, Disassembly
Diagnosis and Assembly**

5 credits

Focuses on lecture 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 163 Automotive Component
Removal and Replacement**

3 credits

Practical methods of removal and installation of engines, transmissions, transfer cases, clutch assemblies, bolt, and thread repair

**ASE 165 Automotive Machining
2 credits**

Prerequisite: ASE 101

Offers instruction in machining processes on the automotive engine using up-to-date machines to recondition connecting rods, bore engine blocks, machine heads for replaceable guides and seats. Brake drum and disc machining is also discussed.

**ASE 170 Laboratory Experience I
0-6 credits**

Continues to build upon the principles that are expected to be understood by students.

**ASE 171 Laboratory Experience II
0-6 credits**

Continues to build upon the principles that are expected to be understood by students.

**ASE 172 Laboratory Experience III
0-6 credits**

Continues to build upon the principles that are expected to be understood by students.

**ASE 175 Special Topics
0-6 credits**

Exploration of current topics, issues and activities related to one or more aspects of the named discipline.

**ASE 185 Independent Study
1-9 credits**

Co-requisite: Students must be enrolled in automotive courses totaling at least 6 credit hours.

Provides laboratory experiences with a variety of work in the areas that the student received training during previous automotive classes.

**ASE 201 Automotive
Parts Management**

1 credit

Covers instruction as to the proper methods in completing parts invoices, repair orders, sales receipts and tickets. Also included are handling and pricing procedures utilized in parts areas: warehouse distributor, jobber, retail and wholesale prices.

**ASE 202 Automotive
Service Management**

2 credits

Provides orientation in areas such as shop management, customer relations, marketing, salesmanship and work repair orders along with their application to service stations, independent repair shops, dealerships and all other automotive service centers.

**ASE 210 Brakes II
3 credits**

Prerequisite: ASE-110

Covers the operation and theory of the modern automotive braking systems. Includes operation, diagnosis, service, and repair of the anti-lock braking systems, power assist units and machine operations of today's automobile.

**ASE 220 Specialized
Electronics Training
2 credits**

Prerequisite: ASE 120

Provides a systematic approach to automotive electrical systems. Builds from the basic electrical principles and concepts through semiconductors and microprocessors. Features on-bench

exercises. Students practice diagnostic procedures that have applications to present and future automotive electronics and electrical systems.

**ASE 221 Automotive Body Electrical
4 credits**

Prerequisite: ASE 120

Provides a comprehensive study of the theory, operation, diagnosis, and repair of vehicle accessories.

**ASE 231 Automotive Computers
2 credits**

Prerequisite: ASE 120, ASE 134, ASE 220,

Focuses on lecture and laboratory experiences in the inspection and testing of typical computerized engine control systems.

**ASE 233 Fuel Injection
and Exhaust Systems
4 credits**

Prerequisite: ASE 120, ASE 134, ASE 231

Focuses on lecture 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

Emphasizes lecture and related laboratory experience in diagnostic techniques and the use of diagnostic scan tools, oscilloscopes, lab scopes, multi-meters and gas analyzers. Students diagnose live vehicle driveability problems.

**ASE 240 Suspension and Steering II
3 credits**

Prerequisite: ASE 140

Emphasizes lecture and related experiences in the diagnosis and service of electronic suspensions and steering systems and their components.

ASE 250 Automatic Transmission/Transaxle Service
1 credit

Focuses on practical methods of maintaining, servicing, and performing minor adjustments on an automatic transmission and transaxle.

ASE 251 Automatic Transmission/Transaxle Diagnosis and Assemblies
5 credits

Prerequisite: ASE 250

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

Emphasizes lecture and related laboratory experiences in the diagnosis and service of automotive heating and air conditioning systems and their components.

ASE 275 Special Topics
0-6 credits

Exploration of current topics, issues and activities related to one or more aspects of the named discipline.

ASE 277 Special Topics
0-6 credits

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

ASE 280 Internship: Basic Electrical and Engine Performance
1 credit

Prerequisite: ASE-106 Electrical and Fuel System Shop Safety

Focuses on 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 281 Internship: Basic Heavy Duty and Power Train
1 credit

Prerequisite: AUT-160 Chassis and Power Train Shop Safety

Focuses on 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 282 Internship: General (Summer)
1 credit

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 283 Internship: Advanced Electrical and Engine Performance
1 credit

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. The student registers for and takes the (ASE) Automotive Service Excellence based tests for engine performance and electrical systems.

ASE 284 Internship: Advanced Heavy Duty and Power Train
1 credit

Focuses on 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 they are enrolled in. The student registers for and takes the ASE-Automotive Service

Excellence based test for brake systems and suspension and steering.

ASE 285 Independent Study
1-6 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

ASE 287 Cooperative Education
1-9 credits

Prerequisite: 24 credit hours of automotive classes

Develops practical objectives assigned by an automotive employer providing an on-the-job learning experience at an approved automotive repair facility.

BIO- Biology

www.rccc.edu/science/biology

BIO 105 Science of Biology
4 credits

Examines the basis of biology in the modern world and surveys the current knowledge and conceptual framework of the discipline. Explores biology as a science - a process of gaining new knowledge - and the impact of biological science on society. Includes laboratory experiences. Designed for non-science majors.

BIO 106 Basic Anatomy and Physiology
4 credits

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 Practical Nursing Program, Paramedic Program and the Medical Office Technology Program.

BIO 111 General College Biology with Lab
5 credits

Examines the fundamental molecular, cellular and genetic principles characterizing plants and animals. Includes cell structure and function, and the

metabolic processes of respiration, and photosynthesis, as well as cell reproduction and basic concepts of heredity. The course includes laboratory experience.

**BIO 112 General
College Biology II with Lab
5 credits**

Prerequisite: BIO 111

A continuation of Biology I. Includes ecology, evolution, classification, structure, and function in plants and animals. This course includes laboratory experience.

**BIO 201 Human
Anatomy and Physiology I
4 credits**

Prerequisite: BIO 111 or equivalent, or permission of department chair

Focuses on an integrated study of the human body, including the histology, anatomy, and physiology of each system. Examines molecular, cellular, and tissue levels of organization plus integumentary, skeletal, articular, muscular, nervous, and endocrine systems. Includes a mandatory hands-on laboratory experience covering experimentation, microscopy, observations, and dissection. This is the first semester of a two-semester sequence.

**BIO 202 Human
Anatomy and Physiology II
4 credits**

Prerequisites: BIO 201 or equivalent, or permission of department chair

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. Includes a mandatory hands-on laboratory experience involving experimentation, microscopy, observations, and dissection. This is the second semester of a two-semester sequence.

**BIO 208 Microbiology
4-5 credits**

Prerequisites: BIO 111 or equivalent, or permission of department chair

Surveys the biology of microorganisms. Topics include microbial diversity, functional anatomy, biochemistry, genetics, ecology and disease. The mandatory laboratory allows students to experiment on, examine, culture, and identify microbes.

**BIO 211 Cell Biology
4 credits**

Prerequisite: BIO 111 or equivalent, or permission of department chair

This course is an intensive study of the cell and its organelles. Emphasis will be on the molecular mechanisms involved in cell communication, metabolism, motility, genetics, growth, and reproduction. This course requires hands-on laboratory experience.

**BIO 212 Molecular Biology
4 credits**

Prerequisite: BIO 111 or equivalent, or permission of department chair

This course is an intensive survey of molecular biology techniques and principles. Topics will include chemical and enzymatic reactions, cellular processes, DNA, RNA, and protein manipulations, and genetic studies. This course requires hands-on laboratory experience.

**BIO 220 General Zoology
5 credits**

Prerequisite: BIO 111 or equivalent, or permission of department chair

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. Requires hands-on laboratory and field experience. Designed for biology majors.

**BIO 221 Botany
5 credits**

Prerequisites: BIO 111 or equivalent, or permission of department chair

This course, designed for biology major, 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**

Prerequisites: BIO 111 or equivalent, or permission of department chair

Involves in-depth field study of natural environments within and outside of the United States. The 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. Requires hands-on laboratory and field experience (includes extensive hiking).

BUS-Business

www.rccc.edu/business

**BUS 115 Introduction to Business
3 credits**

This course focuses on the operation of the American business system. It covers fundamentals of the economy, careers and opportunities, marketing, management, production, governmental regulations, tools of business and social responsibilities.

**BUS 204 Introduction to E-Business
3 credits**

This course introduces the use of technology in all aspects of a business. It explores the use of technology for customer relations' management, accounting and financial applications, purchasing and production tools, sales and marketing functions, and human resources management. Students examine the use of the Internet, World Wide Web and sophisticated multi-function software tools, while gaining a heightened awareness of emerging technologies and trends in e-business.

**BUS 210 Introduction
to E-Commerce
3 credits**

This course 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

The World Wide Web levels the business playing field and eliminates geographic barriers. The Internet provides global business potential for even the smallest business. This course teaches how to approach and maximize this business opportunity. It 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

This course 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. Students develop an understanding of the role of law in social, political, and economic change.

BUS 217 Business Communication and Report Writing 3 credits

This course emphasizes effective business writing and covers letters, memoranda, reports, application letters, and resumes. It includes the fundamentals of business communication and an introduction to international communication.

BUS 226 Business Statistics 3 credits

Prerequisite: Elementary Algebra

This course focuses on statistical study, descriptive statistics, probability, and 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

This course provides students 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 285 Independent Study 1-3 credits

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

BUS 287 Cooperative Education 1-3 credits

This course provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved workstations related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

BTE- Business Technology

www.rrcc.edu/cis

Most of these courses require concurrent enrollment in computer lab sections.

BTE Computer Lab 1/3-1 credit

Most computer courses have a lab accompanying them. You must register for the accompanying lab. Computer courses having an accompanying lab are designated with a co-requisite of lab.

BTE 100 Computer Keyboarding 1 credit

Co-requisite: Computer Lab

Prerequisite: None

This course 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

Co-requisite: Computer Lab

Prerequisite: BTE 100 or minimum typing speed of 20 wpm

This course is designed for students with minimal keyboarding skills. Letters, tables, memos and manuscripts are introduced. Speed and accuracy is also emphasized.

BTE 108 Ten-Key by Touch (PC 10-Key Pad) 1 credit

Co-requisite: Computer Lab

This course introduces touch control of the ten-key pad. This class emphasizes the development of speed and accuracy using proper techniques.

BTE 111 Keyboarding Speedbuilding I 1 credit

Co-requisite: Computer Lab

Prerequisite: BTE 102 or minimum typing speed of 25 wpm

This course 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

Co-requisite: Computer Lab

Prerequisite: BTE 111 or minimum typing speed of 30 wpm

This course 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

Co-requisite: BTE 112 or acceptable keyboarding proficiency

Prerequisite: None

Instruction on how records are created, stored, and retrieved. This course 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 includes manual and/or computer software.

BTE 166 Business Editing Skills

3 credits

Co-requisite: None

Prerequisite: None

This course is designed to develop skills that will allow students to edit copy so that mailable copy can be produced.

BTE 202 Office Simulation I

3 credits

Co-requisite: None

Prerequisite: CIS 118 or permission of instructor

This course 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

Co-requisite: None

Prerequisite: BTE 201; or experience with advanced word processing and electronic spreadsheet applications, minimum keyboarding skill 35 wpm; or permission of instructor

This course 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

Co-requisite: None

Prerequisite: None

This course 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 287 Cooperative Education/Internship

3 credits

Prerequisite: Permission of instructor

This course allows students to gain work experience from on-the-job training.

CAR- Carpentry

www.rrcc.edu/construction

CAR 101 Basic Safety

1 credit

Co-requisite: CAR 101

An overview of safety concerns and procedures in the construction field

CAR 102 Hand and Power Tools

1 credit

Co-requisite: CAR 101

Focuses on basic hand and power tools including stationary tools. Emphasizes a hands-on approach to proper and safe use of these tools as it applies to the construction environment and is taught in conjunction with a lab or framing class

CAR 105 Job Site Layout and Blueprint Reading

1 credit

Introduces blue-print reading and how they apply to the construction site. Includes in-depth introduction to site layout (materials and methods).

CAR 115 Form & Foundation Systems

1 credit

Covers materials and methods for concrete forms and foundations. Includes various reinforcement methods such as re-bar and welded-wire fabric.

CAR 120 General Construction Framing

1 credit

Prerequisite: CAR 101, CAR 102

Instructs students in basic framing methods and materials utilizing a hands-on framing lab. Covers floor, wall, and roof framing.

CAR 121 Floor Framing

1 credit

Covers framing basics as well as the procedures for laying out and constructing a wood floor using common lumber as well as engineered building materials.

CAR 122 Wall Framing

1 credit

Focuses on the procedures for laying out and framing walls and ceilings, including roughing-in door and window openings, construction corners and partition Ts, bracing walls and ceilings, and applying sheathing

CAR 123 Roof Framing

1 credit

Describes the various kinds of roofs and focuses on instructions for laying out rafters for gable roofs, hip roofs and valley intersections. Covers both stick-built and truss-built roofs.

CAR 125 Roofing Materials & Methods

1 credit

Covers application techniques and estimation of asphalt and wood roofing products and accessories including gutters and flashing

CAR 126 Framing With Metal Studs

1 credit

Includes instructions for selecting and installing metal framing for interior walls, exterior non-loadbearing walls, and partitions.

CAR 130 Windows and Exterior Doors

1 credit

Describes the various types of windows, skylights, and exterior doors and provides instructions for installing them. Includes instructions for installing weather-stripping and lock-sets.

CAR 131 Exterior Trim**1 credit**

Teaches cornice and rake construction, corner, window and door trim, installation of soffit, frieze, fascia and similar trim items and includes estimation and proper selection.

CAR 135 Thermal and Moisture Methods and Materials**1 credit**

Focuses on selection and installation of various types of insulating materials in walls, floors, and attics. Covers the uses and installation practices for vapor barriers and waterproofing materials

CAR 136 Remodeling, Renovation, and Additions**4 credits**

Prerequisite: CAR 170 or equivalent or permission of instructor

Covers conversions of attic and basement spaces to usable living spaces and additions for renovation to existing residential structures, including kitchens and baths. Examines materials scheduling, estimation, and construction methods.

CAR 140 Stair Construction/Layout**1 credit**

Co-requisite: CAR 170, Framing Lab

Covers the various types of wooden stairs used in residential and commercial construction, along with procedures for laying out stairs, cutting out stringers and installing and finishing stairs

CAR 145 Interior Finishes - General**1 credit**

Presents an overview of interior finishes. Covers installation and finishing of drywall, suspended ceilings, and general painting and other wallcovering.

CAR 146 Interior Finishes - Drywall Construction**1 credit**

Covers the use of gypsum wall board and the techniques of concealing joints and fasteners, construction methods, estimation and a variety of texture finishes

CAR 148 Interior Finishes - Commercial and Tenant**1 credit**

Includes the materials, layout and installation procedures for many types of suspended ceilings used in commercial construction as well as ceiling tiles, drywall suspension systems, and pan-type ceilings.

CAR 150 Interior Trim - General**1 credit**

Covers material choices and installation techniques of various interior trim, including interior doors, baseboard, and casement. Includes an overview of additional interior trim choices.

CAR 151 Interior Trim - Doors and Trim**1 credit**

Co-requisite: CAR172 – Construction Lab II

Covers interior doors and trim with focus on material choices, methods of work, and estimation. Teaches in conjunction with a construction lab experience to provide application of techniques covered in classroom environment.

CAR 153 Interior Trim - Cabinet/Countertops**1 credit**

Covers the selection/installation/terminology of factory built cabinets and countertops. Includes various types and design and examines estimation of cost.

CAR 155 Interior Trim-Built-ins**2 credits**

Co-requisite: CAR 156

Covers design and building processes for custom built-in cabinetry. Explores the variety of materials and methods of work to create custom building from closet storage shelves to a built-in entertainment center.

CAR 156 Shop Tools: Stationary, Hand, and Portable**4 credits**

Covers the safe use and care of stationary, hand, and portable tools. Develops skills through tool utilization to pass competency and safety tests for each tool.

CAR 160 Floor Finishes**1 credit**

Prerequisite: Permission of instructor

Covers installation and finishing of hardwood floors, laminate/engineered floors, and tile. Includes discussion on advantages and disadvantages of various choices available.

CAR 165 Shop Carpentry**4 credits**

Prerequisite: Permission of instructor

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, cabinet-makers and millworkers.

CAR 170 Clinical: Construction Lab I**1 credit**

Continues to build upon the principles that are expected to be understood by students in the construction discipline.

CAR 171 Clinical: Construction Lab I**1 credit**

Continues to build upon the principles that are expected to be understood by students in the construction discipline.

CAR 172 Clinical: Construction Lab I**1 credit**

Continues to build upon the principles that are expected to be understood by students in the construction discipline.

CAR 173 Clinical: Construction Lab I**1 credit**

Continues to build upon the principles that are expected to be understood by students in the construction discipline.

CAR 205 Title: Advanced Site Layout**2 credits**

Prerequisite: CAR105 or permission of instructor

Co-requisite: Construction lab

Expands upon CAR105 and gives students a chance to explore more complex plot plans and multi-unit site lay-

outs. Includes a more in-depth look at the blueprints and how they apply to the job-site

CAR 215: Form and Foundation Systems II
1 credit

Co-requisite: Core framing labs

Builds on course CAR 115 and expands on theories and concepts from the first year class. Offers opportunities to explore more complex systems and form requirements.

CAR 220 Advanced Framing - General
1 credit

Expands upon abilities learned in CAR 120. Utilizes a hands-on approach to allow students to study floor, wall, and roof framing

Co-requisite: CAR 101, CAR 102

CAR 221 Advanced Floor Systems
2 credits

Prerequisite: CAR 121 or permission of instructor

Co-requisite: CAR 170

Expands upon skills and knowledge learned in CAR 121 and focuses on an in-depth look at floor framing. Allows students to hone skills previously learned.

CAR 222 Advanced Wall Systems
2 credits

Prerequisite: CAR 122 OR PERMISSION OF INSTRUCTOR

Co-requisite: CAR 270

Expands upon those skills and knowledge learned in CAR 122. Covers complex wall framing issues and leadership/foreman responsibilities.

CAR 223 Advanced Roofing Systems
2 credits

Prerequisite: CAR 123 or permission of instructor

Co-requisite: Framing Lab Car 270

Builds on those skills learned in CAR 123. Offers an opportunity for students to hone skills and apply knowledge to more complex systems of roof framing.

CAR 240 Advanced Stair Layout
2 credits

Prerequisites: CAR 140 or permission of instructor, CAR 156 or permission of instructor

Co-requisite: CAR270, Framing Lab

Expands upon the first year course emphasizing construction of residential and commercial stairs. Covers complex stairs, including curved and multi-level stair construction. Includes alternatives to stringers, and finish. Emphasizes methods and materials for balusters and rails.

CAR 250 Advanced Interior Trim - General
2 credits

Prerequisite: CAR 150

Expands upon the material covered in CAR150 and includes more advanced techniques and in-depth discussion of various material choices. Covers estimating and efficiency studies.

CAR 251 Advanced Interior Trim – Doors
2 credits

Prerequisite: CAR 151 or permission of instructor

Co-requisite: CAR 272 – Construction Lab II

Expands upon material covered in CAR151. Includes in-depth study of premium interior doors and trim, including full mortise lock sets, furniture grade trim, and techniques for matching existing high-end and antique woodworking

CAR 253 Advanced Interior Trim - Cabinet/Countertops
4 credits

Prerequisite: CAR 156, or permission of instructor

Emphasizes an in-depth/hands-on look at all components of cabinet-making, installation and countertops. Includes construction of traditional (face-frame) and European cabinets. Covers hardware applications and installation, and countertop construction, ranging from laminates to solid surface.

CAR 254 Advanced Interior Trim - Special
2 credits

Prerequisite: CAR 154, or permission of instructor

Co-requisite: CAR 272 construction lab

Explores the craftsmanship and fine woodworking involved in many fine homes. Includes mantel and various fireplace designs, custom shelves and closets, and custom moulding

CAR 270 Clinical: Construction Lab I
1 credit

Continues to build upon the principles that are expected to be understood by students in the construction discipline

CAR 271 Clinical: Construction Lab I
1 credit

Continues to build upon the principles that are expected to be understood by students in the construction discipline

CAR 272 Clinical: Construction Lab I
1 credit

Continues to build upon the principles that are expected to be understood by students in the construction discipline

CAR 273 Clinical: Construction Lab I
1 credit

Continues to build upon the principles that are expected to be understood by students in the construction discipline

CAR 275 Special Topics
1-6 credits

This course provides students 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

This course 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.

CAR 282 Internship

0.5-12 credits

Prerequisite: Permission of the instructor

Students with prior course work in a specific area are eligible for internship. The internship will give the student an opportunity to apply their course studies.

CAR 285 Independent Study

0.5-12 credits

Prerequisite: Permission of the instructor

Students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.

CHE- Chemistry

www.rccc.edu/science/chemistry

CHE 101 Introduction to Chemistry I with Lab

5 credits

Prerequisites: MAT 106

Co-requisites: CHE 101 LAB

Includes the study of measurements, atomic theory, chemical bonding, nomenclature, stoichiometry, solutions, acid and base, gas laws, and condensed states. Laboratory experiments demonstrate the above concepts qualitatively and quantitatively. Designed for non-science majors, students in occupational and health programs, or students with no chemistry background.

CHE 111 General College Chemistry I with Lab

5 credits

Prerequisite: One year of high school chemistry or equivalent.

Co-requisite: MAT 121

Focuses on basic chemistry and measurement, matter, chemical formulas, reactions and equations, stoichiometry and thermochemistry. 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. Includes

gases, liquids, and solids. Problem-solving skills are emphasized. Incorporates laboratory experiments.

CHE 112 General College Chemistry II with Lab

5 credits

Prerequisites: CHE 111, MAT 121

Presents concepts in the areas of solution properties, chemical kinetics, chemical equilibrium, acid-base and ionic equilibrium, thermodynamics, electrochemistry, nuclear chemistry, and organic chemistry. Emphasizes problem solving skills and descriptive contents for these topics. Laboratory experiments demonstrate qualitative and quantitative analytical techniques.

CHE 208 Introduction to Organic and Biochemistry with Lab

5 credits

Prerequisite: CHE 111 and CHE 112

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 is studied.

CHE 211 Organic Chemistry I with Lab

5 credits

Prerequisite: CHE 112

Focuses on compounds associated with the element carbon. Includes structure and reactions of aliphatic hydrocarbons and selected functional group families. Covers nomenclature of organic compounds, stereochemistry, and reaction mechanisms such as SN1, SN2, E1 and E2. Laboratory experiments demonstrate the above concepts, plus the laboratory techniques associated with organic chemistry.

CHE 212 Organic Chemistry II with Lab

5 credits

Prerequisite: CHE 211

Continues the investigation into the chemistry of carbon-based compounds, their reactions and synthesis. Includes the structure, physical properties, reactivities, and synthesis of organic functional groups not covered in the first

semester. Explores functional groups including alcohols, ethers, aromatics, aldehydes, ketones, amines, amides, esters, and carboxylic acids. Includes reactions and reaction mechanisms of aromatic compounds. An introduction to biochemical topics may be included if time permits. Laboratory experiences demonstrate the above concepts and the laboratory techniques associated with organic chemistry.

COM- Communications

COM 100 Workplace Communication

3 credits

Covers topics that teach students how to communicate effectively in the workplace. Includes listening, speaking, reading, and writing and emphasizes the importance of these four modes of communication in the workplace.

COM 105 Career Communications

3 credits

This course 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.

CAD- Computer-Aided Design

www.rccc.edu/egt/

CAD 110 Basic CAD

6 credits

Serves all emphasis areas of engineering graphics. Includes fundamentals of layout, construction and dimensioning techniques as applied to two-dimensional drawings; systems and database management; and production of computer-generated drawings to ASME, AIA and other applicable specifications.

CAD 119 Intermediate**CAD Applications****3 credits**

Serves all areas of technical graphics. Includes producing two-dimensional working drawings using applications of geometric construction, intersection and development methods and animation techniques. Databases and file management systems are incorporated into the learning experience to improve and increase production time of technical drawings.

CAD 121 Intermediate**CAD/Architectural Applications****3 credits**

Prerequisite: CAD 119 or equivalent

Focuses on 2-D residential concept drawings that are created from given design parameters and appropriate specifications, plans, cross sections and elevations.

CAD 123 Three Dimensional**CADD - Architectural****3 credits**

Prerequisite: CAD 121 and CAD 202 or equivalents

Focuses on advanced applications of three-dimensional construction techniques that are applied to an architectural construction model. The 3-D model is constructed using current building methods, UBC and other local codes.

CAD 152 Intermediate**CAD - Mechanical****3 credits**

Prerequisite: CAD 119 or equivalent

Requires a set of documentation production drawings. Drawings are created per ASME/ANSI Y14.5M spec. Application of 2-D, limits and fits, geometric dimensioning and tolerancing, dimensions and annotations are required.

CAD 157 Three-Dimensional**CADD - Mechanical****3 credits**

Prerequisite: CAD 152 and CAD 202 or equivalent

Focuses on the creation of 3-D concept design models using as-built assemblies, layouts, sketches and existing

concept designs. Requires 2-D extractions from the 3-D models, dimensioning and annotations.

CAD 202 Computer-Aided Drafting/3D**3 credits**

Focuses on construction of three-dimensional objects using the latest release of CAD software. Includes wireframe construction, surface modeling, solid modeling, extrusions, Boolean operations, 3-D editing, 3-D views, rendering, and 3-D to 2-D construction.

CAD 203 Pro/E Basic PT and Assembly Design**3-6 credits**

Prerequisite: CAD background in 2-D/3-D applications is desirable

Introduces the basic part and assembly design principles of Solid Modeling, Parametric Design, and Associativity along with basic detailing using Pro-ENGINEER as a design tool. Upon completion of this course you will understand the basic functions needed to generate parts, assemblies and drawings along with the proper basic techniques.

CAD 204 Pro/E Drawing/ Detailing Fundamentals**3 credits**

Prerequisites: CAD background in 2-D/3-D applications is desirable, and CAD 203 or equivalent.

Introduces the fundamentals of production drawings and how to fully manipulate the associativity of Pro/E between parts or assemblies while in a drawing, along with the general drawing configuration administration relating to drawings.

CAD 205 Pro/E Industry Upgrade**3 credits**

Prerequisite: CAD background in 2D/3D

This course updates the student to the most current release of Pro/E, showing any core user interface changes, menu changes and/or module changes.



“I chose Red Rocks mainly because of the people. The professors they have here are excellent.”

Eduardo Machado
Engineering Graphics major
Texas

latest information: www.rrcc.edu

**CAD 206 Pro/E
Advanced Applications**

3 credits

Prerequisite: CAD background in 2-D/3-D desirable and CAD 203, 204, 205 or equivalent and instructor approval.

Introduces various advanced applications of the design principles used in parametric design software, ranging from sheetmetal design, advanced Surfacing, Animation, Basic Mechanisms and Basic Manufacturing.

**CAD 207 Pro/E
Current Version Update**

3 credits

Prerequisite: CAD background in 2-D/3-D or equivalent desirable, instructor approval

Updates you to the most current release of Pro/E, showing any core user interface changes, menu changes and or module changes.

CAD 208 Pro/E Industry Upgrade

3 credits

Prerequisite: CAD background in 2-D/3-D desirable and CAD 203, 204, 205 or equivalent, approval of instructor.

Updates you on the most current release of Pro/E, showing any core user interface changes, menu changes and/or module changes.

CAD 217 3D Studio VIZ

6 credits

Focuses on introductory level basic features of the software using the latest version of 3-D Studio VIZ. Includes creation and modification of primitive and complex shapes, Boolean constructions, creation and modification of lights, applying materials to objects, creation and modification of backgrounds, creation and adjustment of cameras, rendering, and animation by keyframing.

CAD 218 3D Studio VIZ / Advanced

3 credits

Prerequisite: CAD 217

Builds on the basic 3-D Studio VIZ skills learned in CAD 218. Includes importing and editing solid models, external processes (special effects), incorporating scanned images,

advanced materials editing, creating materials libraries, rendering, animating and project management.

CAD 221 Framing Methods

3 credits

Emphasizes applications of current building methods as applied to 3-D residential concept models.

CAD 223 Roof Design

3 credits

Prerequisite: CAD 221 or equivalent

Focuses on applications of current residential roof framing methods as applied to 3-D residential concept models.

CAD 226 Architectural Desktop

6 credits

Prerequisite: CAD 228 or equivalent

Focuses on creation of production drawings using AutoDESK Architectural Desktop with an emphasis on 3-D concept design.

**CAD 227 Architectural
Design/Drafting I**

6 credits

Prerequisite: CAD 123 or equivalent

Develops a fundamental understanding of building design, concepts and construction methods by preparing working drawings with necessary details for framing, brick and steel construction. Four basic designs are used as models, including one story or ranch, one and one-half story, two-story, and split-level. The student chooses one design and produces a full set of detail drawings

**CAD 228 Architectural
Design/Drafting II**

6 credits

Prerequisite: CAD 227 or equivalent

Examines ideas, sketches and layouts to create working drawings of a customized design with an emphasis in remodeling and renovation. Detailed construction drawings are produced using CADD two and three-dimensional applications per AIA, UBC and local codes.

CAD 241 Inventor Basics

6 credits

Prerequisites: 2-D/3-D CAD applications, permission of instructor.

Focuses on the basic applications of Inventor software to build parametric models of parts and assemblies.

CAD 242 Inventor Intermediate

6 credits

Prerequisite: CAD 211 or equivalent

Explores the intermediate applications of SolidWorks to create parametric models.

CAD 243 Inventor Advanced

6 credits

Prerequisite: CAD 212 or equivalent

Focuses on advanced applications of Inventor to create parametric models.

**CAD 251 Assembly
and Detail GD and T**

3 credits

Prerequisite: CAD 157 or equivalent

Focuses on 3-D assembly drawings created from individual data bases. Assemblies are built using WBLOCK and XREF applications. Production drawing is created using the 2-D extractions from the 3-D model. Presentation methods are also demonstrated.

CAD 252 Mechanisms and Drives

3 credits

Prerequisite: CAD 251 or equivalent

Emphasizes the applications of 3-D drawing of a variety of mechanisms and drives to 3-D assembly drawings. 3-D animation and rendering methods are created for a more realistic presentation drawing.

**CAD 253 Mechanical
Design/Drafting I**

6 credits

Prerequisite: CAD 202 or equivalent

Introduces the concept of multiple part mechanical assembly and detail drawings. Includes cast, machined, welded and purchased parts and operating mechanisms. Covers part call-outs, material lists, drawing organization and appropriate dimension systems such as precision and/or metric applications.

CAD 256 SolidWorks Basics

6 credits

Prerequisite: 2-D/3-D CAD applications, permission of instructor

Examines the basics of SolidWorks software to produce parametric models.

CAD 257 SolidWorks Intermediate

6 credits

Teaches you to apply intermediate SolidWorks applications to produce parametric models of parts and assemblies

CAD 258 SolidWorks Advanced

6 credits

Co-requisite CAD 259

Demonstrates the advanced applications of SolidWorks software.

CAD 259 Mechanical Design/ Drafting II

6 credits

Prerequisite: CAD 253 or equivalent

Focuses on the culmination of one or more final projects exploring design problems in areas such as robotics, aerospace, jig and fixture, tool and dies and biomedical. Projects require full documentation details and presentation of graphics and documentation.

CAD 285 Independent Study

1-6 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

CIS- Computer Information Systems

www.rccc.edu/cis

Most of these courses require concurrent enrollment in computer lab sections.

CIS Computer Lab

1/3-1 credit

Most computer courses have a lab accompanying them. You must register for the accompanying lab. Computer courses having an accompanying lab are designated with a co-requisite of lab.

CIS 091 Learning Windows

1 credit

Co-requisite: Computer Lab

This course is designed to provide foundational skills in Windows for employment/personal development.

CIS 092 Learning E-mail and Internet

1 credit

Co-requisite: Computer Lab

This course is designed to provide foundational skills in email and the Internet for employment/personal development.

CIS 094 Learning Word

1 credit

Co-requisite: Computer Lab

This course is designed to provide foundational skills in Microsoft Word for employment/personal development.

CIS 095 Computers and You

3 credits

Co-requisite: Computer Lab

This course familiarizes students with the computer and its application in today's home. Each student will work with the computer using prewritten programs and learn the basics in the logic used in programming a computer. Applications covered include money and resource management, consumer affairs and the use of computers for entertainment.

CIS 098 Learning Excel

1 credit

Co-requisite: Computer Lab

This course is designed to provide foundational skills in Microsoft Excel for employment/personal development.

CIS 115 Introduction to Computer Information Systems

3 credits

Co-requisite: Computer Lab

This course is an overview of the needs for and roles of computer information systems. Emphasis is on computer requirements in organizations, history, hardware functions, programming, systems development, and computer operations. Hands-on experience with applications and programming will be included.

CIS 118 Introduction to PC Applications: MS Office

3 credits

Co-requisite: Computer Lab

This course 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 124 Intro to Operating Systems

3 credit

Co-requisite: Computer Lab

This course introduces students to concepts, terminology and hands-on skills in the use of DOS and Windows. It emphasizes navigation, file manipulation, file creation and troubleshooting.

CIS 130 Introduction to the Internet

1 credit

Co-requisite: Computer Lab

Prerequisite: A working knowledge of Windows

This course introduces the Internet, the global network of computer networks. The Internet's resources and tools are explored. Topics include history, topology, email, Listserv, telnet, ftp, World Wide Web, and various search engines.

**CIS 131 Word Processing I: Word
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course introduces the features of word processing software packages. Topics include creating, editing, formatting documents, and the use of spelling dictionary and thesaurus. The student who has taken CIS 118, Introduction to PC Applications, should not take this course.

**CIS 132 Word Processing II: Word
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 131

This course continues to build on word processing skills learned in CIS 131. Practice emphasizes hands on exercise skills such as hyphenation and columns format layout, document design, mail merge, tables, forms and graphics.

**CIS 133 Word Processing III: Word
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 132

This course continues to build on word processing skills learned in CIS 132. Topics include outlines, style sheets, macros, and large document formatting.

**CIS 135 Complete PC
Word Processing: Word
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course uses state-of-the-art software to study the features of word processors including types, strengths, and weaknesses, keyboard skills, creating, editing, formatting, and printing documents. Students practice hands-on exercise skills such as hyphenation, columns, format layout, document design, and graphics. This course is the equivalent of CIS 131, 132, and 133 taken separately.

**CIS 140 Microsoft Outlook
1 credit**

Co-requisite: Computer Lab

Prerequisite: None

This course introduces the functions used in Microsoft Outlook including email messages, calendaring, contacts, tasks, journals, and notes.

**CIS 141 PC Databases I: Access
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course introduces the functions of a database. It includes skills such as file creation, searches, sorts, simple editing and indexing. The student who has taken CIS 118, Introduction to PC Applications, should not take this course.

**CIS 142 PC Databases II: Access
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 141

This course continues to build on database application skills learned in CIS 141. Students practice through hands-on exercise skills such as report writing and the creation of custom forms.

**CIS 143 PC Databases III: Access
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 142

This course 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:
Access
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course 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: Excel
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course introduces the student to concepts and applications of an electronic spreadsheet. Topics include calculations, built-in functions, spreadsheet design, and introduction to graphics. Additional topics may include tables and macros. The student who has taken CIS 118, Introduction to PC Applications, should not take this course.

**CIS 152 PC Spreadsheets II: Excel
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 151

This course continues to build on spreadsheet skills learned in CIS 151. Students practice through hands-on exercises such as design and report writing. Database features of filters, sorts and special calculations are also covered.

**CIS 153 Advanced
Spreadsheets: Excel
1 credit**

Co-requisite: Computer Lab

Prerequisite: CIS 152

This course 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: Excel
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course introduces the use of an electronic spreadsheet. Topics may include spreadsheet design, formatting, formulas, functions, charts, databases, statistical and "what if" analysis, and macros. This course is the equivalent of CIS 151, 152, and 153 taken separately.

**CIS 165 Complete
Presentation Graphics: PowerPoint
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course 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**

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course is designed to be a hands-on course introducing the student to the concepts and techniques of desktop publishing. The student will then work with more complex documents and publications to utilize the advanced features and capabilities of today's page layout software.

**CIS 201 Computer Issues
1 credit**

Prerequisite: 8 credits of Computer Technology coursework

This course explores the social, ethical, and legal implications related to the widespread use of computers in our society. Topics include the codes of behavior expected of the computer professional and the broader issues that affect society as a whole. These issues will be explored through readings, class discussions, Internet research, guest lecturers and case studies. College-level writing is expected.

**CIS 202 Automated Project
Management: MS Project
3 credits**

Co-requisite: Computer Lab

This course provides an in-depth exploration of project management techniques. This course emphasizes project management strategies, goal setting, communication, tracking and reporting, and critical thinking. Discussion and real world projects will be used as tools to explore the creating of task lists, resource assignment and leveling, use of milestones, Critical Path Methodology, PERT, project tracking, and communication.

**CIS 220 Fundamentals of UNIX
3 credits**

Co-requisite: Computer Lab

Prerequisite: One programming language

This course 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 Advanced UNIX
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 220

This course 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 222 UNIX
System Administration
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 221

This course covers the fundamental essential tasks of administering and managing a UNIX system. Topics include startup/shutdown procedures, managing devices, managing users, checking and managing the file system and managing local and remote terminals.

**CIS 243 Introduction to SQL: Oracle
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 145, equivalent experience or permission of instructor

This course introduces students to PL/SQL. Students learn to create PL/SQL blocks of application code that can be shared with multiple forms, reports and data management applications. Students learn to create procedures, functions, packages and database triggers. Students also learn to manage PL/SQL program units and database triggers, to manage dependencies and to manipulate large objects.

**CIS 244 Oracle 9i Database
Administration Fundamentals
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 243

Designed to give students a foundation in basic Oracle architecture, storage structure and database administrative tasks. Students will gain the knowledge and skills to create databases and data dictionary views, and to manage Oracle instances, tables, tablespaces, data files, control files, redo log files and rollback segments.

**CIS 251 Introduction to Structured
Query Language (SQL)
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 145

Introduces students to creating database structures and storing, retrieving, and manipulating data in a relational database. SQL is the set of statements that all users and programs must use to access data in the Oracle database. This course also focuses on SQL*Plus to manipulate SQL statements.

**CIS 252 Querying Microsoft
SQL Server with Transact-SQL
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 251

This course provides students with the technical skills required to write basic Transact-SQL queries for Microsoft SQL. Students will be able to describe the uses of and ways to execute the Transact-SQL language. Students will learn to use querying tools, write queries to retrieve data, group and summarize data by using Transact SQL, join data from multiple tables, write queries that retrieve and modify data by

using sub-queries and describe how to create programming objects.

CIS 253 Programming with a MS SQL Server Database
3 credits

Co-requisite: Computer Lab

Prerequisite: CIS 251 and CIS 252 or equivalent knowledge and experience

This course provides students with the technical skills required to program a database solution by using Microsoft SQL Server.

CIS 268 Systems Analysis and Design I
3 Credits

Co-requisite: Computer Lab

Prerequisite: This course should be taken during the last semester of your certificate/degree program

This course introduces the student 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

Co-requisite: Computer Lab

Prerequisite: Last semester of your certificate/degree program

The purpose of this course is to allow students 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 roll they play on the project team.

CNG- Computer Networking

www.rbcc.edu/cis

Most of these courses require concurrent enrollment in computer lab sections.

CNG Computer Lab
1/3-1 credit

Most computer courses have a lab accompanying them. You must register for the accompanying lab. Computer courses having an accompanying lab are designated with a co-requisite of lab.

CNG 121 Computer Technician I: A+
4 credits

Co-requisite: Computer Lab

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 the student for the core hardware service technician portion of the CompTIA A+ Certification Exam.

CNG 122 Computer Technician II: A+
4 credits

Co-requisite: Computer Lab

Prerequisite: CNG 121

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 the student for the CompTIA A+ OS Technologies Exam.

CNG 124 Networking I: Network+
3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 122

Provides students 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 students for the Networking II: Network + course.

CNG 125 Networking II: Network+
3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 124

Continues to provide students 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 students for the Network + certification.

CNG 131 Network Security Fundamentals
3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 124

This course 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 and computer forensics are introduced. Cryptography basics are incorporated, and operational/organizational security is discussed as it relates to physical security, disaster recovery, and business continuity.

CNG 211 Windows XP Configuration
3 credits

Co-requisite: Computer Lab

Provides students 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 XP Professional in a variety of network operating system environments.

CNG 212 Manage MS Windows Server Environment

4 credits

Co-requisite: Computer Lab

This course provides students 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 213 Manage MS Windows Network Infrastructure

4 credits

Co-requisite: Computer Lab

Prerequisite: CNG 212

This course provides students with the knowledge and skills to implement and manage a Microsoft Windows Server network infrastructure. Students will learn to implement routing; implement and manage Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), and Windows Internet Name Service (WINS); secure Internet Protocol (IP) traffic with Internet Protocol security (IPSec) and certificates; configure a network access infrastructure, manage and monitor network access.

CNG 214 Plan MS Windows Server Network Infrastructure

4 credits

Co-requisite: Computer Lab

Prerequisite: CNG 213

This course provides students with the knowledge and skills necessary to plan and maintain a Windows Server network infrastructure. Students will learn to Plan optimize and troubleshoot a TCP/IP physical and logical network, routing, Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS) Windows Internet Naming Service (WINS) and IPSec network access.

CNG 216 Plan MS Windows Server Active Directory Infrastructure

4 credits

Co-requisite: Computer Lab

Prerequisite: CNG 214

This course provides students with the knowledge and skills to successfully plan, implement, and troubleshoot a

Microsoft Windows Server Active Directory service infrastructure. The course focuses on a Windows Server directory service environment, including forest and domain structure, Domain Name System (DNS), site topology and replication, organizational unit structure and delegation of administration, Group Policy, and user, group, and computer account strategies.

CNG 217 Implement Security in a MS Windows Environment

3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 213

This course provides students 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 221 Design MS Director and Network Infrastructure

3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 216

This course provides students with the knowledge and skills to design an Active Directory service and network infrastructure for a Microsoft Windows Server environment. The course is intended for systems engineers who are responsible for designing directory service and/or network infrastructures.

CNG 226 Implementing and Managing Microsoft Exchange

3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 215

This course is designed to teach students the knowledge and skills necessary to install, configure, and administer Microsoft Exchange. Students 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 227 Administering a Microsoft SQL Server Database

3 credits

Co-requisite: Computer Lab

Prerequisite: CNG 212

This course provides students with the knowledge and skills required to install, configure, administer, and troubleshoot the client-server database management system of Microsoft SQL Server.

CNG 260 Cisco Network Associate I

5 credits

Co-requisite: Computer Lab

Prerequisite: CIS 115 and CIS 130 or equivalent experience

The first in a series of four semesters, this course focuses on Networking Fundamentals including the OSI model and industry standards. This course covers network topologies, IP addressing (including subnet masks), and basic network design. Upon successful completion of all four semester, students will be qualified to take the Cisco Certified Network Associate (CCNA) exam.

CNG 261 Cisco Network Associate II

5 credits

Co-requisite: Computer Lab

Prerequisite: CNG 260

The second in a series of four semesters, this course focuses on Router Theory and Router Technologies including beginning router configurations, routed and routing protocols, and an introduction to LAN (local area network) switching. Upon successful completion of all four semesters, students will be qualified to take the Cisco Certified Network Associate (CCNA) exam.

CNG 262 Cisco Network Associate III

5 credits

Co-requisite: Computer Lab

Prerequisite: CNG 261

The third in a series of four semesters, this course focuses on Advanced Routing and Switching including advanced router configurations, LAN switching, network management, and advanced network design. Upon successful completion of all four semesters, students will be qualified to take the Cisco Certified Network Associate (CCNA) exam.

**CNG 263 Cisco
Network Associate IV
5 credits**

Co-requisite: Computer Lab

Prerequisite: CNG 262

The fourth in a series of four semesters, this course focuses on project-based learning including advanced network design projects and advanced network management projects. Upon successful completion of all four semesters, students will be qualified to take the Cisco Certified Network Associate (CCNA) exam.

CSC- Computer Science

www.rrc.edu/cis

Most of these courses require concurrent enrollment in computer lab sections.

**CSC Computer Lab
1/3-1 credit**

Most computer courses have a lab accompanying them. You must register for the accompanying lab. Computer courses having an accompanying lab are designated with a co-requisite of lab.

**CSC 119 Introduction
to Programming
3 credits**

Co-requisite: Computer Lab

This course 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 the student's program designs.

**CSC 150 Visual Basic Programming
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 115, equivalent experience or permission of instructor

This course introduces programming and applications development for the Microsoft Windows Programming envi-

ronment using Visual Basic for Windows. You learn the use of objects, controls, properties, events and methods to develop applications that provide a graphical user interface for the use. You also learn to develop functions and subroutines using structured Visual Basic and build complete Windows executables and applications.

**CSC 154 Introduction
to MS Visual Basic .NET (OOP)
3 credits**

Co-requisite: Computer Lab

Prerequisite: CSC 116, equivalent experience or permission of instructor

This course provides students 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 155 Introduction to C#
Programming with MS .NET
3 credits**

Co-requisite: Computer Lab

Prerequisite: CSC 161, equivalent experience or permission of instructor

This is the first course in the C#.NET curriculum and will serve as the entry point for other C#.NET courses. This course is part of the Microsoft Certified Application Developer Certification that is being developed for the MS IT Academy.

**CSC 160 Computer Science I
4 credits**

Co-requisite: Computer Lab

Prerequisite: MAT 106 Survey of Algebra, equivalent experience or permission of instructor

This course will introduce students to the discipline of computer science. Topics covered will include algorithm development, data representation, arithmetic and logical expressions, sub-programs 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**

Co-requisite: Computer Lab

Prerequisite: CSC 160, equivalent experience or permission of instructor

This course continues the structured algorithm development and problem solving techniques begun in Computer Science I. Students gain experience in the use of data structures and design of larger software projects. Intensive computer laboratory experience required. Object-oriented techniques will also be emphasized.

**CSC 165 Discrete Structures
3 credits**

Co-requisite: Computer Lab

Prerequisite: CSC 160, equivalent experience or permission of instructor

This course prepares students 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 240 Java Programming
3 credits**

Co-requisite: Computer Lab

Prerequisite: CSC 160 or equivalent experience or permission of instructor

This course is an introduction the Java programming language and will cover basic graphics, threads, events/procedures, user interface, and libraries. The student 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 250 Programming
with Microsoft ADO .NET
3 credits**

Co-requisite: Computer Lab

Prerequisite: CSC 154, CSC 236, equivalent experience or permission of instructor

This course teaches students 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

Co-requisite: Computer Lab

Prerequisite: CSC 154, equivalent experience or permission of instructor

Provides students with the knowledge and skills needed to develop Microsoft .NET-based applications by using Visual Basic .NET. 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 the student 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 252 MS Visual Basic
.NET Application Development**

3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 251

This course is intended to provide Visual Basic 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 include: Windows Forms, GDI+, simple data access, inter-operating with unmanaged code, threading and asynchronous programming issues, simple remoting, Web access, XML Web services consumption, debugging, security, and deployment issues for desktop applications.

**CSC 253 MS ASP .NET Web
Application Development**

3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 251 or CSC 261

This course 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 website

**CSC 254 AS/400 E-Business
Development**

for WebSphere Application Server

3 credits

Co-requisite: Computer Lab

Prerequisite: Permission of Instructor or AS/400 Experience or Equivalent Knowledge

Learn to develop Java Servlets that can run under IBM's WebSphere Application Server, on IBM iSeries 400 or AS/400 servers, the world's most secure and reliable HTTP servers, under OS/400. Learn how to use IBM's Developer Tools, such as WebSphere Developer Studio, and IBM's VisualAge for Java, to develop, test and "debug" your Java servlets, before deploying them to a "live" IBM AS/400 server for use by users anywhere on the Internet, accessing the server using any web browser. Learn how to include data from IBM iSeries 400 DB2 UDB databases in your web pages using Java servlets technology to create "dynamic" web page content.

CSC 261 Programming in C# .NET

3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 155, or equivalent experience or permission of instructor

Provides students with the knowledge and skills they need to develop C# applications for the Microsoft .NET Platform. This course focuses on C# program structure, language syntax, and implementation details.

**CSC 262 MS C# .NET
Application Development**

3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 261 or equivalent experience

This course 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, inter-operating with unmanaged code, threading and asynchronous programming issues, simple remoting, Web access, Web Services consumption, debugging, security, and deployment issues for desktop applications.

**CSC 263 MS ASP .NET
XML Web Service Development**

3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 252 or CSC 262

This course provides students with the knowledge and skills that are required to develop XML Web services-based solutions to solve common problems in the distributed application domain. The course focuses on using Microsoft Visual Studio .NET, Microsoft ASP.NET, and Universal Description, Discovery, and Integration (UDDI) to enable students to build, deploy, locate, and consume Extensible Markup Language (XML) Web services.

**CSC 264 Building COM+
Applications using MS**

.NET Enterprise Services

3 credits

Co-requisite: Computer Lab

This course provides students with the knowledge and skills to effectively build scalable, distributed applications that use Microsoft .NET Enterprise Services and the Microsoft .NET Framework.

**CSC 265 Assembly
Language Programming**

3 credits

Co-requisite: Computer Lab

Prerequisite: One programming course other than BASIC and MAT 121

This course is designed to teach assembly language programming on the (platform). Topics covered will include executable files, screen processing, string instructions, arithmetic (Binary/ASCII/BCD) operations, table processing and macros.

CWB- Computer Web

www.rrcc.edu/multimedia

Most of these courses require concurrent enrollment in computer lab sections.

CWB Computer Lab 1/3-1 credit

Most computer courses have a lab accompanying them. You must register for the accompanying lab. Computer courses having an accompanying lab are designated with a corequisite of lab.

CWB 110 Complete Web Authoring: HTML 3 credits

Co-requisite: Computer Lab

Prerequisite: CIS 130 and CIS 124 or a working knowledge of Windows

This course 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 115 Web Design Fundamentals 3 credits

Co-requisite: Computer Lab

Prerequisite: CIS 130 and CWB 110 or working knowledge of HTML

This course is an introduction to the development of web pages using structured design to layout pages. Topics may include text manipulation, cross-platform calibration, graphics formats, data tables, and file downloading requirements.

CWB 130 Complete Web Editing Tools: Dreamweaver 3 credits

Co-requisite: Computer Lab

Prerequisite: CWB 110 and CIS 124 or a working knowledge of Windows

This course 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 161 Image Editing I: Photoshop 3 credits

Co-requisite: Computer Lab

Prerequisite: CIS 124 or a working knowledge of Windows

This course 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 162 Image Editing II: Photoshop 3 credits

Co-requisite: Computer Lab

Prerequisite: CWB 161

This course covers advanced features of Adobe Photoshop, including advance 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 163 Photoshop for the Internet 1 credits

Co-requisite: Computer Lab

Prerequisite: CWB 161

This course is designed to teach the student complete bitmap editing, selection, grouping and stacking. The student will also learn how to work with text, fills, live effects, colors, styles, exporting/optimizing and animated gif images. Other topics that will be addressed are the creation of buttons, how to work with image maps/rollovers, production techniques, and advanced techniques.

CWB 164 XML 3 credits

Co-requisite: Computer Lab

Prerequisite: CWB 110 Complete Web Authoring: HTML or a working knowledge of HTML including CSS

This course is designed to teach the student 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, recog-

nizing common industry parsers, and the integration of XML into an infrastructure.

CWB 205 Complete Web Scripting: JavaScript 3 credits

Co-requisite: Computer Lab

Prerequisite: CIS 115, CWB 130 and one programming language or permission of instructor

This course 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: ColdFusion 3 credits

Co-requisite: Computer Lab

Prerequisite: CWB 110 Complete Web Authoring: HTML or a working knowledge of HTML Knowledge of a database is recommended

This course is designed to teach the student a basic overview of ColdFusion, URI Parameters, Strings, and other data types. The student will also have the opportunity on control in Cold Fusion, form handling, databases and SQL. Other topics include data retrieval, application framework, reusing code and building a complete Web application.

CWB 210 Advanced Web Scripting: CGI and Perl 3 credits

Co-requisite: Computer Lab

Prerequisite: CSC 160 or permission of instructor

This course covers CGI and Perl programming. Topics include foundations of CGI, database integration, building CGI programs, processing HTML forms, and Perl programming. A basic understanding of UNIX is required, including directories, files, permissions,

and text editing. A brief review of UNIX is covered.

**CWB 245 Complete
Web Animation: Flash
3 credits**

Co-requisite: Computer Lab

Prerequisite: CIS 115 and CSC 116 or CSC 160; CWB 110 and CWB 161 are recommended, or permission of instructor

This course explores the complete set of Web animation tools. Topics include creating an .swf file, publishing the file with interactivity and animation, create .swf files encompassing navigation, animation, event sound, streaming sound, behavior actions, getting a movie clip, tell targets, preliminary Generator discussion, and preloaded sequences, and integration of 3D objects, and a high-end project.

**CWB 246 Advanced
Web Animation: Flash
3 credits**

Co-requisite: Computer Lab

Prerequisite: CWB 245, or permission of instructor

This course 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.

CON- Construction Technology

www.rccc.edu/construction

**CON 105 Construction Technology
4 credits**

Explores a variety of new software applications now available for the construction trade. Introduces computer applications such as CADD, scheduling, estimating, and accounting programs. Explores technology choices and compares them.

**CON 110 Introduction to
Construction**

3 credits

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 120 Building Materials
and Environmental Impact**

3 credits

Examines the qualities, uses and characteristics of wood, building materials, lumber, grading and defects of hard and soft woods, estimating, ordering, pricing, fasteners, adhesives, manufactured wood products, steels, vinyl and aluminum and their applications in construction process. Explores Built-Green products and their characteristics.

**CON 128 Introduction
to Cost Estimation**

2 credits

Provides an overview of the estimation process. Bid requirements, and package are discussed along with an introduction to the CSI divisions.

**CON 140 Introduction
to Building Codes and Enforcement**

3 credits

Introduces the basic concepts of code enforcement.

**CON 145 Construction
Project Management I**

2 credits

This course covers the principles of project planning, scheduling, estimating and management. The participant learns the basic skills required to supervise personnel, with the introduction of technologies as they become commonly accepted.

**CON 146 Construction
Project Scheduling**

2 credits

This course covers the principles of project planning & scheduling. Techniques and Tools and techniques for effective scheduling are introduced

and investigated. The participant learns the basic skills required to supervise personnel, with the introduction of technologies as they become commonly accepted. Several case studies are included.

**CON 151 Introduction
to the Construction Process**

2 credits

Provides an overview of the construction process and is designed as either a primer course for CON 251, or as an introduction to the construction process for the owner-contractor. This course covers liens, contracts, building permits, and licensing

**CON 156 Building Permits/Licensing
4 credits**

Co-requisite: CON 151

Covers the governmental regulations concerning building and the process through which these regulations are enforced including whom to talk to, what to do, when to do the inspection process, how to obtain a building permit and the process of securing a variance.

**CON 207 Light
Construction Equipment
3 credits**

Covers construction equipment, and cost choices based upon size of job vs. cost of equipment rental or ownership. Course covers maintenance issues associated with various equipment and specialization.

**CON 228 Estimating II
4 credits**

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**

Introduces students to reading and interpreting blueprints for residential, commercial and industrial construction.

CON 231 Construction Ethics
3 credits

Covers aspects of the trade and how to assure an ethical approach is taken when dealing with owners/customers, contractors, and suppliers. Discussion is encouraged and required as many aspects will have several points of view. Industry standards, customer expectations, warranty issues, and bid practices are all topics which will be discussed.

CON 240 Code Compliance II
3 credits

Prepares students to successfully complete the building inspector exam. Course studies building codes and enforcement practices.

CON 241 Overview of International Codes
4 credits

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

Provides a step-by-step procedure for reviewing construction documents for compliance with the nonstructural and structural requirements of the 2000 International Building Code. Covers the procedure for reviewing residential plans and specifications based on the 2000 International Residential Code.

CON 245 Project Management
4 credits

Covers the principles of project planning, scheduling, estimating and management. Emphasizes the basic skills required to supervise personnel. Includes case studies.

CON 251 Construction Process
4 credits

Covers the entire construction process including liens, contracts, bids, specifications, building permits and licensing, inspections and the Uniform Building Code. Introduces intra-trade coordination, remodeling and additions, construction practices, construction management and supervision, scheduling,

solar building techniques, insulation concerns and multi-unit construction.

CON 252 Owner-Built Homes and Owner Contracting
4 credits

Prerequisite: CON151 or CAR136

Explores the issues of the owners/builders building a home for themselves from inception to certificate of occupancy, owner-built or the owner as a builder and selecting contractors to perform the actual construction. Examines the problems and common pitfalls of the owner-built home.

CON 259 Heavy/Highway Construction Supervisor Overview
2 credits

Introduces the skills necessary to make a successful transition from construction craftsman to supervisor focusing on heavy/highway specialists. This course is designed for journeymen, leadmen and foremen who aspire to become construction supervisors. Key topics include leadership, motivation, communication, problem solving, decision making, cost awareness, planning and organizing, production control, accident prevention and contract documents. (Overview unit of Associated General Contractors of America Supervisory Training Program)

CON 260 Construction Supervisor Overview
2 credits

Introduces the skills necessary to make a successful transition from construction craftsman to supervisor, focusing on building projects. This course is designed for journeymen, leadmen and foremen who aspire to become construction supervisors. Key topics include leadership, motivation, communication, problem solving, decision making, cost awareness, planning and organizing, production control, accident prevention and contract documents. (Overview unit of Associated General Contractors of America Supervisory Training Program)

CON 261 Leadership and Motivation for Construction Supervisors
2 credits

Introduces basic management ideas, principles and skill 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 Communication for Construction Supervisors
2 credits

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

Learn 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

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

Learn to plan the sequence, duration and relationship of activities for a construction process. 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

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

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. 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

Develop an understanding of the supervisor's role in the application of business management functions to a construction project. Topics include: pre-planning, 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

Organizing 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)

CRJ- Criminal Justice

www.rrcc.edu/criminal

CRJ 101 Basic Law Enforcement Academy

8 credits

Prerequisite: Permission of academy director

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 police officer. Emphasis will be on simulating actual situations using a lecture and laboratory mode of learning.

CRJ 102 Basic Law Enforcement Academy II

6 credits

Prerequisite: Permission of academy director

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 police officer. Emphasis will be on simulating actual situations using a lecture and laboratory mode of learning.

CRJ 103 Basic Law Enforcement Academy III

2 credits

Prerequisite: Permission of academy director

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

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

6 credits

Prerequisite: Requires special application.

Covers constitutional and procedural consideration affecting arrest, search and seizure, and civil liability. Includes the Colorado criminal, liquor, controlled substance, and children's codes. Emphasizes victim's rights and courtroom testimony.

CRJ 106 Arrest Control Techniques

3 credits

Prerequisite: Permission of academy director.

Covers the skills, knowledge and abilities necessary to effectively maintain control of a suspect when making an arrest. Emphasizes the continuum of force and de-escalation of force.

CRJ 107 Law Enforcement Driving

3 credits

Prerequisite: Permission of academy director.

Covers the skills, knowledge and abilities required for operation of a law enforcement vehicle. Emphasizes defensive driving. Enables students to demonstrate skills by driving a vehicle under simulated conditions.

CRJ 108 Firearms

3 credits

Prerequisite: Permission of academy director

Discusses the skills, knowledge and abilities necessary to safely use police firearms. Students will demonstrate skills by firing weapons on a firing range. The student will demonstrate basic safety techniques and will explain

the firearms role within the continuum of force.

**CRJ 110 Intro to Criminal Justice
3 credits**

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. 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

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

Covers constitutional and procedural considerations affecting arrest, search and seizure, post-conviction treatment, origin, development, philosophy, and constitutional basis of evidence. 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 116 Civil Liability
3 credits**

Prerequisite: CRJ 110

Covers the origin and jurisdiction of civil action, procedure and responsibility addressing the liability of criminal justice practitioners.

**CRJ 118 Report Writing
3 credits**

Prerequisite: CRJ 110

Identifies the areas of concern in regards to proper documentation of police related activities. Focuses on report writing skills, proper structuring of interviews and chronological documentation of events. Incorporates proper sentence structuring, the use of cor-

rect terminology and accuracy in written reports.

**CRJ 125 Law
Enforcement Operations
3 credits**

Prerequisite: CRJ 110

Examines the complexity and multi-dimensional aspects of the law enforcement role and career; law enforcement discretion; law enforcement values and culture in modern America. Covers the role and functions of law enforcement in occupational, social, political and organizational context.

**CRJ 126 Patrol Procedures
3 credits**

Prerequisite: CRJ 110

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

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

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 146
Community Based Corrections
3 credits**

Prerequisites: CRJ 110, CRJ 135 and CRJ 145

Introduces an analysis of community based correctional programs and procedures. Emphasizes the environment and the relationship to public safety, reintegration and punishment.

**CRJ 150 Victims
of Crime and Trauma
3 credits**

Prerequisite: CRJ 110

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

Examines theories, issues, legal strategies, and intervention applicable to abuse in intimate relationships.

**CRJ 152 Sexual Assault
3 credits**

Prerequisite: CRJ 110 and CRJ 150

Examines sexual assault beginning with definitions and describing the degrees of sexual assault and the penalties and realities of punishment. Covers myths, statistics, services, treatment and prevention. Both the rapist and the adolescent offender are profiled. Emphasizes the pro-active approach with regard to prevention.

**CRJ 153 Violence Against Children
3 credits**

Prerequisites: CRJ 110 and CRJ 150

Includes an in-depth study of physical, sexual, and emotional abuse and neglect of children. 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 190 Financial Investigation
3 credits**

Prerequisite: CRJ 110

Introduces current perspectives dominant in the field of financial investigations. 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. Emphasizes theoretical principles and applications of financial investigative techniques.

CRJ 210 Constitutional Law
3 credits

Prerequisite: CRJ 110

Focuses on the powers of government as they are allocated and defined by the United States Constitution. Includes intensive analysis of United States Supreme Court decisions.

CRJ 216 Juvenile Law and Procedures
3 credits

Prerequisite: CRJ 110

Focuses on an in-depth analysis of the socio-legal operation of the juvenile justice system emphasizing the substantive and due process rights of minors. Includes analysis of legal reasoning underlying the juvenile law as it operates all levels of government.

CRJ 218 Drug Investigative Strategies
3 credits

Prerequisite: CRJ 110

Focuses on laws dealing with gambling, prostitution, sex crimes, and narcotics. Emphasizes special techniques employed in the detection, suppression, and apprehension of violators. Includes effects of drugs and narcotics, identification of narcotics, and terminology.

CRJ 220 Human Relations and Social Conflict
3 credits

Prerequisite: CRJ 110

Highlights the environmental, organizational and socio-psychological dimensions of social control. 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

Provides information and application of crisis theories in working with diverse populations. Examines the interventionist role.

CRJ 230 Criminology
3 credits

Prerequisite: CRJ 110

Examines the question of crime causation from legal, social, political, psychological and theoretical perspectives. Covers the history and development of criminology.

CRJ 235 Delinquent Behavior
3 credits

Prerequisite: CRJ 110

Focuses on the adolescent who violates social and legal norms and the consequences for the individual and society. Emphasizes the social and psychological factors influencing individual delinquent patterns.

CRJ 239 Managing Emergency Worker Stress
3 credits

Prerequisite: CRJ 110

Provides an understanding of trauma reaction and stress management for first line responders, i.e., police officers, victim advocates, paramedics and firemen. Focuses on practical application of coping skills and stress management for first line responders.

CRJ 240 Criminal Investigations
3 credits

Prerequisite: CRJ 110

Introduces investigation methods and procedures from preliminary through the follow-up stages.

CRJ 245 Interview and Interrogation
3 credits

Prerequisite: CRJ 110

Focuses on the study of technical and legal approaches used in gathering desired information from victims, witnesses, and suspects. Examines the fundamental characteristics of questioning and the use of psychological influences.

CRJ 246 Traffic Investigation
3 credits

Prerequisite: CRJ 110

Provides an overview of the skills and concepts necessary to complete an accurate investigation of a traffic collision. Emphasizes traffic management concepts, selective traffic enforcement, and safety issues.

CRJ 255 Organizational Management of Correctional Institutions
3 credits

Prerequisite: CRJ 110

Focuses on the history of penal and correctional management, organization of correctional institutions, management processes, leadership, control principles and implications for the future.

CRJ 256 Classification and Treatment of Offenders
3 credits

Prerequisite: CRJ 110

Focuses on the process through which the custodial, educational, vocational and treatment needs of the offender are determined.

CRJ 269 Adult Survivors of Molestation
3 credits

Prerequisite: CRJ 110

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.

Provides students 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

Provides placement in the criminal justice field to integrate theory with practice.

CRJ 285 Independent Study
1-6 credits

Prerequisite: Permission of instructor

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

CRJ 289 Capstone
1 credit

Provides a demonstrated culmination of learning within a given program of study.

DAN- Dance

www.rccc.edu/theatre

DAN 141 Regional Dances
1 credit

Introduces the basic terminology, techniques and routines of several dances from a specific country or region. Focuses on the music, costumes and customs related to the dances studied. Partners are not required. May be repeated for a maximum of three credits.

DAN 142 Regional Dances II, Latin American Ballroom
1 credit

Continues DAN 141, with focus on regional dances, customs and rhythms. Partners are not required. May be repeated for a maximum of three credits.

DAN 143 Tap I
1 credit

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

Presents belly dance - the oldest dance form known to humankind and a celebration of life. Emphasizes developing balance and enables the student to perform a belly dance and learn the history of belly dance and costuming techniques.

DAN 152 Belly Dance II
1 credit

Continues DAN 151, with emphasis on coordination and balance and additional techniques. Includes costume design.

DAN 154 Dance and Stage Movement
3 credits

Introduces students 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.

Introduces students to dance within the context of musical theatre. Enables you to practice non-verbal communication and expressive movement techniques.

DAN 275 Special Topics
1-6 credits

Provides students with a vehicle for in-depth exploration of special topics of interest.

ECE- Early Childhood Education

ECE 101 Introduction to Early Childhood Education
3 credits

Provides an introduction to Early Childhood Education. 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; Administration and Supervision. Focuses on ages birth through age eight.

ECE 102 Introduction to Early Childhood Lab Techniques
3 credits

Focuses on a classroom seminar and placement in a child care setting. The supervised placement provides the student with the opportunity to observe

children, to practice appropriate interactions, and to develop effective guidance and management techniques. Addresses ages birth through age 8.

ECE 103 Guidance Strategies for Children
3 credits

Explores guidance theories, applications, goals, techniques and factors that influence expectations, classroom management issues, and prosocial skills. Addresses ages birth through age 8.

ECE 111 Infant and Toddler Theory and Practice
3 credits

Presents an overview of theories, applications (including observations) and issues pertinent to infant and toddler development in group and/or family settings. Includes state requirements for licensing, health, safety and nutrition issues.

ECE 112 Title: Intro to Infant/Toddler Lab Techniques
3 credits

Includes a classroom seminar and placement in an infant and/or toddler setting. The supervised placement provides the student with the opportunity to observe, to practice appropriate interactions and to develop effective guidance and nurturing techniques with infants and/or toddlers. Addresses ages prenatal through age 2..

ECE 191 School Age Theory and Practice
3 credits

Emphasizes processes for planning and implementing developmentally appropriate environments, materials, and experiences in school age programs, working with children ages 6 ñ 12 years of age. Provides expression and problem-solving skills in school age children.

ECE 205 Nutrition, Health and Safety
3 credits

Focuses on nutrition, health and safety as a key factor for optimal growth and development of young children. Includes nutrient knowledge, menu planning, food program participation, health practices, management and safe-

ty, appropriate activities and communication with families. Addresses ages from prenatal through age 8.

ECE 220 Curriculum Development: Methods and Techniques
3 credits

Provides an overview of early childhood curriculum development. Includes processes for planning and implementing developmentally appropriate environments, materials and experiences, and quality in early childhood programs.

ECE 225 Language and Cognition for the Young Child
3 credits

Prerequisite: PSY 238 or permission of instructor

Examines theories of cognitive and language development as a framework for conceptualizing the way children acquire thinking skills. Includes observing, planning, facilitating, creative representation, and evaluating strategies within the context of play. Focuses on language, science, math, problem solving and logical thinking. Addresses ages birth through age 8.

ECE 226 Creativity and the Young Child
3 credits

Provides an emphasis on encouraging and supporting creative self expression and problem solving skills in children. Explores creative learning theories and research. Focuses on developmentally appropriate curriculum strategies in all developmental domains. Addresses ages birth through age 8.

ECE 228 Language and Literacy
3 credits

Presents strategies for optimum language development, literacy, social and emotional development. Supports children's language and literacy in home, classroom, and community settings. Provides appropriate teacher/child verbal interactions, classroom environments, and activities. Addresses ages birth through age 8.

ECE 236 Child Growth/Development Laboratory Development
4 credits

Covers the growth and development of the child from conception through the elementary school years. Emphasizes physical, cognitive, language, social and emotional domains and the concept of the whole child and how adults can provide a supportive environment. Addresses ages from prenatal through age 12.

ECE 237 Theories and Techniques of Social and Emotional Growth
3 credits

Prerequisite: ECE 238 and ECE 227

Incorporates student specific techniques and strategies for guiding and enhancing social and emotional growth in children 0-8 years. Introduces and compares the theories and theorists underlying quality interactions and patterns of social and emotional progression.

ECE 240 Administration of Early Childhood Care and Education Programs
3 credits

Prerequisite: ECE 101 or permission of Instructor

Examines Colorado's minimal licensing requirements, as well as optimal standards pertaining to the operation of programs for young children. Focuses on the director's administrative skills and role as a community advocate for young children. Addresses ages birth through age 12.

ECE 241 Admin: Human Relations for Early Childhood Professions
3 credits

Focuses on the human relations component of an early childhood professional's responsibilities. Includes director-staff relationships, staff development, leadership strategies, parent-professional partnerships, and community interaction.

ECE 256 Working with Parents, Families, and Community Systems
3 credits

Examines attitudes and family values systems and how they affect parent-professional partnerships. Addresses communication, problem-solving and con-

flict resolution strategies. Plans effective activities and programs for parent involvement. Addresses ages birth through 8.

ECE 260 Exceptional Child
3 credits

Prerequisite: ECE 235

Presents an overview of typical and atypical developmental progression. 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. Focuses on ages birth through age 8.

ECE 275 Special Topics
1-6 credits

Explores current topics, issues and activities related to one or more aspects of the early childhood care and education profession.

ECO- Economics

ECO 101 Economics of Social Issues
3 credits

Examines the major socio-economic issues of the past century. Covers poverty and growth, education, health care, pollution and discrimination.

ECO 201 Principles of Macroeconomics
3 credits

Focuses on the study of the American economy, stressing the interrelationships among household, business, and government sectors. 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

Focuses on the consumer, the firm, the nature of cost, and how these relate to the economy as a whole. Analyzes economic models of the consumer, perfect competition, monopoly, oligopoly and monopolistic competition.

Explores economic issues including market power, population growth, positive and negative externalities, income distribution, poverty and welfare, discrimination, and international economic interdependence.

EDU- Education

EDU 101 CRLA Tutor Certification - Regular

1 credit

Introduces tutors to effective tutoring strategies. Topics include guidelines for tutoring; how to plan, conduct, and evaluate a productive tutoring session; recognizing needs of students; and developing effective learning strategies with students.

EDU 102 CRLS Tutor Certification – Advanced

1 credit

Presents an extension of AAA111 and continues the study of effective tutoring skills. Topics include working with a diverse student population, communication skills, and developing effective learning strategies with students.

EDU 103 CRLA Tutor Certification – Master

1 credit

Presents an extension of AAA112 and continues the study of effective tutoring skills. Topics include learning strategies for specific subject areas, intercultural communication, and group facilitation.

EDU 110 Overview of Special Populations for Paras **3 credits**

This course provides students with knowledge in the areas of: laws and history of special education; roles and responsibilities of paraeducators; plan-

ning 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 151 Literacy Intervention for Paraeducators

3 credits

This course is an introduction to the 5 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 and concepts in multi-sensory instruction for reading and provide the participants with a systematic and sequential scope and sequence of the reading process and a lesson plan format.

EDU 152 Math Interventions for Paraeducators

3 credits

This class 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. There is a content focus on number and operation.

EDU 154 ESL and Cultural Issues

3 credits

This course provides an introduction to multicultural education and the issues facing students whose primary language is not English. The topics will be covered with the perspective of para-professionals in mind. The class will examine culture as a framework through which our identities are shaped, and we will explore the sociopolitical aspects of cultural identity and how they influence attitudes, approaches, and educational systems. Topics include 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

Students will study the historical, social, political, philosophical, cultural, legal and economic forces that shape the United States public school system as they 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. Special interest will be paid to the topic of diversity in the K-12 school system

EDU 285 Field Based Experience

3 credits

This course provides the students with experiences in the "real world" of the classroom and gives them input for wise and early career choices.

EDU 261 Teaching, Learning and Technology

3 credits

This course prepares students to integrate technology into their teaching curriculum. It enables the student to design educational and training materials incorporating instructional technology. This 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.

EIC- Electricity - Industrial/ Commercial/ Residential

www.rccc.edu/constructiontech

EIC 100 Electrical Constructions and Planning **4 credits**

Introduces the planning of electrical system installations from blueprints to the completed job, preparation of material lists, job sheets and time schedules for various phases of construction.

Emphasizes the National Electrical Code.

**EIC 104 Basics of Indust. Electricity
1.5 credits**

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 105 Basics
of AC and DC Electricity
4 credits**

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**

Covers residential building wiring in conformance with the current National Electrical Code and local codes using nonmetallic cable. Emphasizes proper use of tools and safety.

**EIC 120 Electrical Installation II
4 credits**

Prerequisite: EIC 110 or permission of instructor

This course 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**

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. Teaches the safe installation and maintenance of electrical equipment. Covers the use of personal protective equipment.

**EIC 130 National Electrical Code I
4 credits**

Focuses on the National Electrical Code and local code requirements for electrical installation. Covers chapters one through four of the National Electrical Code.

**EIC 134 Life Safety Code (Nfpa 72)
4 credits**

Addresses new and existing buildings with specific requirements that directly influence the safety of people and protection of property and equipment. 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**

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**

Prepares you in 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: EIC 105, MAT 107 or equivalent

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 will address common measuring instruments and safety.

**EIC 155 AC Circuit Fundamentals
4 credits**

Emphasizes 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. 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. Explores the principles of polyphase alternating current systems, Wye and Delta circuit configurations, and safety procedures will be explored.

**EIC 160 Electrical
Instruments and Measurements
4 credits**

Prerequisite: EIC 105 or permission of instructor.

This course covers the proper techniques for using electrical instruments, including volt/ohm, amp, phase-rotation, oscilloscopes and recording meters. Focuses on instrument transformers for journeymen and in-plant electricians.

**EIC 164 Intro to Indust Electronics
1.5 credits**

Emphasizes 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 165 Solid State
Devices and Circuits
4 credits**

Explores the basic properties of diodes, transistors, triacs, SCRs and other solid state devices. 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**

Investigates process characteristics and process control loops to learn quick and proper controller adjustment for good response. Includes defining proportional band, integral and derivative, formal open and closed loop tuning methods, and advances control methods. Enables you to use computer simulation software to learn the concepts of propor-

tional band, integral and derivative and practice different tuning methods.

EIC 167 Electrical Maintenance
4 credits

Introduces students to common electrical repairs, electrical systems, tools and test equipment. Includes replacing or repairing devices such as receptacles, light fixtures and ballasts, circuit breakers, fuses and switches. Addresses electrical safety and code applications.

EIC 168 Maintenance Management
1 credit

Covers the critically important but often overlooked component of maintenance management. Focuses on the implementation of a maintenance program or improvement of an existing program. Covers how to reduce unscheduled overtime, excessive material costs, and the number of breakdown repairs

EIC 169 Electrical Code Calculations
4 credits

Discusses calculations used in the application of the National Electrical Code. Emphasizes sizing of branch circuit and feeder conductors and calculating ratings of protective devices

EIC 205 Advanced Electrical Planning
4 credits

This course explores the planning and layout of large commercial and industrial electrical installations

EIC 210 Advanced National Electrical Code
4 credits

Prerequisite: EIC 130, 135 or permission of instructor

This course is an Advanced National Electrical Code course for the in-plant technician. The course emphasizes 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 215 Advanced Code Calculations
4 credits

Prerequisite: EIC 169, or permission of instructor

This course 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 are discussed as well.

EIC 217 Electrical Estimating/Costing
4 credits

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 105 or permission of instructor

This course studies the application of electrical and electromechanical sensing/control devices; heating, ventilating and air conditioning applications, motor control, conveyor drives and other industrial applications. Students design control systems to meet assigned conditions, use principles of relay logic to prepare correct ladder diagrams and wire up, test and trouble-shoot their systems in the laboratory. The course stresses accuracy, safety and National Electric Code requirements.

EIC 221 Trouble-Shooting Control Circuits
1.5 credits

Bridges the gap between the theoretical knowledge and the critical thinking skills needed on the job. Incorporates working at a troubleshooting station with circuits that are identical to motor control circuits in a plant. Concentrates exclusively to teaching hands-on troubleshooting.

EIC 222 Intro. Instr. and Process Control
1.5 credits

Investigates theory of industrial instrumentation measurement through process control. Includes theory and measurement, methods for temperature, pressure, level and flow. Incorporates hands-on training equipment to measure temperature and pressure and perform calibration of a pressure differential transmitter. 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 224 Understanding PLC's
1.5 credits

Improves the individual's ability to read, interpret and analyze electrical ladder drawings. 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

Prerequisite: EIC 105 and 220 or permission of instructor

Studies the use of solid-state control equipment, primarily the programmable controller and associated solid-state sensors to control equipment, machinery or complete processes. 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. Enables you to design, implement and test control systems in the laboratory to meet specifically-assigned control problems. Emphasizes accuracy, safety and National Electrical Code requirements.

EIC 226 PLC Controllers Advanced
1.5 credits

Prerequisite: EIC-224 or Permission from instructor

Studies the advanced uses and applications of programmable logic controllers toward automated equipment, machines and processes. 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. Enables you to create, implement and troubleshoot ladder logic programs that simulate automated machine control and processes.

EIC 227 Mechanical Drives
1.5 credits

Covers the basics of mechanical drives including chain drives, belt drives, bushings, couplings, gear drives, bearings, and lubrication. Includes power transmission physics, shafts, keyways and keyseats, prime movers, gearing, chain drives, belt drives, bushing couplings, bearings, lubrication, clutches, brakes and torque limiters, mechanical variable speed drives.

EIC 229 AC and DC Variable-Speed Drive
1.5 credits

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. 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 231 Electro-Pneumatic Training
1.5 credits.

Introduces the real world of pneumatic and electro-pneumatic control and power transmission through a powerful interactive training program. Focuses on the full scope of compressed air production, preparation, and distribution. Through hands-on learning, you learn to apply simple gas laws, reading of symbols and understanding of component technologies.

EIC 234 High Voltage Elect. Safety
1 credit

Incorporates the latest technological equipment to include demonstrations with participant interaction as well as hands-on lab exercises. 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

Covers terminology, symbols, diagrams, devices, circuits and wiring. 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

Covers design, installation, documentation, testing, and codes. Focuses on advanced layout and principles involved in fire alarm system design and construction. Allows students to test for NICET II certification

EIC 242 National Fire Alarm Code
4 credits

This course 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 250 Fiber Optics Training
1.5 credits

Introduces the theory of fiber optics including standards, installation, connectorization, mechanical/fusion splicing, and testing through advanced procedures in troubleshooting, repair, and certification. Serves as the non-vendor dependent certification course for levels 1, 2, and 3. Focuses on building real world fiber networks with extensive hands on certification and written exams that prepare students for the versatility of actual work environments.

EIC 251 Fiber Optics Advanced
1.5 credits

Advanced study in the theory of fiber optics including standards, installation, connectorization, mechanical/fusion splicing, and testing through advanced procedures in troubleshooting, repair, and certification. Serves as a non-vendor dependent certification course for levels 1, 2, 3. Focuses on building real world fiber networks with extensive hands on certification and written exams that prepare students for the versatility of actual work environments.

EIC 252 Comprehensive Structured Cabling
3 credits

Combines the Fiber Optics Certification and Structured Cabling Certification classes into a comprehensive study of cabling systems

EIC 253 Fiber Optics Certification
1 credit

Introduces the theory of fiber optics including standards, installation, connectorization, mechanical/fusion splicing and testing through advanced procedures in troubleshooting, repair and certification. Serves as a non-vendor dependent certification course for levels 1, 2 and 3. Focuses on building real world fiber networks with extensive hands on certification and written exams that prepare students for the versatility of actual work environments.

EIC 254 Telephony
1.5 credits

Prepares individuals new to the telecommunications industry or new to positions requiring a basic knowledge of voice and data communications systems, networks and terminology. Focuses on understanding current networking alternatives and the impact on business decisions and opportunities.

EIC 255 Electrical Issues for Telecommunications
0.5 credit

Examines Telecom/Data com system installation with electrical systems including pathways, distribution and supply, grounding and bonding, UPS and lighting. Explores improvements and new technologies and enables the telecom/data com professional to assess and secure an overview of the communications industry convergence with the electrical field.

EIC 256 Structured Cabling Systems Distribution Certification
1.5 credits

Offers hands-on and theoretical training in fiber optic cable layout for residential and commercial, single occupant, multi-occupant/apartment and campus structured cabling systems.

EIC 257 Certification for Residential Voice/Data System Network

1.5 credits

Trains the contractor/installer in design, estimation, installation, troubleshooting and certification of complex residential structured cabling systems. Emphasizes home automation, complex office electrical systems and A/V contractors. Includes the use of network simulators.

EIC 258 Voice Data Cat Distribution

1 credits

Focuses on voice/data coaxial distribution certification for residential, multi-occupant, commercial and campus structured cabling systems.

EIC 259 LAN Certification/Repair/ Troubleshooting

1 credit

Explores the testing, repair, certifying and troubleshooting of LAN using network distribution simulators to diagnose twisted repairs, coax and fiber.

EIC 261 Project Management

1 credit

Covers the critically important but often overlooked component of construction - project management. Includes project scope of work, estimator/project manager alliance, specification analysis, analyzing 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 262 Specification Analysis for Cabling Systems

0.5 credit

Focuses on avoidance of problems and unanticipated expenses on cabling projects for estimators, contractors and suppliers through an organized analysis of the project specifications.

EIC 263 Specification Writing for Structured Cabling Systems

1 credit

Teaches the writing of specifications for structured cabling systems. Examines the job layout, products used and execution of the project. Focuses on establishing good working relationships with customer, installation contractor and product supplier.

EIC 264 Cabling System Grounding and Bonding

1 credit

Prepares students in the latest technology and techniques available for code and standards compliant grounding and bonding systems. Enables you to learn correct procedures in order to comply with applicable codes and standards.

EIC 268 Fiber Optic Networks

2 credits

Introduces the theory of fiber optics including standards, installation, connectorization, mechanical/fusion splicing and testing through advanced procedures in troubleshooting, repair and certification. Serves as a non-vendor dependent certification course for levels 1, 2 and 3. Focuses on building real world fiber networks with extensive hands on certification and written exams that prepare students for the versatility of actual work environments.

EIC 275 Special Topics

0.5-12 credits

Prerequisite: Permission of instructor

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

EIC 282 Internship

0.5-12 credits

Prerequisite: Permission of instructor

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.

EIC 285 Independent Study

0.5-12 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor

EIC 289 RCDD Exam Prep Course

2 credits

Focuses on a detailed study of the BICSI TDM manual using the laboratory equipment to facilitate understanding as well as exam success. The TDM manual and study guide must be purchased separately. This RCDD exam preparation course should be taken prior to the BICSI RCDD exam.

EMP- Emergency Management and Planning

www.rrcc.edu/emplan

EMP 101 Principles to Emergency Management

3 credits

This course presents a broad overview of an emergency management system and the importance of an integrated approach to managing emergencies. Participants formulate the elements of an integrated teamwork system and devise specific actions for improving their own contributions to local emergency management teams. The course is for all disciplines that work together in planning for or responding to emergencies.

EMP 105 Emergency Planning

3 credits

This course gives you a good working knowledge of the standards, regulations, and processes of emergency management planning. The student will formulate a rationale for assessing hazard vulnerability and determine the applicability of proposed preparedness, mitigation, response and recovery strategies. Understand the importance of establishing and coordinating emergency management planning teams. Develop descriptions of region specific hazards, assess vulnerability, identify existing hazard mitigation systems, recommend activities, estimate costs, and

develop a strategy for mitigation, response and recovery procedures.

EMP 106 Exercise Design and Evaluation
3 credits

This course provides you with the knowledge, and develops skills that will enable you to train a staff and to conduct an exercise to test a community's plan and its operational response capability. This course gives you knowledge and develops skills that will enable you to manage exercise evaluation activities before, during, and after an emergency management exercise.

EMP 107 Emergency Operations Center
3 credits

This course provides you with knowledge and skills to manage and operate an EOC during crisis situations. The course covers many aspects of properly locating and designing an EOC, how to staff, train and brief EOC personnel, and how to operate an EOC during various situations. The course covers various aspects of information gathering and dissemination, along with best practices for use of computers in an EOC environment, promoting enhanced planning and better control information flow to safely and effectively make strategic response decisions.

EMP 109 Incident Command Systems
3 credits

This course explores the dynamics of managing major emergency incidents. The National Incident Command System is used in the instruction. Major incidents where large life, property, or economic losses are possible are studied. Topics include organization and staffing, incident and event planning/staffing, organizing a response to an incident, and incident resource management. Actual incidents are discussed and analyzed. This course recognizes that learning from the experience of others in handling major emergencies is required in the preplanning of emergencies in our own communities.

EMP 240 Leadership and Influence
3 credits

This course enables you to lead and influence others in the demanding set-

ting of emergency management by increasing their range of skills in a variety of interpersonal areas: conflict management, use of power, and group dynamics, as well as leadership and influence.

EMP 241 Decision Making and Problem Solving
3 credits

This course enables you to clearly identify a problem and its causes in order to determine the appropriate type of decision making style. Using a suggested process of problem solving, participants will be able to apply creative solutions to both emergency and non-emergency situations.

EMP 242 Effective Communications
3 credits

This course is designed to sharpen the presentation and media skills of emergency management officials when giving and receiving information in emergency management contexts. The course addresses not only public speaking, but also other areas of communication, such as one-on-one interactions, small group discussions, written communication, listening skills, and dissemination of public information through the media.

EMP 244 Developing Volunteer Resources
3 credits

This course enables students to develop and coordinate volunteer resources in a disaster. The success of developing volunteer resources is often critical in emergency management. Overall, local emergency program managers involve volunteers in different tasks and to varying degrees. Some rely almost exclusively on organized volunteer groups and make minimal use of individual volunteers. Yet both individual volunteers and established groups represent a wealth of talent that, systematically applied, can significantly upgrade the emergency management program.

EMP 247 Decision Making in a Crisis
3 credits

This course provides the opportunity to practice making decisions in much the same way as during an incident. It will enable you to make emergency-related decisions, examine the consequences of

those decisions on emergency operations and the community at large.

EMP 280 Business Emergency Management
3 credits

Red Rocks is developing a basic business-oriented Emergency Management course which has been missing from our popular public sector-oriented emergency management offerings. This introductory course for will be offered beginning with the fall 2003 semester. It is being developed in conjunction with the Association of Contingency Planners and support from the Colorado Office of Emergency Management and the Federal Emergency Management Agency.

EMP 291 Public Information Officer
3 credits

This course provides you an opportunity to practice and expand on public information skills in a crisis environment. It is a highly interactive course that includes workshops on writing, public speaking, media interviews, and awareness campaign development. Students also will discuss media relations and public information planning.

EMS- Emergency Medical Services

www.rccc.ccoes.edu/ems

EMS 115 First Responder
3 credits

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; HPR 102

Co-requisite: EMS 170

Enables you after successful completion of this course to take the EMT Certification Examination subject to the requirements of the Colorado

Department of Health and Environment. Includes written and practical examinations. Student must be at least 18 years of age.

EMS 126 Emergency Medical Technician – Basic Refresher
3 credits

Prerequisite: Current CPR card, current or less than 36 months expired EMT-Basic certification, permission of instructor

Co-requisite: None, if EMT-Basic certification is current or less than six months expired.

Co-requisite: EMS 170, if EMT-B certification is greater than six months expired

Provides required didactic and skills review for renewing EMT students and accommodates the needs of the re-entry EMT student.

EMS 130 Emergency Medical Technician Intravenous Therapy
2 credits

Prerequisite: Current EMT Basic certification, or proper licensure, permission of instructor

Focuses on cognitive and skill practice as required by Colorado Prehospital Care program for EMT Basic level IV approval. 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

Provides the EMT student with the clinical experience required of initial and some renewal processes.

EMS 214 Basic Trauma Life Support
1 credit

Prerequisite: EMT-Basic or higher certification

Provides students 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 those programs may register for them. Prerequisites for those 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 the faculty advisor for more information.

EMS 225 Fundamentals of Paramedic Practice

3 credits

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

Serves as the lab experience to coincide with EMS 225 topics.

EMS 227 Paramedic Special Considerations
3 credits

Focuses on a comprehensive study of Advanced Life Support Practice.

EMS 228 Paramedic Special Considerations Lab
2 credits

Serves as the lab experience for those students enrolled in EMS 227.

EMS 229 Paramedic Pharmacology
3 credits

Focuses on a comprehensive study of emergency pharmacology.

EMS 230 Paramedic Pharmacology Lab
2 credits

Serves as the required lab course in the paramedic education program.

EMS 231 Paramedic Cardiology
5 credits

Addresses cardiology topics as presented in the National Standard Curriculum for paramedics.

EMS 232 Paramedic Cardiology Lab
1 credit

Incorporates a hands-on application of principles of cardiac care in the hospital environment.

EMS 233 Paramedic Medical Emergencies
4 credits

Focuses on a comprehensive study of adult and pediatric medical emergencies.

EMS 234 Paramedic Medical Emergencies Lab
1 credit

Focuses on a clinical study of adult and pediatric medical emergencies.

EMS 235 Paramedic Trauma Emergencies

4 credits

Focuses on a comprehensive study of adult and pediatric trauma emergencies.

EMS 236 Paramedic Trauma Emergencies Lab
1 credit

Serves as a lab presenting various acute trauma scenarios.

EMS 237 Paramedic Internship Preparatory
2 credits

Reviews concepts and techniques used in the prehospital setting.

EMS 280 Paramedic Internship I
6 credits

Serves as the preceptor/internship program for paramedic students.

EMS 281 Paramedic Internship II
6 credits

Serves as the continuation of EMS 280, preceptor program for paramedic students.

ENG- English

www.rccc.ccoes.edu/english

ENG 030 Basic Writing Skills **2 credits**

This course focuses on sentence and basic paragraph structure and development. It 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 COMPASS score

This course 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 COMPASS score

This course emphasizes critical thinking as students 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**

This course 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**

This course focuses on developing technical documents that are delivered to users on line, such as online manuals and online help information. The course emphasizes content, organization, presentation, and style of online documentation. This course introduces hyper-text and Web publishing concepts, as well as project cycle management, working as part of a documentation team, and collaboration with technical experts.

ENG 119 Resumes and Cover Letters **1 credit**

This course provides an introduction to writing resumes and cover letters. Students 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 or appropriate SAT, ACT or COMPASS score.

This course emphasizes the planning, writing, and revising of compositions, including the development of critical and logical thinking skills. Students 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

This course 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 125 English Usage and Grammar **3 credits**

This course ensures that you have achieved a high level of correctness, conciseness, and precision in language use and understands the principles of organizing ideas, providing ade-

quate supporting data, and drawing logical conclusions.

ENG 131 Technical Writing **3 credits**

Prerequisites: Appropriate assessment score in reading and writing or "C" or better in ENG 090 or equivalent

This course develops skills one can apply to a variety of technical documents. The course focuses on principles for organizing, 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.

This course expands and refines the objectives of ENG 131, emphasizing formal presentations, both written and oral.

ENG 205 Technical Editing **3 credits**

This course 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 215 Playwriting **3 credits**

This course enables you to learn and practice playwriting techniques, thereby improving creative writing skills. The course emphasizes elements of dramatic structure, dialogue, styles, and theatrical practices. **Note:** This course is co-scheduled with THE 215 and may be taken as ENG 215 or THE 215 but not both.

ENG 221 Creative Writing I **3 credits**

Prerequisite: ENG 121 or instructor's permission

This course 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

This course 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

This course teaches techniques for creating poems, including study of figurative language, forms, and sound patterns of poetry.

ENG 230 Creative Nonfiction
3 credits

Prerequisite: ENG 121 or permission of instructor

This course teaches students 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 students to write and review their own nonfiction in a supportive, constructive setting.

ENG 231 Literary Magazine
3 credits

This course 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.

ENV- Environmental Science

**ENV 101 Introduction to
Environmental Science**
4 credits

Introduces you to the basic concepts of ecology and the relationship between environmental problems and biological systems. Includes discussions on biology, chemistry, geology, energy, natural resources, pollution and environmental protection.

FIW- Fine Woodworking

[www.rrcc.ccoes.edu/
constructiontech/finewood](http://www.rrcc.ccoes.edu/constructiontech/finewood)

**FIW 100 Fundamentals of
Woodworking**
4 credits

Introduces the manipulation of materials, drawings, hand and power tools, sharpening, joinery, assembly, and preparation for and finishing to accomplish woodworking

FIW 106 Plane Making
1 credit

Prerequisite: FIW 100 or permission of instructor

Explores the tradition of craftsmen making their own tools and offers an explanation of the ideal within the creation of hand planes. 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
1-8 credits

Prerequisite: FIW 100
Expands the capabilities, speed and accuracy of the woodworker through the use of jigs and specialty tools. Focuses on constructing several projects (box joint jig, a router table, a mock dovetail jig or spring pole lathe) of progressing difficulty.

FIW 115 Strip Canoe Building
4 credits

Focuses on constructing a strip canoe utilizing forms, thin wood strips, and epoxy/fiberglass techniques resulting in a beautiful and strong yet lightweight craft. Explores construction of seats, thwarts, and paddles

**FIW 116 Cabroile Leg
and Queen Anne Furniture**
4 credits

Prerequisite: FIW 100 and 201

Focuses on the Queen Anne style to guide the furniture maker to depart from rectilinear form and create curves and bends in wood. Examines pattern-making and building from drawings to create a chair, table, cabinet or similar piece.

FIW 118 Lathe Turning
4 credits

This course explores the capacities of a lathe through spindle and faceplate turnings. The use of bead, cove, taper, cylindrical, v-cut, proportions and curved line relationships are examined. Lathe components, tools and sharpening are explored.

FIW 119 Intermediate Turning I
4 credits

Lathe turning expanded into natural edge bowls, end grain hollowing, box-making, platters and open forms, and closed forms/internal hollowing techniques

FIW 121 Intermediate Turning II
4 credits

Expand lathe turning to explore finishing applications, burning, inlays, and texturing

FIW 122 Wood Carving
4 credits

This course allows students to experiment with knife and gouge to discover the many possibilities of wood decoration through carving and the qualities of numerous materials. Ultimately students are expected to produce samples of chip and relief carvings to demonstrate what's been learned

FIW 125 Finishing Wood**4 credits**

This course allows you to research the wide variety of finishes available from the oldest formulations to the bewildering array of modern films and stains. Students experiment with a representative sampling of colorations and surface finishes on a variety of woods using a selection of application techniques

FIW 128 Doormaking**4 credits**

Prerequisite: FIW 100 or 108, and 201

This course involves the planning, design, selection and purchase of materials, construction, finishing and hanging of a door students have made. Assorted styles of door construction, joinery, glues and fabrication techniques are examined.

FIW 200 Veneering and Marquetry**4 credits**

Prerequisite: FIW 100

This course 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.

FIW 201 Joinery**4 credits**

Prerequisite: FIW 100

This course explores different types of wood connections, using both hand and power tool techniques in frame and carcass joinery. Students are expected to cut, fit and assemble projects to demonstrate their knowledge.

FIW 205 Tablemaking**4 credits**

Prerequisite: FIW 100

This course 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**

This course utilizes 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 examples. Spindle turnings, spokeshave 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.

Prerequisite: FIW 100 and 201

FIW 208 Furniture Repair**4 credits**

Prerequisite: FIW 100

This course recognizes the need to repair and restore furniture and allows the student to explore jigs, veneer repair, replacing broken pieces and reassembling reconditioned furniture. Students 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**

Prerequisite: FIW 100

This course covers cabinet types, kitchen and cabinet design, layout, construction, hardware installation, materials, power tool use, accessories and estimation.

FIW 210 Bending and Laminations**4 credits**

Prerequisite: FIW 100

This course involves the process of curving natural and manmade panels through a variety of methods including spaced kerfs, cold lamination and steambending. Form construction, various qualities of different wood species and adhesive selection are studied.

FIW 211 Shop Carpentry**4 credits**

Prerequisite: Permission of the instructor

This course is for 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.

FIW 213 Furniture Making**4 credits**

Prerequisite: FIW 100 and 201

This course teaches furniture design, construction techniques, material selection,

FIW 215 Advanced Joinery**4 credits**

Prerequisite: FIW 100, 108 or 209, and 201

This course examines all types of joinery from decorative to the most complex of hand and machine cutting techniques 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 100

This course 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 students 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. The uses and application of plastic laminates are explored and students learn the proper installation of shop-built cabinets.

FIW 219 Woodworking Lab**4 credits**

Prerequisite: FIW 100 and FIW 201

This course 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 the student 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 100, 108 or 209, and 201

After completion of this course students should have produced a finished piece of salable quality with a demonstrated understanding of the materials available, their sources, shop drawings, various construction and finishing methods and reasonable design and technical skills.

FIW 250 Period Furniture Reproduction
4 credits

Prerequisite: FIW 100, 108, 122 or 209, and 201

This course involves researching and selecting a period and style of furnituremaking from the biblical era to contemporary times and building a reproduction piece. Students examine then-and-now techniques and materials while selecting the construction process for their individual piece..

FIW 275 Special Topics
1-6 credits

This course provides students with a vehicle to pursue in-depth exploration of special topics of interest

FIW 280 Technical Project
4-12 credits

Prerequisite: Permission of instructor

This course enables students to participate in individual studies on a special project which is related to the fine woodworking program. This technical project consists of : a written and approved proposal and scheduled progress reports.

FIW 282 Internship
0.5-12 credits

Prerequisite: Permission of the instructor

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.

FIW 285 Independent Study
0.5-8 credits

Prerequisite: Permission of instructor

Students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.

**FST-
Fire Science
Technology**

www.rccc.edu/fire

FST 100 Firefighter I
9 credits

Prerequisite or co-requisite: FST 102, PED 110-402

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 101 Firefighter II
3 credits

Prerequisite: FST 100

Addresses the requirements necessary to perform at the second level of progression as identified in NFPA 1001, Level II Fire Fighter Professional Qualifications.

FST 102 Introduction to Fire Science and Suppression
3 credits

Introduces the fire service organization and operation from past to present operations. Includes operation and organization of federal, state, local and private protection forces. Emphasizes extinguishing methods and equipment, special extinguishing agents, and special hazard considerations. Serves as a prerequisite for students with no previous fire suppression training or experience.

FST 103 Firefighter Occupational Health and Safety
3 credits

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.

FST 104 Fire Protection Systems
3 credits

Prerequisite: FST 100, 105 or permission of instructor

Addresses principles and functions involved in the installation and use of sprinkler systems, special suppression systems, and fire detection and alarm systems. 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

Covers various methods of building construction, the materials used in building construction, and their relationship to methods of fire attack and extinguishments. 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

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 available.

FST 107 Hazardous Materials Awareness Operations
3 credits

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

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

This course provides students with the knowledge and skills to handle low and high angle rescues using rescue rope and associated hardware. The course

takes students 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. Students are also taught care and maintenance of equipment.

FST 132 Structural Collapse Rescue

2 credits
This course covers the various types of construction, causes for structural collapse, types of structural collapse, and identification of structural component failures. Students study mitigation of a structural collapse response and other associated hazards through use of ICS, proper size-up, building failure analy-

sis, monitoring techniques, shoring systems and associated equipment, proper search and recovery techniques, and personal protective equipment requirements.

FST 133 Trench Rescue

2 credits

This course 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

This course 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

This course 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

This course 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

This course 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.



Red Rocks student Michele Doane, Englewood, is in Antarctica for six months using skills she learned in a Firefighting Crash Rescue course in Utah in 2003. She will return to Red Rocks to complete her degree in firefighting.

FST 150 Introduction to Fire Prevention Education**3 credits**

Focuses on conducting prevention and education needs assessment, targeting audiences; development and delivery of prevention and education programs. Includes methods of conducting fire prevention and safety inspections.

FST 151 Driver-Operator**3 credits**

This course 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 152 Wildland Firefighting**3 credits**

Introduces a basic understanding of wildland fire and the strategies and tactics involved during suppression operations. Includes fire line safety, emphasizing the wildland fire orders and watch out situations. Students receive training qualifying them as Certified Wildland Firefighters under the Incident Command System, recognized by the National Wildfire Coordinating Group. Covers fire behavior, fire weather, fuel types, safety equipment and guidelines, incident size up, determining resource needs, aircraft identification and capabilities, direct versus indirect attack, burn-out, backfiring and map reading.

FST 175 Special Topic**1-6 credits**

Prerequisite: Permission of instructor

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. This includes 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

Allows students 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 and II)**3 credits**

Prerequisites: FST 100 and 102, or permission of instructor

Covers the role and responsibility of the fire service instructor. 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**6 credits**

Prerequisite: FST 102, 104 and 107, or permission of instructor

Firefighting strategy and tactics, methods of fire attack, fire behavior, building construction, and pre-fire planning.

FST 203 Fire Science Hydraulics**3 credits**

Prerequisite: FST 105; MAT 090 (Introductory Algebra)

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**

Prerequisite: FST 102, 104, 105 or Instructor Approval

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**

Covers the proper method(s) of conducting basic fire investigation, determining area and point of origin, cause and methods of fire spread, recognition and preservation of evidence. Includes arson law, Constitutional law, interviewing, court procedures and testimony.

FST 206 Fire Company Supervision and Leadership**3 credits**

Prerequisite: ENG 121; FST 102, 202, or permission of instructor

Covers fire department organization, management philosophies, leadership traits, time management, group dynamics, communications, motivation counseling, conflict resolution, and employee discipline. Meets components of Fire Officer I State Certificate.

FST 207 Firefighting Strategy and Tactics II**3 credits**

Prerequisite: FST 202

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 250 Chemistry for Fire Protection**3 credits**

Prerequisite: FST 107

Addresses the actions and reactions of commonly encountered products and chemicals, chemical properties, and field applied chemistry.

FST 251 Fire Service and the Law**3 credits**

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. 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

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

Focuses on fire ground management, resource availability, management and deployment, Integrated Management System and all related components, communications, problem solving, and table top exercises.

FST 254 Hazardous Materials Technician
3 credits

Prerequisite: FST 107

Focuses on techniques associated with hazardous materials mitigation, the use of monitoring devices, components of a mitigation team, command and control of hazardous materials incidents.

FST 255 Fire Service Management
3 credits

Prerequisites: FST 202 and FST 206, or by permission of instructor

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. Introduces you to current management practices and philosophies and real-world applications from the supervisor's point of view. 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

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

Focuses on the operations of volunteer and combination fire departments, compliance with standards and ordinances, funding, recruiting, hiring and retaining employees, funding and budgeting, organizational planning and public relations.

FST 258 Wildland Fire Incident Management and Organization
3 credits

Prerequisite: FST 152 or previous certified red card training

Introduces and develops supervisory and decision-making skills for fireline management individuals. 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. Covers fireline safety, size-up, incident planning, ordering, tactics, strategies, and administrative duties.

FST 260 Intermediate Fire Behavior S-290
2 credits

Analyzes the affects of fuels, weather, topography and fire behavior on the wildland fire environment. 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.

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. Covers fire environment, fuels classification, topogra-

phy 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

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

Teaches the wildland firefighter the skills necessary to use, repair and maintain a chainsaw in the field. Focuses on techniques to fell trees and buck material in a fireline operation.

FST 264 Helicopter Crew S-217
2 credits

Provides training for fire and nonfire personnel involved in project assignments with helicopters. Enables you to develop skills and to work with a helicopter in performing tasks common to all helicopter operations.

FST 265 Ignition Operations S-234
2 credits

Prerequisites: FST 152 or equivalent, Intermediate Fire Behavior; qualification as a Squad Boss/Firefighter Type 1.

Teaches the wildland firefighter techniques in conducting firing operations. 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 safety concerns related.

FST 266 Crew Boss S230
2 credits

Prerequisites: FST 260 or completion of S290 Intermediate Fire Behavior, squad boss qualification

Meets the training needs of a Crew Boss on an incident. Includes preparation, mobilization, tactics and safety, off-line duties, demobilization and post-incident responsibilities.

FST 270 Basic Air Ops S270
1 credit

Prerequisites: FST 202 and FST 206; or permission of instructor

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. Introduces you to current management practices and philosophies and real-world applications from the supervisor's point of view. 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 275 Special Topics
1-4 credits

Prerequisite: Permission of instructor.

Provides students with a vehicle to pursue in depth exploration of special topics of interest not previously offered. 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.

Meets the individual needs of students. Students engage in intensive study or

research under the direction of a qualified instructor.

FRE- French

FRE 101 Conversational French I
3 credits

Introduces beginning students to conversational French and focuses on understanding and speaking French. Covers basic vocabulary, grammar, and expressions that are used in daily situations and in travel.

FRE 102 Conversational French II
3 credits

Prerequisites: FRE 101 or instructor permission.

Continues the sequence for beginning students who wish to understand and speak French. Covers basic conversational patterns, expressions, and grammar.

FRE 111 French Language I
5 credits

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

Prerequisites: FRE 111 or instructor permission.

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

Prerequisites: FRE 112 or instructor permission.

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

Prerequisites: FRE 211 or instructor permission.

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.

GEO- Geography

www.rccc.edu/humanities/geography

**GEO 105 World
Regional Geography**
3 credits

Facilitates an understanding of spatial relationships between and among the geographic regions of the world. Includes demographic and cultural (political, economic, and historic) forces related to the physical environments of selected regions. Focuses on analysis of interrelationships between developed and developing regions, and the interactions between human societies and natural environments. Emphasizes basic study skills in order to bolster their chances of completing the current semester successfully.

GEY- Geology

www.rccc.edu/science/geology

GEY 111 Physical Geology
4 credits

Studies the materials of the earth, its structure, surface features and the geologic processes involved in its development. This course includes laboratory experience.

GEY 118 Rock and Mineral Identification

1 credit

Introduces basic information on the definition, formation, identification, and uses of rocks and minerals.

GEY 119 The Great Ice Age

1 credit

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

Studies the physical and biological development of the earth through the vast span of geologic time. Emphasizes the investigation and interpretation of sedimentary rocks, the record of ancient environments, fossil lifeforms, and physical events, all within the framework of shifting crustal plates. Course includes laboratory experience.

GEY 125 Continental Drift

1 credit

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

Introduces geology and its relationship to man's environment. Covers geologic hazards such as floods, landslides, avalanches, earthquakes and volcanoes. 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

Provides instruction on the use and application of hand-held global positioning systems (GPS). 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

Introduces the science of caves. Includes cave formation and evolution, cave decorations (speleothems) and the adaptations of living organisms to life below ground. Incorporates a one-day field trip to a nearby cave system.

GEY 205 The Geology of Colorado

3 credits

Prerequisites: Permission of Instructor

Covers the geologic history of Colorado, with emphasis on formation of mountain ranges, igneous, sedimentary and metamorphic rock types, ore deposits and landforms. Incorporates field experience and/or classroom lectures.

GEY 208 Geology Field Trip

1-5 credits

Prerequisites: Permission of Instructor

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.

**GER-
German**

www.rccc.edu/languages

GER 101 Conversational German I

3 credits

Introduces beginning students to conversational German and focuses on understanding and speaking German. 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

Continues the sequence for students who wish to understand and speak German. Covers basic patterns, expressions, and grammar.

GER 111 German Language I

5 credits

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

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.

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.

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.

HPR- Health Professional

www.rrcc.edu/health

HPR 102 CPR for Professionals **0.5 credit**

Meets the requirement for American Red Cross Professional Rescuer CPR or American Heart Association Basic Life Support for those who work in emergency services, healthcare 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 credit**

Prerequisite: Current healthcare provider CPR card

Provides opportunity for currently certified CPR providers to renew certificates.

HPR 106 Law and Ethics for Health Professions **2 credits**

Prerequisite: Determined by individual program guides.

Co-requisite: Determined by individual program guides.

Advances student knowledge in the study and application of Medico-legal concepts in medical careers, establishes a foundation for ethical behavior and decision making.

HPR 107 Camp Health Care **0.5 credit**

Presents health issues and health responsibilities for camp health care for the RN, LPN, EMT, and advanced Red Cross First Aid carrier. Social service regulations, medications, protocols, first aid equipment, immunizations, communicable diseases, care of chronic health conditions, and the role of the health care person with camp staff will be explored.

HPR 110 IV Therapy for LPNs **5 credits**

Prerequisites: Current License as an LPN in Colorado; current CPR certificate and clinical malpractice insurance

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 experiences. The course prepares you for IV certification under State Board of nursing Guidelines.

HPR 112 Phlebotomy **5 credits**

Teaches the duties associated with the practice of venipuncture, capillary puncture, and special collection procedures. Students will have experience with quality control, infection control and safety procedures as well as laboratory computer systems. Students successfully completing this course may apply for a National Phlebotomy Registry Examination.

HPR 114 Case Management **0.5 credit**

Explores the concept of case management in the hospital, home care, insurance companies, and private sector. This course includes negotiating contracts, developing care plans, reporting, and conflict management.

HPR 120 ACLS **1 credit**

Prerequisite: Current basic life support health care provider C certification

Presents the required material for ACLS completion. The course will cover arrhythmias, medications, therapeutic modalities for life threatening arrhythmias, airway management, and other treatment modalities used in cardiac and respiratory arrest.

HPR 121 ACLS Recertification **0.5 credit**

Prerequisite: ACLS completion with current card.

Presents the required material for ACLS recertification. The course will cover rhythm recognition, cardiac drugs, cardiac monitors, and case based scenarios.

HPR 130 Pediatric Advanced Life Support

1 credit

Provides students the needed information and skills as required by health care agencies for pediatric emergencies.

HPR 131 Pediatric Advanced Life Support Renewal

0.5 credits

Provides students with updates and skill practice to complete renewal requirements for PALS completion card

HPR 137 Human Diseases **4 credits**

Covers basic knowledge of the deviations that occur in the human body with disease and injury. An integrated study of signs/symptoms, diagnostic tests and treatment.

HPR 150 Computing in Comfort **0.5 credit**

Focuses on a series of awareness through movement lessons to help you learn about the functioning of the body to achieve relaxed, efficient, strain-free, safe, and comfortable ways of using the computer.

HPR 156 Introduction to Hospice Nursing **0.5 credit**

Provides an overview of hospice care with an emphasis on the role of the nurse while accompanying the patient on this most sacred of journeys.

HPR 165 Approaches to Menopause **0.5 credit**

Offers an in-depth discussion on hormone therapy along with alternative self-care interventions that will support well-being and enhance quality of life for women as they age.

HPR 166 Introspective Ethics **1 credit**

Provides a philosophical approach to the practice of ethics in the health care setting.

HPR 178 Medical Terminology **3 credits**

Introduces the student to the structure of medical terms with emphasis on combining and using the most common prefixes, roots and suffixes. 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 healthcare setting.

HPR 180 Phlebotomy Internship
3 credits

Provides students with the opportunity to supplement course work with practical work experience related to their educational program.

HPR 190 Basic EKG Interpretation
2 credits

Provides instruction for interpretation of EKG strips, 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
3 credits

Prerequisite: HPR 190

Focuses on each wave and interval of the complex, the axis, and the 12-lead presentation of some rhythm disturbances.

HPR 201 Nuts and Bolts of Law
0.5 credit

Covers the basics of malpractice liability and regulation by the Board of Nursing, including the disciplinary process.

HPR 207 Patient Rights
0.5 credit

Covers patient rights from both an ethical and a legal perspective and will include discussions of informed consent and medication issues.

HPR 210 Physical Assessment
2 credits

Prerequisite: Student must have an active Colorado RN license

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 218 Supervision and Delegation
0.5 credit

Covers the rules for delegation of nursing tasks, including documentation and supervision issues.

HPR 220 Ethics and Law
0.5 credit

Explores issues on the cutting edge of ethics and law such as advanced treatment directives, technology and transplant of fetal tissue.

HPR 223 Hypnosis for Medical Professionals
1 credit

Limits enrollment to E.M.T.s, paramedics, nurses, operating room and emergency room personnel, or anyone in the medical profession that has patient contact. The student will learn how to increase the patient's chance of survival, lessen the side effects of drugs and treatments, and help the healing process.

HPR 225 IV Certification
0.5 credit

Description: Covers venipuncture techniques, blood tubes, and procedures for setting up and maintaining intravenous therapy, intravenous catheters, solutions, pumps, and antibiotic therapy. Legal and ethical ramifications will also be explored. Students who are LPN licensed and successfully complete this class will receive a certification.

HPR 226 IV Therapy
1 credit

Prerequisite: Health care provider whose scope of practice covers I.V. therapy.

Covers the basic venipuncture techniques, factors involved in vein selection, psychological implications, and nursing measures.

HPR 230 Trauma Assessment and Intervention
1 credit

Presents the steps for a systematic head to toe assessment and intervention in traumatic emergencies.

HPR 242 Nursing Career Alternatives
0.5 credit

Explores numerous areas in which nurses work and how to pursue jobs in those areas.

HPR 260 Bereavement Counseling
0.5 credit

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

Focuses on skill building in communication, self-expression, and conflict resolution for those dealing with children.

HPR 265 HEP/HIV Update
0.5 credit

Covers the etiology, epidemiology, and treatment modalities of Acquired Immune Deficiency Syndrome, and Hepatitis. The psychosocial issues affecting the individual with HEP/HIV/AIDS and issues involving the caregiver will also be explored.

HPR 269 Stress Management
0.5 credit

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.

HWE— Health and Wellness

www.rccc.edu/health

HWE 100 Human Nutrition
3 credits

Introduces basic principles of nutrition with emphasis on personal nutrition. Satisfies nutrition requirement of students entering health care professions

HWE 101 Cardio-Pulmonary Resuscitation (CPR)

1 credit

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

Provides limited medical information to cope with basic wilderness emergencies.

HWE 121 Outdoor Emergency Care

3 credits

This comprehensive course will prepare the student 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 extractions, and the special equipment ski patrollers need for emergency care and transportation in the outdoor environment. This is a National Ski Patrol course.

HWE 129 Wilderness First Responder

4 credits

This course provides the student with skills and emergency medical care techniques used by guides, trip leaders and others providing primary care in backcountry settings. The student will be able to respond correctly to those medical and trauma situations commonly encountered when entry into the EMS system is delayed or unlikely.

HVA— Heating, Ventilation and Air Conditioning

www.rrcc.edu/construction

HVA 100 Safety Training for the Trades

0.5 credit

Introduces you to the basic concepts of workplace hazards and the need for continuing education with regard to

safety. The reasons behind confined space training and proper safety equipment will be covered

HVA 102 Basic Refrigeration

4 credits

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

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: HVA 105 or permission of the instructor

Introduces students to the fundamentals of gas heating. Students 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

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

Enlightens you on conditions required for proper operation with R-410a

HVA 113 Refrigerant Recovery Training

1 credit

Prerequisite: HVA 102 or permission of the instructor

Explains the laws regarding refrigerant recovery. The course includes hands-on use of recovery equipment. Upon successful completion of this course students 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 credit

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

Prerequisite: HVA 121 or applicable work experience

Covers commercial ice makers, walk-in coolers, walk-in freezers, and self-contained refrigeration units.

HVA 131 Refrigeration and Air Conditioning Basics

1.5 credit

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. FREE EPA certification testing, plus HVAC Excellence Technician's Certificate testing are offered

HVA 132 Air Conditioning and Refrigeration Controls

4 credits

Prerequisite: HVA 102 and 105, or permission of instructor

Continues HVA 105. The course 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

Studies the basics of air conditioning system design, operation and installation. Students 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

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 162 Heating Controls
4 credits

Prerequisite: HVA 104, 105 or AHR 103, 105 or permission of the instructor

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 credit

Allows you to understand and gain knowledge to perform refrigerant retrofit. This course will provide you with a working knowledge of alternative refrigerants plus a understanding of retrofit procedures. A quick history of CFC ozone depletion will give you an understanding of EPA mandates, then we will arm you with accompanied by an opportunity to become EPA certified

HVA 193 Hydraulics Training
1.5 credits

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 components' 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

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 204 Direct Digital Controls
4 credits

Prerequisite: AHR 105, AHR 132, or HVA 105, 132 or permission from the instructor

Introduces you to the field of direct digital controls.

HVA 206 Mechanical Code
4 credits

Reviews in detail the Uniform Mechanical Code. The course is intended to give those entering the HVAC/R trade as well as those trades people taking certification examinations, a sound knowledge of this code.

HVA 216 Mechanical Code Calculations
4 credits

Prerequisite: HVA 206 , CON 105

Covers mechanical code calculations required to design of combustion air systems, venting systems and duct systems.

HVA 226 Boiler Operator
4 credits

Prerequisite: Documentable boiler experience or permission of the instructor

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

Prerequisite: HVA 102,105,132 or permission of the instructor

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. Students work with controls from most of the major manufacturers.

HVA 232 Advanced Air Conditioning and Refrigeration Controls
4 credits

Prerequisite: HVA 102, HVA 105, AHR 113, HVA 132

Covers the advanced study of air conditioning and refrigeration controls

HVA 233 Advanced Refrigeration
4 credits

Prerequisite: AHR 110, 105, 125, 132 or HVA 100, 102, 105, 113, 132

Builds on the skills acquired in refrigeration fundamentals. The student will have an opportunity to study and to work on rooftop units, ice machines, and commercial reach-in and walk-in coolers

HVA 235 Specialty Refrigeration Units
4 credits

Prerequisite: AHR 110,105, 125, 132, 235 or HVA 100, 102, 105, 113, 132, 233

Covers the advanced study of refrigeration equipment such as cascade refrigeration units, and two stage refrigeration units.

HVA 236 Stationary Engineer
4 credits

Prerequisite: Documented heat plant experience or permission of the instructor

Allows you to learn all aspects of boiler operation and auxillary equipment. It will further prepare students for the stationary engineer examination.

HVA 240 Servicing Forced Air Systems

4 credits

Prerequisite: HVA 100,110,105, 140, 162 or permission of the instructor

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

Prerequisite: PLU 101, HVA 110, HVA /PLU 105, HVA 162 or permission of the instructor

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 250 Designing Forced Air Systems

4 credits

Prerequisite: HVA 110, 206 and CON 100, 105 or permission of the instructor

Covers the installation, design and layout of residential forced air systems and accessories. Topics include : installation of equipment and application of national standards and local codes.

HVA 251 Building Automation I, Installer

4 credits

Prerequisite: Basic understanding of PCs and Windows operating system, wiring skills and HVAC experience. Helps you with the installation of building automation devices with regard to HVAC equipment.

HVA 252 Building Automation II, Service

4 credits

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

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

Prerequisite: HVA 110,105,206, 162, 247 or permission of the instructor

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 260 Estimating HVAC/R Systems

4 credits

Studies how to become profitable in bidding and installing HVAC/R systems. The cost of running a business and incorporating that cost in a bid is discussed. Topics include reading job specifications, completing a material take-off, estimating forms and programs, estimating labor and materials and subcontract agreements.

HVA 261 A/C Systems Service and Repair

4 credits

Prerequisite: HVA 100, 102, 105, or permission from instructor

Emphasizes the service of HVAC systems. Students 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

Prerequisite: HVA 100, 102, 105, 113, 132

Introduces you to chillers and their operating parameters.

HVA 264 Evaporative Cooling Systems Water Treatment

4 credits

Prerequisite: HVA 100, 102, 103, 105, 113, 132, Or permission from the instructor

Covers aspects of commercial and residential evaporative cooling systems. Areas examined include maintenance to these systems, water treatment, sizing, pumps and piping.

HVA 265 Commercial Heating Systems

4 credits

Prerequisite: HVA 100,101,105,112,200,240,247 or permission of the instructor

Covers the maintenance and repair of the typical heating systems used in commercial structures and multi-family dwellings. This course includes study in warm air and hydronic systems. Flame safeguard systems are also studied. Those interested in this course must have previous experience with residential heating systems.

HVA 267 Radiant Heating Systems

4 credits

Prerequisite: PLU 101, HVA 110, 105, 162, 247 or permission of the instructor

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, students are 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

Prerequisite: HVA 111, 110, 105, 162, 231, 247, 267, 265 or permission of the instructor

Course takes the operation of hydronic heating systems and allows the student to apply the knowledge of advanced hydronic controls to them. The student must have a solid field background or education in hydronic heating, electricity and heating controls prior to enrollment.

HVA 269 Indoor Air Quality and Ventilation

4 credits

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

Provides students 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

Gives you an opportunity to apply their course studies in a specific area.

HVA 285 Independent Study

0.5-6 credits

Prerequisite: Permission of the instructor

Students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.

HIS- History

www.rccc.edu/humanities/history

HIS 101 Western Civilization I

3 credits

Explores a number of events, peoples, groups, ideas, institutions, and trends that have shaped Western Civilization from the prehistoric era to 1650. Reflects the multiple perspectives of gender, class, religion, and ethnic groups. Focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in this discipline.

HIS 102 Western Civilization II

3 credits

Explores a number of events, peoples, groups, ideas, institutions, and trends that have shaped Western Civilization from 1650 to the present. Reflects the

multiple perspectives of gender, class, religion, and ethnic groups. Focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in this discipline.

HIS 116 The Native American Experience

3 credits

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 137 Contemporary World History

3 credits

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. Emphasizes the interactions of global regions and nation-states.

HIS 201 United States History I

3 credits

Explores events, trends, peoples, 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. Focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in the discipline.

HIS 202 United States History II

3 credits

Explores events, trends, peoples, 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. Focuses on developing, practicing, and strengthening the skills historians use while constructing knowledge in the discipline.

HIS 215 Women in U.S. History

3 credits

Examines women's changing roles in American history from the pre-colonial native population to the present. 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

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 236 Contemporary United States History

3 credits

Focuses on the major political, economic, social, and cultural developments that have shaped modern America.

HHP- Holistic Health Professional

www.rccc.edu/health/holcert

HHP 100 Complementary Healing Methods

1 credit

Explores some of the more widely used alternative/complimentary healing methods. Expands the student's health horizons and enables the student to converse in a knowledgeable manner with patients and practitioners.

HHP 103 Introduction to the Circle of Healing

1 credit

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 credit**

Explores the scientific research surrounding mind-healing as well as enhancing mind-body communication skills.

HHP 110 Neurolinguistic Programming I**0.5 credit**

Explores practical skills that enhance and expand a person's ability to build verbal and non-verbal rapport with others.

HHP 125 Feldenkrais Awareness Through Movement**0.5 credit**

Incorporates a series of lessons in how the body functions and how to use it more intelligently. Through gentle and exploratory movements, a student learns to retrain the central nervous system and free oneself from habitual patterns of moving, thinking, and feeling that contribute to stress and disease. Through increased bodily awareness, you examine ways to move more easily during activities from vigorous sports to breathing, standing and walking.

HHP 130 Reiki Level I**1 credit**

Explores the traditional Usui use of Reiki. Covers the history and development of Reiki work, beginning in Japan, to Hawaii, to the U.S., and later Europe. Focuses on the fundamental beliefs and the dynamics of the Reiki process. 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 135 Assessing Inner Resources I**1 credit**

Focuses on imagery, journaling, relaxation, and meditation to find inner strength and peace.

HHP 140 Assessing Inner Resources II**1 credit**

Explores how personal boundaries and other inner resources are necessary before a person can safely release and heal trauma.

HHP 145 Digestive Wellness**1 credit**

Provides you with information on nutritional and herbal self-care treatments.

HHP 160 Learn to Meditate**0.5 credit**

Focuses on techniques to meditate and explores the life-enhancing benefits of meditation.

HHP 166 Introduction To Reflexology**1 credit**

Teaches you foot anatomy, basic hand stroke and foot reflex points.

HHP 167 Soft Hands**1 credit**

Focuses on improving communication through hands while assisting the healing process through touch. Explores enhancing awareness and interpretation of feelings.

HHP 168 Turaya Meditation**1 credit**

Introduces the student to the fundamentals of turaya meditation which uses

higher consciousness energy symbols to accelerate the students movement.

HHP 190 Crystal and Mineral Usage in Health Care**0.5 credit**

Introduces you to crystal and mineral types, their properties and how to clear, clean, and use for personal use or with clients. Incorporates hands on experience to feel the different energies of crystals and minerals.

HHP 202 Aromatherapy**0.5 credit**

While much ancient wisdom on the use of essential oils in health maintenance and the healing of disease has been lost, some tantalizing data from the ancient Egyptians exists and has been verified by modern scientific research. Explores the pharmacokinetics and neurophysiology of essential oils, looking into their origins, extraction, storage, and usage. Enables you to observe a large number of essential oil remedies and their applications.

HHP 205 Herbology**1 credit**

Explores the pharmacokinetics and composition of herbs and their effect on the body systems. Focuses on the habitat, harvesting, storage and usage of a select group of herbs.

HHP 212 Neurolinguistic Programming II**0.5 credit**

Enhances and expands your ability to build verbal and non-verbal rapport rapidly with others. Includes the process called anchoring, a gentle and respectful method of change.

HHP 213 Spiritual Care**0.5 credit**

Explores individual development through the life span. 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**

This participatory course of dream interpretation leads 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. Students evaluate their lifestyles and develop an individual concept of wellness and optimal health by tapping into their dreams as a source for reducing stress and increasing spirituality and inner growth.

HHP 215 The Role of Art in Healing**1 credit**

Provides an overview of the role of visual art in healing. Includes both didactic information and experiential learning. Enables you to learn how the role of art in healing has evolved over the years and to explore different models, approaches, and focuses of healing through visual art. A secondary goal of the course is to help students discover, through art, things about themselves which can enhance their professional work.

HHP 216 Humor Playshops
0.5 credit

Provides the student with tools to help disarm explosive situations, deal with hostile questions, and improve team spirit in the workplace.

HHP 221 High Level Wellness
1 credit

Explores the positive dimensions of healthy lifestyles and covers the techniques to meet the basic needs of illness, prevention, and burnout.

HHP 223 Jin Shin Level I
2 credits

Jin Shin provides basic understanding of the human energy system from an Asian perspective. Jin Shin is non-invasive, performed with light touch on various acupuncture points on the body. Enables the student to learn to identify, access, open and balance the energy of self and others within the Jin Shin system. Four Jin Shin sessions are given and received.

HHP 224 Introduction to Massage Therapy
1 credit

Teaches 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 227 Communication Skills
0.5 credit

Assists you in acquiring essential skills in communication, conflict resolution, negotiation, and team building.

HHP 228 Solution Focused Counseling
0.5 credit

Explores the practice of effective, quick, Emotional Freedom Technique (EFT) to allow themselves and others to become more focused.

HHP 229 Wellness Counseling
1 credit

Provides the tools to facilitate oneself and others in the movement towards wellness. Enables you to learn assessment skills, basic counseling skills, establishing contacts and goals for change.

HHP 231 Spiritual Renewal
0.5 credit

Enables you to develop practical approaches of caregivers for spiritual alienation and spiritual re-connection.

HHP 235 Mind, Body Healing and Health
3 credits

Focuses on the survey of the rapidly developing awareness of the inner-connectedness of mind and body and spirit. Explores the dialog between eastern and western health care and the many choices which could enhance our health and well-being.

HHP 236 Dance Therapy and Healing
0.5 credit

This workshop 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 credit

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 credit

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. Enables you to develop and use touch as a means of assessing a clients/patients 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, a person is eligible to apply for certification as a healing touch practitioner.

HHP 243 Healing Touch Level II
2 credits

Prerequisite: HHP 242 Healing Touch Level I or permission of instructor.

Allows the person who has completed Healing Touch Level I to gain the specific skills necessary to become an advanced practitioner. Emphasizes experiential learning and focus 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

Prerequisite: HHP 229 Wellness Counseling

Introduces holistic philosophy, theory, and practice and how it integrates with nursing in the art and science of caring and healing. Focuses on conscious application of self-responsibility, caring, human development, stress reduction, communication, problem solving, teaching, learning, leadership, and change.

HHP 246 Reiki Level II
1 credit

Prerequisite: HHP 130 First Degree Reiki

Teaches the learning and meaning of the three traditional Usui symbols. Incorporates in-depth discussion about application of the three symbols. Students 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 available at completion.

HHP 249 Journaling the Healing Journey

1 credit

Incorporates using a journal as an effective tool for looking at our personal growth process, as well as for helping clients in their healing process.

Teaches journaling skills and how to focus specifically on healing through various techniques.

HHP 254 Holistic Health Level II

2 credits

Prerequisites: HHP 229 Wellness Counseling and HHP 244 Holistic Health Level I

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.

HHP 256 Holistic Health Level III

2 credits

Prerequisites: HHP 229 Wellness Counseling, HHP 244 Holistic Health Level I, and HHP 254 Holistic Health Level II.

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 258 Journaling the Spiritual Journey

1 credit

Incorporates the spiritual journal as an evolution in who people think they are and in what they believe about their purpose. Spiritual writing expands the consciousness, and the universe responds by using writing as a channel – a way to interact with the direction of people's lives. Focuses on connecting with the spiritual part of people and providing tools for personal growth, as well as techniques to assist others, on the journey to spiritual wholeness.

HHP 260 Advanced Reflexology

1 credit

Prerequisite: HHP 166

Incorporates a hands-on approach with an emphasis on developing techniques. Continues the basic reflexology class and allows you to work on hand posi-

tions and address specific techniques for specific issues.

HHP 262 Psychoneuroimmunology

0.5 credit

Studies the inter-relationship of the body-mind connection. Explores the physiological and psychological interaction between the brain, the immune system, and the endocrine system.

HHP 263 Creating a Holistic Practice

0.5 credit

Focuses on the necessary skills for a nurse to start an independent practice. 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

Explores self-talk, self-appreciation, self-responsibility, belief, expectations, and provide tools for increasing personal power.

HHP 267 Living Without Limits

0.5 credit

Focuses on the steps that can be taken to clarify goals, get support for challenges, and act effectively to accomplish one's life dreams.

HHP 269 Healing Presence

1 credit

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 oneself and others.

HUM - Humanities

www.rccc.edu/health

HUM 118-Religion in American Culture

3 credits

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 preeminent organizing principle, to our 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 Survey of Humanities I

3 credits

Introduces students to the history of ideas in Western cultures through a study of the visual arts, literature, drama, music, and philosophy of early civilizations, Greek and Roman antiquity and Christian eras. Emphasizes connections among the arts, values, and diverse cultures.

HUM 122 Survey of Humanities II

3 credits

Examines the Medieval, Renaissance, and Baroque periods through a study of the visual arts, literature, music, and philosophy. Compares and contrasts diverse cultural ideas and feminine and masculine viewpoints.

HUM 123 Survey of Humanities III

3 credits

Examines the cultures of the 17th through the 20th centuries by focusing on the interrelationships of the arts, ideas, and history. Considers the influences of industrialism, scientific development, and non-European peoples.

HUM 126 Folklore of Mexico and the Southwest

3 credits

Introduces students, through visual arts, music, and literature to attitudes toward the sacred and toward power (political, economic, social, religious) held by various cultures in Mexico from the Pre-Hispanic era to the mid-twentieth century.

ITA- Italian

www.rccc.edu/languages

ITA 101 Conversational Italian I

3 credits

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 for instructor.

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.

ITA 111 Italian Language I
5 credits

Introduces a sequence dealing with the development of functional proficiency in listening, speaking, reading and writing the Italian language. Note: The order of the topics and methodology will vary according to individual texts and instructors.

ITA 201 Conversational Italian III
3 credits

Prerequisite: ITA 102 or instructor permission

Presents the third course in a sequence for students who wish to continue their study of understanding and speaking Italian. The material includes intermediate level vocabulary, grammar, and expressions.

ITA 202 Conversational Italian IV
3 credits

Prerequisite: ITA 201

Presents the fourth course in a sequence for students who wish to continue their study of understanding and speaking Italian. The material continues to cover intermediate level conversational patterns, expressions, and grammar.

ITA 275 Special Topics
1 credit

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

ITA 285 Independent Study
1 credit

Prerequisite: Permission of the Instructor.

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

LIT- Literature

www.rccc.edu/english

LIT 115 Introduction to Literature I
3 credits

This course introduces students to fiction, poetry, and drama. The course emphasizes active and responsive reading.

LIT 125 Study of the Short Story
3 credits

This course focuses on careful reading and interpretation of the short story as a distinct genre. The course examines formal as well as thematic elements of short fiction. Critical thinking, discussion, and writing about short stories will enhance perceptive reading skills and heighten awareness of the human condition.

LIT 126 Study of Poetry
3 credits

This course focuses on careful reading and interpretation of various poems representing types and periods of poetry. The course examines formal as well as thematic elements of poetry. Critical thinking, discussion, and writing about poetry will enhance perceptive reading skills and heighten awareness of the human condition.

LIT 127 Study of the Novel
3 credits

This course focuses on careful reading and interpretation of selected novels representing types and periods of literature. Students 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

This course reviews a 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

This course 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

This course 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 211 Survey
of American Literature I**
3 credits

This course 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

This course 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

This course provides an overview of British literature from the Anglo-Saxon period through the 17th 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

This course provides an overview of British literature from the 18th 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

This course 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

This course provides an overview of Gothic Literature from the 1750's to the present. The coursework 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

Prerequisite: ENG 121

This course 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

This course 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

This course examines the relationship between literature and motion pictures, emphasizing the technique and interpretive function of filmmakers.

LIT 285 Independent Study
3 credits

This course explores particular authors, topics, or themes in depth, such as

Ibsen, Faulkner, Twain, or great fiction of the nineteenth century.

MAN- Management

www.rccc.edu/business

MAN 116 Principles of Supervision
3 credits

This course 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

This course provides students with the conceptual knowledge and tools to make better use of their time in the management function.(Fall semester only)

**MAN 200 Human
Resource Management I**
3 credits

This course provides you with 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

This course 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

This course examines the behaviors of groups and individual members of organizations and how behavior can be influenced. The course emphasis is on the tools managers use to achieve organizational effectiveness.

MAN 224 Leadership
3 credits

This course focuses on the leadership skills necessary to bring about change in an organization. Students 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

This course 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

This course is a survey of the principles of management. Emphasis is 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

This course provides students 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.

MAN 285 Independent Study
1-3 credits

Prerequisite: Permission of the Instructor

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

MAN 287 Cooperative Education/Internship
1-3 credits

This course provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved workstations, which are related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

MTE— Manufacturing Technology

MTE 110 Manufacturing Communication and Teamwork
3 credits

Explores the advantages and disadvantages of using teams as a method to promote communication, critical thinking, and problem solving in business and industry. This course trains individuals in the skills necessary to be a contributing member of an industry or business team. Topics covered are emotional intelligence, team dynamics, conflict resolution, multi-rater assessment, and personal leadership skills.

MAR- Marketing

www.rccc.edu/business

MAR 111 Principles of Sales
3 credits
Prerequisite: BUS 115

This course 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 216 Principles of Marketing
3 credits

This course 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 217 E-Commerce Marketing
3 credits

This course explores new marketing strategies that have emerged as areas of information technology and the Internet have evolved. Students examine traditional marketing concepts of buying behavior, promotion, production and others, then redefines them as they apply to marketing on the World Wide Web. Web fundamentals, e-marketing trends, strategies, models and research will be examined.

MAR 275 Special Topics
1-3 credits

This course provides students 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 285 Independent Study
1-3 credits

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

MAR 287 Cooperative Education/Internship
1-3 credits

This course provides students with the opportunity to supplement course work with practical work experience related to their educational program and occupational objectives. Students are placed at approved work stations, which are related to their program of study. They work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor/coordinator.

MAT- Mathematics

www.rccc.edu/math

MAT 030 Fundamentals of Mathematics
2 credits

Prerequisites: Math assessment

This course includes the vocabulary, operations and applications of whole numbers, decimals and basic fractions and mixed numbers.

MAT 060 Pre-Algebra
3 credits

Prerequisites: MAT 030 or math assessment

This course 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, and an introduction to algebraic expressions and the solution of basic first-degree equations.

MAT 090 Introductory Algebra
4 credits

Prerequisites: Successful completion of Math 060 (Grade C or better) or math assessment.

This course 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 106 Survey of Algebra
4 credits

Prerequisite: Successful completion of Math 090 (Grade C or better) or math assessment

This course 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

Prerequisites: MAT 060 or math assessment

This course covers material designed for career technical students or general studies students who need to study particular mathematical topics. Topics 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. The specific topics covered are selected to meet the needs of the students enrolled in the course.

**MAT 111 Technology
Lab for Algebra**

1 credit

This course explores and applies algebraic topics in a laboratory course using graphing calculators.

**MAT 120 Mathematics for the
Liberal Arts**

4 credits

Prerequisites: Survey of Algebra or equivalent competency

This course 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: Survey of Algebra (Grade C or better) or equivalent competency

This course includes a brief review of intermediate algebra, equations, and inequalities, functions and their graphs, exponential and logarithmic functions, linear and non-linear systems, selection of topics from among graphing of the conic sections, introduction to sequences and series permutations and combinations, the binomial theorem and theory of equations.

MAT 122 College Trigonometry

3 credits

Prerequisite: MAT 121 (Grade C or better) or equivalent.

This course 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.

MAT 123 Finite Mathematics

4 credits

Prerequisites: Survey of Algebra or equivalent

This course 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.

MAT 125 Survey of Calculus

4 credits

Prerequisite: College Algebra (MAT 121) or Finite Mathematics (or equivalent) or permission of the instructor.

This course includes derivatives, integrals, and their applications, with attention restricted to algebraic, exponential, and logarithmic functions for business, life science and/or social science majors.

MAT 135 Introduction to Statistics

3 credits

Prerequisite: Survey of Algebra or equivalent competency

This course includes data presentation and summarization, introduction to probability concepts and distributions, statistical inference, estimation, hypothesis testing, and comparison of populations, correlation and regression.

MAT 155 Integrated Math I

3 credits

Prerequisite: Survey of Algebra or equivalent competency

This course 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: Successful completion of Math 155 (Grade C or better).

This course 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

Prerequisites: Successful completion of Survey of Algebra (Grade C or better) or equivalent.

This course is 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.

MAT 175 Special Topics

1-3 credits

Prerequisite: Permission of instructor

This course provides students with a vehicle to pursue in depth exploration of special topics of interest.

MAT 185 Independent Study

1-3 credits

Prerequisite: Permission of instructor

This course 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

Prerequisite: College Algebra and Trigonometry or equivalent.

This course 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.

MAT 202 Calculus II

5 credits

Prerequisite: Calculus I (MAT 201) (Grade C or better) or permission of instructor.

This course is a continuation of single variable calculus, which will include techniques of integration, polar coordinates, analytic geometry, improper integrals, and infinite series.

**MAT 204 Calculus III
with Engineering Applications
5 credits**

Prerequisite: MAT 202 (Grade C or better) or equivalent

This course includes all the topics of MAT 203 Calculus III 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 255 Linear Algebra
3 credits**

Prerequisite: successful completion of Math 204 (Grade C or better)

This course includes vector spaces, matrices, linear transformations, matrix representation, eigenvalues, and eigenvectors.

**MAT 261 Differential Equations
with Engineering Applications
4 credits**

Prerequisite: MAT 204 (Grade C or better) or equivalent

This course introduces ordinary differential equations. The content of this course includes all the topics of MAT 265 with an additional emphasis on applications and problem solving. A graphing calculator is required for this course.

**MAT 275 Special Topics
1-3 credits**

Prerequisite: Permission of instructor

This course provides students with a vehicle to pursue in depth exploration of special topics of interest.

**MAT 285 Independent Study
1-3 credits**

Prerequisite: Permission of Instructor

This course 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

MOT- Medical Office Technology

www.rccc.edu/health/medass

**MOT 110 Medical Office
Administration
4 credits**

Co-requisite: MOT 120

Introduces the administrative duties specifically used in medical offices.

**MOT 120 Medical Office Financial
Management
3 credits**

Co-requisite: MOT 110

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**

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**

Prerequisite: HPR 178, MOT 150

Provides hands on experience with the basic clinical skills required for assisting with patient care. Delivers the theory behind each skill presented as well as proper technique for performing each skill. 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**

Prerequisite: BIO 106, HPR 178

Co-requisite: MOT 136

Introduces you to basic routine laboratory skills and techniques for collection, handling, and examination of laboratory specimens often encountered in the ambulatory care setting. Emphasizes hands-on experience.

**MOT 140 Medical Assisting Clinical
Skills
4 credits**

Prerequisite: BIO 106, HPR 178, MAT 060 or higher or NUR 101

Co-requisite: MOT 138

Provides hands on experience with the clinical skills required for assisting with patient care. Delivers the theory behind each skill presented as well as proper technique for performing each skill.

**MOT 150 Pharmacology for Medical
Assistants
3 credits**

Prerequisite: BIO 106, HPR 178, MAT 060 or higher or NUR 101

Provides an overview of pharmacology language, abbreviations, systems of measurement and conversions. 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.

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. Student must have permission by program coordinator to begin internship.

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.

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. Student must have permission by program coordinator to begin internship.

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.

Provides supervised placement in 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. Student must have permission by program coordinator to begin internship.

MOT 189 Review for Medical Assistant National Examination **1 credit**

Prerequisite: successful completion of M.A. program requirements.

Prepares the candidate sitting for the National Registration/Certification Examination for Medical Assistant through review and practice. These examinations are given with the intent of evaluating the competency of entry-level practitioners in Medical Assisting, therefore supporting quality care in the office or clinic.

MGD - Multimedia Graphic Design

www.rccc.edu/multimedia

MGD 101 Intro. to Computers for Graphics **3 credits**

This course introduces the student to the computer system developed for

graphics. The student will learn the hardware and software components for multimedia production. Each student will explore basic computer operations, ergonomics, file management, scanning techniques, archiving capabilities, and utilization of the multimedia department server and internet connection.

MGD 102 Intro. to Multimedia **3 credits**

Prerequisite or co-requisite: MGD 101

This course introduces the types of equipment and technical considerations used in multimedia productions and the multimedia professions. It focuses on current types of equipment such as scanners, printers, digital cameras and computers. Students gain hands-on experience in how the technology is utilized for input and output in production and design projects. Overview of software for multimedia will be explored.

MGD 103 Production Design **3 credits**

Prerequisite or co-requisite: MGD 101

This course explores the use of tools, computer graphics techniques and design principles to produce professional graphic designs. Studies include printing basics, typography and digital color systems. Students use creative thinking to solve communication and design concepts for the output process.

MGD 104 Videography **3 credits**

Prerequisite or co-requisite: MGD 101

This course offers an introduction to the principles and techniques of videotape production, including camera operation, basic script writing, lighting, sound and basic digital editing. Examination of the pre-production, production, and post-production processes, as well as aesthetics, will be included.

MGD 111 Adobe Photoshop I **3 credits**

Prerequisite or co-requisite: MGD 101

This course concentrates on the high-end capabilities of a raster photo-editing software as an illustration, design and photo retouching tool. Students explore a wide range of selection and manipulation techniques that can be applied to photos, graphics and videos.

MGD 112 Adobe Illustrator I **3 credits**

Prerequisite or co-requisite: MGD 101

This course acquaints students with the processes of a vector drawing program on the computer. Students learn how to use the tools to create digital artwork that can be used in web design, print media and digital screen design.

MGD 113 QuarkXPress **3 credits**

Prerequisite or co-requisite: MGD 101

This course introduces students to QuarkXPress, a digital page layout tool. Students learn how to assemble, organize, manipulate and manage text and graphics to produce a high quality publication. Class discussions and independent projects supplement hands-on classroom work.

MGD 114 Adobe InDesign **3 credits**

Prerequisite: MGD 103

This course introduces students to InDesign, a page layout program which integrates seamlessly with other Adobe design programs. InDesign delivers creative freedom and productivity to DTP. Class discussions and independent projects supplement hands-on classroom work.

MGD 118 Digital Color Theory **3 credits**

Prerequisites: MGD 111 or MGD 112

This course covers color theory as it relates to multimedia. The psychology of color is taught as well as how to effectively design with color. Students learn how to correct color photographs and create color separations. Color scanning technology is also covered.

MGD 121 Painter for Digital Media **3 credits**

Prerequisite: MGD 111 or MGD 112

This course teaches students how to work with an illustration and paint software application called Painter. Color and relationships, repeat patterns, animation and digitization are among the topics covered in the course as students explore the possibilities of visual art using computers. Assigned projects cover a wide range of visual approach-

es. Painter provides an extra competitive edge for students.

MGD 122 Sculpting for Digital Media

3 credits

Prerequisite: MGD 153 or permission of instructor

This course introduces students to conceptualization of surface coloration, painting and manipulation of 3D objects and environments. Students will construct sculptures using organic, inorganic, abstract, and realistic subject matter. Operating a 3D scanner, students will digitize a sculpture and bring the electronic file into a computer animation application for manipulation.

MGD 123 Bryce

3 credits

Prerequisite: MGD 111

This class will exploit the unique abilities of Bryce for creating photo realistic natural scenes in 3D. Students will learn the tools, techniques and concepts involved in the use of the software. Additionally, students will study the works of premiere Bryce artists and create numerous images and animations of their own. Emphasis will be placed on structure, composition, lighting and color theory.

MGD 128 Multimedia Hardware

3 credits

Prerequisite: MGD 101

This class will teach the principles and techniques of maintaining, upgrading, and customizing personal computer systems. Emphasis will also be placed on various emerging and established technologies related to graphic computing.

MGD 141 Web Design I

3 credits

Prerequisite: MGD 111 or MGD 112

This course introduces the fundamentals of HTML syntax using a simple text editor to create a web page. Web-safe colors and the use of graphic editors will be explored. Students study web aesthetics and intuitive interface design. The course emphasizes file organization and layout including tables and frames.

MGD 143 Web Motion Graphic Design I

3 credits

Prerequisite: MGD 112 and MGD 141

This course will stress creation of animated GIF's and dynamic, interactive media for Web applications. Students will learn how to draw objects, create symbols, and assemble motion tweens.

MGD 145 QuickTime Technologies

3 credits

Prerequisite: MGD 111 and MGD 141

This course introduces students to current QuickTime technologies for Web applications. Students will prepare panoramic and object QTVR content, streaming audio and video in QuickTime format. Students will publish digitized video and audio in web pages on a streaming server.

MGD 153 3D Animation I

3 credits

Prerequisite: MGD 111

This course encompasses all major aspects of creating 3D characters using animation software. Using developed characters, the student will learn how to animate for personality.

MGD 155 LightWave I

3 credits

Prerequisite: MGD 153

This course introduces students to LightWave's Modeler program with an emphasis on modeling techniques. It also touches on LightWave's Layout program for setting up scenes with texture maps and lighting. There will also be instruction on how to import models from other programs.

MGD 161 Director I

3 credits

Prerequisites: MGD 111

This course examines Macromedia Director, the leading authoring tool for interactive multimedia from the art director's perspective. Students will learn the basics of 2D animation for both computer presentations and the web. Interface design and scene development are emphasized. Hands-on projects include lingo scripts, behaviors, adding sound and digital video to student's movies.

MGD 163 Sound Design I

3 credits

Prerequisite: MGD 101 or MGD 161

This course explores the use of sound in multimedia production and audio storytelling. Students examine the principles of recording. Classes focus on how sound can enhance interactive productions and improve computer presentations. Students learn how to use the computer as a full audio editing studio.

MGD 164 Digital Video Editing I

3 credits

Prerequisite: MGD 101 and MGD 111

This course is an introduction to digital non-linear video editing. Students 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.

MGD 165 After Effects I

3 credits

Prerequisite: MGD 111

The course provides the fundamental techniques for creating digital motion graphics such as 2D animations, animated logos, video graphics, etc. Classes cover relevant tools and techniques as well as industry standards, delivery methods and output.

MGD 167 Game Design I

3 credits

Prerequisite: MGD 161

This course introduces students to game design from conceptual development and functionality, through production of a virtual world prototype. Students examine such things as character registration, in-betweens, inking and clean up used for creating real-time game environments. Storytelling and visual metaphor development are emphasized.

MGD 175 Maya I

3 credits

Prerequisite: MGD 153

This course introduces students to Maya's incredible power and flexibility for generating digital images of animated characters and scenes. Students

learn how to model, animate and render in Maya.

MGD 211 Adobe Photoshop II

3 credits

Prerequisite: MGD 111 or equivalent experience

This course develops and reinforces image composition techniques learned in MGD 111. Fundamentals are continuously reinforced as new design techniques are introduced.

MGD 212 Adobe Illustrator II

3 credits

Prerequisite: MGD 112

This course enables the student to continue development of digital drawing skills through practice and use of state-of-the-art design illustration software learned in MGD 112.

MGD 213 Electronic Prepress

3 credits

Prerequisite: MGD 113 or MGD 114

This course 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 241 Web Design II

3 credits

Prerequisite: MGD 141

This course 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 websites that employ more complex structures, optimal site architecture and navigation necessary for larger and more complex sites.

MGD 243 Web Motion Graphic Design II

3 credits

Prerequisite: MGD 143

This course will stress the complex creation of 2D animated motion graphics concentrating on the prior skills learned and the use of scripting and behaviors.

Students will create motion graphics using these skills and apply them to websites. Website justification of motion graphics will be stressed, appraised and weighed.

MGD 253 3D Animation II

3 credits

Prerequisite: MGD 153

This course addresses more advanced aspects of creating 3D characters on the computer. Students also examine facial animation, lip synchronization, scene design and lighting set-ups.

MGD 259 Management and Production

3 credits

This course examines development of multimedia 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. Teamwork is emphasized throughout the course.

MGD 255 LightWave II

3 credits

Prerequisite: MGD 155

This course further examines LightWave's Layout program with an emphasis on animation and animation techniques. It also touches on LightWave's Layout program for setting up scenes with advanced procedural texture maps and lighting.

MGD 256 Graphic Design Production

3 credits

Prerequisite: Permission of Instructor

This course provides an opportunity to combine several draw and paint applications into one design and layout class. Students explore advanced techniques in creating and designing computer art.

MGD 257 Animation Production

3 credits

This course 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 258 Web Design Production

3 credits

This course stresses website development and usability issues, as well as, pre-production, production and post-production concepts. Students will prepare project evaluations, objectives and analysis reports, project budgets, timelines, content outlines, storyboards, and flow charts. Students will also examine interactive interface design for several Web applications. Projects will vary from semester to semester.

MGD 259 Management and Production

3 credits

This course examines development of multimedia 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. Teamwork is emphasized throughout the course.

MGD 261 Director II

3 credits

Prerequisite: MGD 161

This course explores the interactive process within all areas of program design, courseware authoring, delivery techniques and instruction strategies. Students are introduced to advanced Lingo scripting to provide more interactive capabilities.

MGD 263 Sound Design II

3 credits

Prerequisite: MGD 163

This course 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. The student will explore synchronization techniques of audio with moving pictures, graphics, and animation.

MGD 264 Digital Video Editing II
3 credits

Prerequisite: MGD 171

This course looks at the more complex and advanced techniques of digital video editing. Areas of editing such as masking, filtering, blue/green screening, track mattes, and image mattes will be examined. Students will produce a movie project in this class and discuss practical ways to distribute to various audiences.

MGD 265 After Effects II
3 credits

Prerequisite: MGD 165

This course provides advanced skills and techniques for creating digital motion graphics. The course covers relevant tools and techniques as well as industry standards, specialized techniques, and additional tools and resources.

MGD 266 DVD Authoring
3 credits

Prerequisite: MGD 161

This course introduces students to all aspects of DVD authoring; covering source acquisition, DVD production, interface design, organization, management and appropriate DVD output solutions.

MGD 267 Game Design II
3 credits

Prerequisite: MGD 167

This course explores more advanced features of game design. Students examine such things as integration of mainline code, subroutines and interrupts into game structure. I/O structure, playtesting and distribution are emphasized.

MGD 275 Maya II
3 credits

Prerequisite: MGD 153

This course continues teaching students more advanced aspects of Maya. Students will explore advanced modeling, animation, texture mapping, added visual effects and rendering techniques.

MGD 280 Internship
3 credits

Prerequisite: Permission of Advisor

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.

MGD 285 Independent Study
3 credits

Prerequisite: Permission of Instructor

Independent study provides students an opportunity to teach themselves new technology skills not already taught in the classroom. Students engage in intensive study or research under the direction of a qualified

MUS- Music

www.rccc.edu/arts/music

MUS 100 Fundamentals of Music Theory
3 credits

Designed to help the beginning music student, or those students with a limited background in music theory, 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

Presents music fundamentals, diatonic four-part harmony, analysis and keyboard harmony for non-music majors.

MUS 105 Introduction to Electronic/Computer Music
3 credits

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 120 Music Appreciation
3 credits

Covers the basic materials of music, musical forms, media, genres and musical periods. Emphasizes the development of tools for intelligent listening and appreciation.

MUS 121 Music History I
3 credits

Studies the various periods of music history with regard to the composers, aesthetics, forms, and genres of each period. Considers music from the Middle Ages through the Classical period.

MUS 122 Music History II
3 credits

Continues Music History I with a study of music from the early Romantic period to the present.

MUS 125 History of Jazz Music
3 credits

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

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, you acquire 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
2 credits

Prerequisite: Permission of the instructor. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per 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. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per 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. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per week. Participation in a student performance is required at least once each term. First year, third term.

MUS 151 Ensemble
1 credit

Prerequisite: Permission of instructor.

Rehearses and performs various types of musical literature. First year, first term.

MUS 152 Ensemble II
1 credit

Prerequisite: Permission of instructor

Rehearses and performs various types of musical literature. First year, second term.

MUS 175 Special Topics
1-6 credits

Prerequisite: Permission of instructor

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

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.

MUS 185 Independent Study
1-3 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

MUS 241 Private Instruction
2 credits

Prerequisite: MUS 142 or MUS 143 on same instrument. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per 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 on same instrument. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per 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 on same instrument. An additional fee is required.

Offers private instruction consisting of a thirty-minute lesson and performance seminar per 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

Rehearses and performs various types of musical literature. Second year, first term.

MUS 252 Ensemble II
1 credit

Prerequisite: Permission of instructor.

Rehearses and performs various types of musical literature. Second year, second term.

MUS 275 Special Topics
1-3 credits

Prerequisite: Permission of instructor

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

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.

MUS 285 Independent Study
1-3 credits

Prerequisite: Permission of instructor

Meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

NUA- Nursing Assistant

www.rrc.edu/health

**NUA 101 Certified Nurse
Aide Health Care Skills**

4 credits

Prerequisite: HPR 102

Co-requisite: NUA 170 Nurse Aide Clinical I credit

Prepares you to perform the fundamental skills of the nurse aide. Basic nursing skills, restorative services, personal care skills, safety and emergency care issues are covered in theory and lab. The student will learn skills that address mental health needs as well as patient/resident/client rights.

**NUA 170 Nurse Assistant
Clinical Experience**

1 credit

Prerequisite: HPR 102

Co-requisite: NUA 101 Certified Nurse Aide Health Care Skills

Applies knowledge gained from NUA 101 in a clinical setting.

NUR- Nursing Refresher Programs

www.rrcc.edu/health

L.P.N. Refresher Course

**NUR 190 Licensed
Practical Nurse Refresher
10 credits**

Prerequisite: HPR 102

Co-requisite: NUR 191

This refresher course is designed for all LPN's regardless of time absent from nursing practice, to refresh basic nursing skills.

**NUR 191 Licensed
Practical Nurse Clinical Experience
2 credits**

Prerequisite: HPR 102

Co-requisite: NUR 190

Applies knowledge gained from NUR 190 in a clinical setting.

R.N. Refresher Course

**NUR 290 Registered
Nurse Refresher
10 credits**

Prerequisite: HPR 102

Co-requisite: NUR 291

This refresher course is designed for all RN's regardless of time absent from nursing practice, to refresh basic nursing skills.

**NUR 291 Registered
Nurse Clinical Experience
2 credits**

Prerequisite: HPR 102

Co-requisite: NUR 290

Applies knowledge gained from NUR 290 in a clinical setting.

PRA-Park Ranger

www.rrcc.edu/park

**PRA 102 Introduction
to Park Ranger Technology
3 credits**

This 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 178 Park Ranger Skills
Seminar
2 credits**

This 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

This 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 Resource Interpretation
3 credits**

This 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 dis-



cussed 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

This course is an introduction to the development, acquisition, and application of outdoor leadership skills and knowledge. Students 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.

This course 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

This 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; prepare and present 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, elderly and international visitors will be discussed. The sensitive handling of controversial/sensitive educational issues will also be discussed.

PRA 270 Park Ranger Internship

3 credits

Prerequisite: PRA 102

This course 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.

PHI- Philosophy

rcc.edu/humanities/philosophy

PHI 111 Introduction to Philosophy

3 credits

Introduces significant human questions and emphasizes understanding the meaning and methods of philosophy. Includes human condition, knowledge, freedom, history, ethics, the future, and religion.

PHI 112 Ethics

3 credits

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

Studies effective thinking using language-oriented logic. Provides tools and develops skills for creative and critical thinking. Emphasizes the development of decision-making and problem-solving.

PHI 114 Philosophy of Religion

3 credits

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 115 Comparative Religions

3 credits

This course introduces students to the similarities and differences among concepts predominant in the major world religions, comparing sociological, philosophical, and phenomenological similarities between major world faiths. The course transfers to any four-year college philosophy, religious studies or humanities department.

PHI 116 Applied Ethics

3 credits

This course 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 Psychology of Religion

3 credits

Psychology of Religion is 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 118 Religion in American Culture

3 credits

This course 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 202 Religion and Film

3 credits

This course 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 280-285 Special Topics in Philosophy

3 credits

This course provides students with a vehicle to pursue in depth exploration of special topics of interest.

PHO- Photography

PHO 100 Basic Camera Techniques

1 credit

This course develops the skills necessary for basic camera operations and introduces students to photography as a fine art medium.

Students will learn how to create sharp, properly exposed photographs using a variety of films. They will also gain a working knowledge of their camera's controls and the use of basic filters and flash equipment to create the desired effects.

PHO 101 Photography I

3 credits

This course is an introduction to black and white photography as a fine art medium and develops the skills necessary for basic camera and lab operations.

PHO 102 Photography II

3 credits

Prerequisite: PHO 100 and 105 or PHO 101 or ART 151

This course further explores camera and lab operations and emphasizes individual creativity. The course includes the development of a comprehensive portfolio.

PHO 105 Composition and Light

1 credit

This course covers the photographic fundamentals of design, color theory and light with an emphasis on individual creativity. Students will learn about the effects of light on a photograph and will gain and understanding of basic composition and artistic expression. Students will create images that effectively communicate ideas and sensibilities while demonstrating enhanced perception, creativity and self-expression. Students will also learn to evaluate and analyze photographs.

PHO 106 Bugs and Blossoms

1 credit

This course will explore the varied aspects, techniques and equipment employed in garden photography and insect/nature photography. Students will have access to numerous locations and subject matter for both close-up and conventional compositions and lighting.

PHO 107 History of Photography

3 credits

This course surveys the history of photography from its beginnings to the present. The emphasis will be on the study of individual photographers who have made significant contributions in the field. Students will attain an overview of technical, artistic, commercial and social development of photography as a form of visual communication.

PHO 108 Vacation Pictures

1 credit

This two-day workshop is designed for the traveler. The students will learn some technical and creative controls that will make their pictures sparkle no matter where they shoot. This is a practical course for any skill level wanting to enhance their travel photography. Digital or film cameras are welcome.

PHO 109 Photo Lab

1 credit

This class introduces students to basic darkroom operations, lab safety, proper equipment usage and darkroom techniques. Students will learn to process black and white film for optimum quality negatives, make contact prints as well as produce high quality custom black and white enlargements.

PHO 113 Point and Shoot Camera Techniques

1 credit

This is a stimulating two-day workshop designed to allow you to test the limits of your point-and-shoot camera. Even the simplest cameras can produce professional results when properly used. Digital or film point-and-shoot cameras welcome.

PHO 117 Business and Ethics in Photography

1 credit

This course will provide fundamental business skills and ethical guidelines for those students perusing a career in professional photography. We'll explore the principals and practices of successful freelance, editorial, stock, commercial, wedding, portrait and fine art photographers. Topics will include developing a business plan, advertising, cost analysis, model releases, property releases, copyrights, researching markets and publications, the Web and the basis of making money in photography.

PHO 119 Intro to Digital Imaging

1 credit

This course is designed for the photographer or hobbyist alike to get up and running in the analog to digital world of imaging. Topics will include how to use your digital camera, flatbed scanning, working with photo CD's and scanning film. Students will gain a basic working knowledge of pixels, resolution, printing and emailing digital photos and simple image manipulation using Photoshop or similar image editing software. This class is a must if you own or plan on owning a digital camera and/or scanner.

PHO 125 Finish and Display
1 credit

In this course students will learn the proper execution and presentation of their 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.

PHO 145 Color Photography I
3 credits

Prerequisite: PHO 101

This course covers the fundamentals of color photography such as color theory, light, production, processing and printing of color images, the history of color photography, composition and film.

PHO 203 Color Photography II
3 credits

Prerequisite: PHO 145

This section is designed for students who are developing a personal style and aesthetic in the medium of color photography and is an extension of Color Photography I. Personal expression will be stressed through individual critiques and projects.

PHO 204 Studio Lighting
3 credits

Prerequisites: PHO 100 and 105 or PHO 101 or ART 151

This course will explore 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 220 Close-up and Macro Photography
1 credit

This course will explore the techniques, aesthetics and equipment necessary to produce close-up and macro photographs. Students will photograph both inanimate and natural objects, indoors and outdoors using different approaches to these subjects.

PHO 226 Infrared Photography
1 credit

This two-day intensive workshop is designed for the mid-level to advanced photography student. This course explores the uses of black and white infrared film for dramatic special effects photography. Students will need to use a 35mm camera.

PHO 232 Portrait Photography
3 credits

The technical and aesthetic aspects of studio and location portrait photography are taught in this course. This course explores the personal style of portraiture, history of the field and portraiture as a visual language and creative expression. This topic also includes lighting, composition, posing and equipment selection.

PHO 235 Commercial/Architectural Photos
3 credits

Prerequisites: PHO 101 or PHO 100 and 105, plus PHO 102 or higher

This course covers the more advanced aspects of commercial and 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 260 Event Photography
3 credits

Prerequisite: PHO 102 or higher.

This class is designed for the intermediate/advanced photo student interested in learning the professional techniques associated with venue photography. Topics covered will include weddings, Barmitzvah/Basmitzvah, music concerts, sporting events, graduations and similar occasions. Students will gain hands-on knowledge and learn practical shooting skills.

PHO 271 Wedding Photography
3 credits

Prerequisites: PHO 100 and 105 or PHO 101 or ART 151 or higher

This course will explore the many aspects of wedding photography with an emphasis on advanced camera and flash techniques, candid, formal and ceremonial photography. The course includes the business and planning aspects of ceremonial and event photography.

PHO 272 Landscape and Scenic Photography
3 credits

This course is designed for the advanced photography student interested in perfecting their skills in shooting landscape or scenic photographs. Emphasis will be placed on careful attention to detail and lighting conditions, use of medium and large format equipment in both color and black and white images.

PHO 276 The Digital Darkroom
3 credits

This course is essentially, "Photoshop for Photographers." Students will learn computer aided photography and darkroom techniques. The emphasis of this course is image-editing software, which can be 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.

PHO 280 Mastering Black and White Outdoor Photography
3 credits

This advanced class will explore advanced techniques used by Master Photographers in exposing and printing professional BandW outdoor photos. Types of film, cameras, exposure methods, film processing and printing techniques will be covered. Exposure methods include the Zone System, use of filters, and advanced techniques to achieve the best possible negative to maximize print quality. All film formats welcome.

PHO 282 Special Effects Photography
3 credits

Prerequisites: PHO 100 and 105 or PHO 101 or ART 151 or higher

This course is designed for intermediate to advanced level students. Students will explore such specialized photo

techniques 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 will include special filters, motion techniques and breaking all the rules. The primary emphasis will be on personal creativity and the aesthetic value in using special effects in visual communication.

PHO 285 Photojournalism

3 credits

This course instructs you in photography for newspapers and magazines. Traditional news photography, documentary photography, picture essay and picture story formats will be covered. Responsibility of the press, working conditions and editorial photography will be explored.

PED- Physical Education

www.rccc.cccoes.edu/outdoor

PED 102 Volleyball

1 credit

This course 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

This 30-contact-hour course 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

This course is designed to introduce and improve the skill level in tennis. The primary emphasis is teaching students the elements of tennis: rules of the game, groundstrokes, serving, the

various shots, and singles and doubles play and strategies.

PED 110 Fitness Center Activity I

1 credit

This course 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 of 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

This 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 of 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

This course offers basic instruction and practice in weight training. Students use weight training equipment in accordance to their abilities and goals. Emphasis is placed upon weight training equipment orientation, correct lifting techniques, and basic program design for men and women. 30 contact hours.

PED 117 Cross Training

1 credit

Introduces basic cross-training techniques designed to improve physical work capacity of an individual. Enables you to gain an understanding of the basic principles of cross training,

the effects cross training has upon the body's energy systems and muscles, program design and terminology.

PED 124 Mountain Biking

1 credit

This course 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. Students develop skills and techniques for all riding situations, review bicycle anatomy, and basic maintenance and repairs.

PED 125 Bowling

1 credit

This course is designed to introduce and improve students 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 this course 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

This course 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**

This course 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 a student needs for safe scuba diving. This course prepares you for open-water (PADI) certification.

PED 131 Nordic Skiing**2 credits**

This course provides students 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**

This course 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**

This course offers guided instruction and independent practice in weight training for men and women. Students practice various weight training techniques in accordance with their abilities. Emphasis is placed upon physiological considerations, equipment orientation, correct lifting techniques, program design, and nutrition.

PED 138 Introduction to Winter Sports**1 credit**

This course 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**

This course 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**

This course 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, 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 Fencing**1 credit**

This 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 146 Martial Arts**1 credit**

This course 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; 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**

This course offers a guided instruction in yoga. Students practice yoga according to their 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: Yoga I or permission of instructor

Concepts of basic yoga are carried into additional areas. Increases awareness of yoga and its physical and mental benefits.

PED 150 Rock Climbing I**2 credits**

This course is designed to introduce basic rock climbing, 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; safety and climbing etiquette and terminology.

PED 151 Rock Climbing II**2 credits**

Prerequisite: PED 150 or permission of instructor

This course 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**

This course 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 weekend hikes.

PED 154 Backpacking**2 credits**

This course 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 develop 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

This course 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 156 Snow and Glacier Climbing

3 credits

This course emphasizes the use of the ice axe, crampons, and roped climbing techniques on snow. The course includes route finding and crevasse rescue.

PED 157 Basic Mountaineering

3 credits

This course provides students 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

This course 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

This course 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 Routefinding

2 credits

This course 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

This course 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

This course 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 snowcave.

PED 167 Basic Search and Rescue

3 credits

This course covers the fundamentals required for search and rescue in a wilderness environment. The course includes tracking techniques and field trips.

PED 210 Fitness Center Activity III

1 credit

Prerequisite: PED 110 and PED 111

This 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 of 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

This 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 of the basic components of fitness including: flexibility, muscular strength, muscular endurance, cardiovascular fitness, and body composition will be addressed. 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 found in the Fitness Center.

PED 237 Paddle Sports

2 credits

This course 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. Students 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

This course gives the student 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 the students participate in relevant field work and that they perform to the standards expected of employees of the organizations in which the internship occurs.

PER- Physical Education and Recreation

www.rccc.ccooes.edu/outdoor

PER 113 Introduction to Physical Education and Sport

2 credits

To study the field of physical education and sports. Trends, precedents and their effects in the health and total wellness of those involved.

PER 150 Water Safety Instructor

3 credits

Prepares students to become certified by the American Red Cross as a Water Safety Instructor (WSI). Enables students to develop skills for teaching infant and preschool aquatics, Levels 1-7 in the Learn to Swim Program, Community Water Safety and Water Safety Instructor Aide. Focuses on teaching people with special needs and planning and conducting safe and effective swim lessons.

PED 151 Lifeguard Training

2 credits

Provides the necessary minimum knowledge and skills training to qualify as a non-surf lifeguard. Prepares lifeguard candidates to recognize emergencies, respond quickly and effectively to emergencies and prevent drowning and other incidents. The course also teaches other skills needed to be a professional lifeguard.

PER 152 Avalanche Safety

1 credit

This course emphasizes the latest information available about the study of avalanches, snow science, rescue equipment, and rescue techniques. The course provides students 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 160 Wilderness Ethics

3 credits

This course 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

This course 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

This course acquaints students with wilderness equipment, programs and facilities. The course includes field trips to local outdoor industry facilities.

PER 240 Whitewater Rafting Guide

2 credits

Prerequisite: PED 237 or permission from the instructor

This course 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 practicing all related and required skills while on the river.

PER 253 Outdoor Leadership

2 credits

This course is an introduction to the development, acquisition, and application of outdoor leadership skills and knowledge. Students 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

This course covers planning and methods required to teach mountaineering skills. Students give lectures and conduct field trips.

PAP- Physician Assistant Program

www.rccc.edu/pa

Students must be accepted into the PA Program to take any PAP course.

PAP 200 Biochemistry and Cell Biology

3 credits

Introduces some of the major topics in modern biochemistry, cell biology and human genetics. Studies the chemistry of proteins, carbohydrates, lipids, and nucleic acids are studied. 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 you to understand disease mechanisms, clinical lab tests and drug effects.

PAP 203 Role of the PA and Health Care Issues

1 credit

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. Examines legal, ethical, social and quality assurance in PA practice.

PAP 205 Human Anatomy and Development

3 credits

Presents functional and applied anatomy as it relates to common clinical findings. Provides you with a solid understanding of the structure of the human body, with emphasis on normal versus abnormal findings. Covers the musculoskeletal, nervous, cardiovascular, urinary, respiratory, digestive, and reproductive systems.

PAP 207 Health Promotion

1 credit

Provides clinical preventive services as part of primary care. Focuses on counseling interventions, screening tests, immunizations and chemoprophylaxis. Emphasizes counseling patients about risk factors. The curriculum examines risk and lifestyle factors for various age groups that influence health such as nutrition, exercise, stress, and substance abuse. Addresses conventional and alternative prevention strategies. The discussion of patient counseling focuses on factors influencing behavioral and social determinates of health.

PAP 210 Human Physiology

3 credits

Provides you with an improved understanding of human physiology as it relates to clinical medicine. Through lectures and examinations, 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

Introduces the etiology, evaluation and initial treatment of common emergencies. Emphasizes recognition of life and limb-threatening conditions and differentiation from non-emergent conditions. Toxic exposures, poisonings and evaluation of the multi-system trauma patient are covered. Includes penetrating and blunt force injuries. Focuses on an understanding of PA utilization and team member roles.

PAP 217 Introduction to Laboratory Medicine

1 credit

Teaches students basic diagnostic testing common to practice as a physician assistant. Emphasizes indications, normal values, 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

Provides students with an approach to reading, critically analyzing and understanding the medical literature. The fundamental principles of epidemiology are addressed. Enables students to develop the necessary skills to evaluate study design and execution. Methods in which data are analyzed and interpreted will be described and evaluated.

PAP 219 History and Physical Examination I

2 credits

Teaches the oral techniques required to obtain a complete medical history. Enables you to develop and/or enhance their communication skills and learn to use those skills to interact effectively in professional relationships. This course also explores the links between culture and communication. Communication techniques appropriate to a multicultural society are addressed. Teaches the techniques required to perform the complete physical examination of patients of all ages. Practice sessions and mock patients are used to develop the practical skills necessary to perform these tasks in everyday clinical practice.

PAP 220 History and Physical Examination II

2 credits

Continuation of PAP 219. Teaches the oral techniques required to obtain a complete medical history. Enables you to develop and/or enhance their communication skills and learn to use those skills to interact effectively in professional relationships. This course also explores the links between culture and communication. Communication techniques appropriate to a multicultural society are addressed. Teaches the techniques required to perform the complete physical examination of patients of all ages. Practice sessions and mock patients are used to develop the practical skills necessary to perform these tasks in everyday clinical practice.

PAP 221 Clinical Medicine I

3 credits

Provides a beginning understanding of how clinicians approach the diagnosis and treatment of specific disease states. In conjunction with Human Pathology curriculum, 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. Includes cardiopulmonary, pulmonary, genitourinary, endocrine, hematology, oncology, immunologic, and infectious disease.

PAP 222 Clinical Medicine II

3 credits

Continues PAP 221 with additional presentations and small group experiences that examine common patient conditions in neurology, ophthalmology, otolaryngology, dermatology, orthopedics, and geriatrics. Focuses on developing patient and assessment treatment plans. 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 223 Pediatrics

2 credits

The course emphasizes primary care of the child from birth through adolescence. The student is exposed to techniques of history taking and physical examination specific to the pediatric population. Topics to be covered include: parental education on anticipatory care and guidance, appropriate milestone recognition, injury and accident prevention, preventive care, home and automobile safety, and nutritional fundamentals and evaluation and education of the adolescent. Also a knowledge of problems unique to the adolescent to enable you to develop skills in education of the adolescent on drug abuse, identity issues, human sexuality, peer pressure and resources for referral.

PAP 224 Introduction to Surgery

1 credit

The object of this course is to provide you with an introduction to the etiology, evaluation and initial treatment of common surgical conditions and emergencies. Pre-operative, post-operative, surgical complications and care of the surgical patient will be discussed. Special emphasis on the pre-operative evaluation and preparation of patients for surgery, assistance during the intra-operative period and post-operative

care will be provided. An understanding of PA utilization and team member roles in surgical practice.

**PAP 225 Women's Health Care
1 credit**

This course provides an exposure to problems and issues associated with women's health care primarily in the ambulatory setting. Emphasis is placed on family planning and birth control; recognition and treatment of sexually transmitted disease; cancer detection; prenatal care; and the evaluation of common gynecologic problems.

**PAP 226 Clinical Procedures
1 credit**

A course designed to teach 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. Wound management, anesthesia, suturing techniques, injections and IV access, nasogastric intubation, and immobilization via casting and splinting will be covered.

**PAP 228 Problem Based Learning
2 credits**

In this course students will 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. Emphasis will be placed on problem-based format, presenting case studies in small groups either orally or in a written format.

This course will also present evidence based health care as it relates to clinical outcomes.

**PAP 230 Pharmacology I
1 credit**

This course begins the study of therapeutic pharmacology, with emphasis on pharmacokinetics and pharmacodynamics. The physiology that underlies drug contraindications, interactions and adverse effects is reviewed.

**PAP 231 Pharmacology II
3 credits**

In this continuation of PAP 230, Pharmacology I, students learn to apply the principles of pharmacology to the prevention and treatment of specific human disorders. Special emphasis is placed on the safe and appropriate use of medications.

**PAP 235 Human Pathology
4 credits**

In this course, learners focus on the clinical pathophysiology of human illness. Individuals modules are devoted to an examination of the cellular and organ-based aspects of disease, with attention to how the disease process begins and proceeds. Where appropriate, presentations in Clinical Medicine will accompany the presentations in this course, allowing students to correlate the pathophysiology of specific disease with the medical and surgical management of those conditions.

**PAP 240 Behavioral
Science for the PA
3 credits**

In this course students will explore the relationship between physical illness and psychosocial issues in the medical setting. Interviewing and communication styles unique to behavioral medicine will be discussed. The presentation and recognition of major psychiatric disorders, mood and anxiety disorders and substance abuse will be addressed. The appropriate role of psychotherapeutic agents, including anxiolytics, antidepressants, mood stabilizers and neuroleptics, will be discussed.

**PAP 261 Clinical Rotation I
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 262 Clinical Rotation II
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 263 Clinical Rotation III
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 264 Clinical Rotation IV
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 265 Clinical Rotation V
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in

primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health

**PAP 266 Clinical Rotation VI
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 267 Clinical Rotation VII
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 268 Clinical Rotation VIII
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

**PAP 269 Clinical Rotation IX
4 credits**

This year-long series of highly structured off-campus clinical experiences pairs the PA students with practicing clinicians who supervise them in the evaluation and treatment of patients. Rotations are conducted in a variety of inpatient, outpatient and long-term care settings. Students will provide supervised care to patients of all ages, including those seen by specialists in primary care, internal medicine, pediatrics, emergency medicine, surgery, orthopedics, geriatrics, behavioral medicine and women's health.

PHY- Physics

www.rccc.edu/science/physics

**PHY 105 Conceptual Physics
4 credits**

Explores the physics of how things work, utilizing many activities and demonstrations. Studies mechanics, heat, properties of matter, electricity and magnetism, light and modern physics. This course includes laboratory experience.

**PHY 111 Physics: Algebra-Based I
with Lab
5 credits**

Prerequisites: MAT 121

Topics covered in this class include: kinematics, force, circular motion, energy, momentum, torque, rotational dynamics, simple harmonic motion, temperature, heat and thermodynamics. The concepts and theories presented in class are explored through the demonstrations and the 'hands-on' experiments. This is a general physics course that is recommended for all of the health sciences and all other interested students. Students entering engineering or one of the advanced sciences should register for PHY 211.

**PHY 112 Physics: Algebra-Based II
with Lab
5 credits**

Prerequisites: PHY 111 This 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. The concepts and theories presented in class are explored through the demonstrations and 'hands-on' experiments.

**PHY 211 Physics: Calculus-Based I
with Lab
5 credits**

Prerequisites: MAT 201 Calculus I

Topics covered in this class include: kinematics, force, gravity, energy, momentum, torque, rotational dynamics, fluids and waves. The concepts and theories presented in class are explored through the demonstrations and the 'hands-on' experiments. 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
with Lab
5 credits**

Prerequisites: PHY 211 Physics: Calculus-Based I

This is the continuation of the PHY 211 course. Some of the topics covered in this class include: thermodynamics, electric fields, electric circuits, magnetic fields, light and optics, and modern physics. The concepts and theories presented in class are explored through demonstrations and 'hands-on' experiments.

PLU- Plumbing

[www.rccc.edu/constructiontech/
plumbing](http://www.rccc.edu/constructiontech/plumbing)

**PLU 100 Introduction to Plumbing
4 credits**

This course introduces you to the plumbing trade, providing them 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

This course 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

PLU 104 Plumbing Service

4 credits

Offered fall semester only This course 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

This 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 Skill **0.5 credit**

This course 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. The skills learned in this course are helpful to plumbers preparing to take the Colorado practical plumbing test

PLU 120 Residential Plumbing **4 credits**

Prerequisite: PLU 100, 101 or permission of the instructor

Offered fall semester only The student 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 130 Basic Waste and Vent **4 credits**

Prerequisite: PLU 100, 101, 104 or permission of the instructor

Offered spring semester only This course gives you 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, 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 205 Backflow Prevention Certification Training

3 credits

This course 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, cross-connection test

PLU 206 Uniform Plumbing Code **4 credits**

Co-requisite: PLU 108

The information in this course assists 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 215 Backflow Prevention Re-Certification

1 credit

Prerequisite: Students must have a current Colorado Cross Connection Control Technician Certification

This course 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 re-certification

PLU 216 UPC Up-Date **2 credits**

Prerequisite: PLU 206 or valid Colorado plumbing license

This course is for those students that need to be up-dated on the State of Colorado Plumbing Code. The instructor will meet with you and schedule the necessary attendance.

PLU 226 UPC 16 Hour **1 credits**

This course is for those students that need to complete a 16 hour plumbing code course

PLU 227 Medical Gas Certification **2 credits**

Prerequisite: PLU 101, 206, or Colorado Journeyman Plumber License or permission of the instructor

This course 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 240 Commercial Plumbing Systems **4 credits**

Prerequisite: PLU 100, 101,120, 130

This course will review code requirements of plumbing systems typically found in commercial structures. Students will design and install systems meet these requirements.

**PLU 244 Commercial
Plumbing Service****4 credits**

Prerequisite: PLU 100,105,104,120

This course 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

Prerequisite: HTG / PLU 101, HTG 102, HTG / PLU 105, HTG 112 or permission of the instructor

This course 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.

**PLU 250 Plumbing
Estimating and Costing****4 credits**

Prerequisite: PLU 206, CON 105 and 151 Journeyman Plumber's License or permission of the instructor

This course will review and apply the information required to estimate and cost 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

Prerequisite: HTG / PLU 101, HTG 102, 105, 112, 247 or permission of the instructor

This course 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

This course provides students with a vehicle to pursue in depth exploration of special topics of interest

PLU 280 Technical Project
4-12 credits

Prerequisite: Permission of instructor

This course 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

Students with prior course work in a specific area are eligible for internship. The internship will give you an opportunity to apply their course studies.

PLU 285 Independent Study
0.5-12 credits

Prerequisite: Permission of instructor

Students will work with the instructor on a specific area with specific objectives and a predetermined project completion date.

**POS-
Political Science**www.rbcc.edu/humanities/polisci**POS 105 Introduction to Political Science**
3 credits

Survey of the discipline of political science, including political philosophy and ideology, democratic and non-democratic governments, and processes, and international relations.

POS 111 American Government
3 credits

Includes the background of the U.S. Constitution; the philosophy of American government; general principles of the 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

This course is a study of the structure and function 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

This course 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

This course is an in-depth analysis of critical issues in political science. Topics will be determined each term.

**PSY-
Psychology**www.rbcc.edu/humanities/psychology**PSY 101 General Psychology I**
3 credits

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

Scientific study of behavior including cognition, language, intelligence, psychological assessment, personality, abnormal psychology, therapy, life span development, and social psychology.

PSY 110 Career Development
3 credits

This course assists students in recognizing their career potential, and provides tools for making realistic decisions concerning educational and occupational objectives.

PSY 116 Stress Management
1-3 credits

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 215 Psychology of Adjustment
3 credits

This course emphasizes personal growth and the development of interpersonal skills. Focus is on the practical application of psychological principles and theories in achieving self-understanding and personal growth.

PSY 226 Social Psychology
3 credits

This course covers behavior of humans in social settings including attitudes, aggression, conformity, cooperation and competition, prejudice, and interpersonal attraction.

PSY 235 Human Growth and Development
3 credits

This course is a survey of human development from conception through death emphasizing physical, cognitive, emotional and psychosocial factors.

PSY 237 Psychology of Death and Dying
3 credits

Provides an opportunity to familiarize students 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.

PSY 238 Child Growth and Development
3 credits

This course covers growth and development of the individual from conception through childhood, emphasizing physical, cognitive, emotional, and psychosocial factors.

PSY 249 Abnormal Psychology
3 credits

A study of abnormal behavior and its classification, causes, treatment, and prevention.

RTE- Radiologic Technology

www.rccc.edu/health/radiology

RTE 101 Introduction to Radiography/ Patient Care
2 credits

Prerequisite: Admission to the Radiologic Technology Program

Co-requisite:: RTE 121, RTE 141, RTE 181

Provides an introduction to radiology and the knowledge necessary for the radiography student to provide safe patient care including communication skills, legal and ethical issues in medicine, body mechanics, patient transfer, medical terminology, valuing diversity, universal precautions and radiography as a profession.

RTE 111 Radiographic Patient Care II
2 credits

Prerequisite: RTE 101, RTE 121, RTE 141, RTE 181

Co-requisite:: RTE 122, RTE 142, RTE 182

Expands the information presented in RTE 101, and includes lecture and laboratory experience in the patient care areas of asepsis, vital signs, medical emergencies, assistance with drug administration, patient with special needs, EKG, and death and dying..

RTE 121 Radiologic Procedures I
3 credits

Prerequisite: Admission to the Radiologic Technology Program

Co-requisite:: RTE 101, RTE 141, RTE 181

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

Prerequisite: RTE 101, RTE 121, RTE 141, RTE 181

Co-requisite:: RTE 111, RTE 142, RTE 182

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 boney thorax.

RTE 141 Radiographic Equipment/ Imaging I
3 credits

Prerequisite: Admission to the Radiologic Technology Program

Co-requisite:: RTE 101, RTE 121, RTE 181

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

Prerequisite: RTE 101, RTE 121, RTE 141, RTE 181

Co-requisite:: RTE 111, RTE 122, RTE 182

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

Prerequisite: Admission to the Radiologic Technology Program

Co-requisite:: RTE 121, RTE 141, RTE 101

Introduces the clinical education experience at the clinical education center. The student applies knowledge learned in the classroom to the actual practice of radiography.

RTE 182 Radiographic Internship II
5 credits

Prerequisite: RTE 101, RTE 121, RTE 141, RTE 181

Co-requisite: RTE 111, RTE 142, RTE 122

Introduces additional concepts and more complex radiographic procedures than those learned in Clinical Internship I.

RTE 183 Radiographic Internship III
7 credits

Prerequisite: RTE 111, RTE 122, RTE 142, RTE 182

Reinforces the basic concepts of Clinical Internship I and II.

RTE 221 Advanced Medical Imaging
3 credits

Prerequisite: RTE 111, RTE 122, RTE 142, RTE 182, RTE 183

Co-requisite: RTE 231, RTE 281

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

Prerequisite: RTE 183, RTE 182, RTE 111, RTE 122, RTE 142

Co-requisite: RTE 221, RTE 281

Provides the basic knowledge and understanding of the biologic effects of ionizing radiation and radiation protection and safety.

RTE 281 Radiographic Internship IV
8 credits

Prerequisite: RTE 183

Co-requisite: RTE 231, RTE 221

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
11 credits

Prerequisite: RTE 221, RTE 231, RTE 281

Co-requisite: RTE 289

Introduces you to the radiographic specialty areas of portable and trauma radiography as well as increasing proficiency in general radiography.

RTE 289 Capstone
3 credits

Prerequisite: RTE 281, RTE 231, RTE 221

Co-requisite: RTE 282

Prepares the radiology technology student to effectively search for a job in radiography and sit for the American Registry of Radiologic Technology examination.

REA- Reading

REA 030 Basic Reading Skills
2 credits

Prerequisite: Appropriate COMPASS score.

This course 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 COMPASS score.

This course focuses on strategies for vocabulary development, improved reading comprehension and enrichment.

REA 090 College Preparatory Reading
3 credits

Prerequisite: REA 060 or appropriate COMPASS score.

This course enables you to apply strategies for improving comprehension, developing vocabulary, and increasing rate for reading college textbooks.

REA 112 Speed Reading
2 credits

This course improves reading comprehension and speed of reading for students who want to enhance skills for success in college or career environments.

REE- Real Estate

REE 103 Real Estate Brokers I
6 credits

Co-requisite: REE 104

This course, along with REE 104, enables you to meet the educational requirements of the Colorado Real Estate Commission for a Colorado Real Estate Brokers license, and includes real estate law and practice, practical application and current legal issues.

REE 104 Real Estate Brokers II
5 credits

Co-requisite: REE 103

This course, along with REE 103, enables you to meet the educational requirements of the Colorado Real Estate Commission for a Colorado Real Estate Brokers license. This course includes Colorado contracts and regulations, real estate closings, and trust accounts and record keeping.

REE 275 Special Topics
1-3 credits

This course provides students with a vehicle to explore special topics of interest in depth.

REE 285 Independent Study
1-3 credits

Prerequisite: Permission of instructor.

This course meets your individual needs through intensive study or research under the direction of a qualified instructor.

SBM- Small Business Management

www.rccc.ccooes.edu/business

SBM 101 Starting a Small Business 1 credit

This course 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

This course 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

This course provides an overview of recordkeeping for a small business. Students learn basic bookkeeping skills and recordkeeping requirements.

SBM 108 Marketing for a Small Business 1 credit

This course 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

This course 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

This course 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 120 Writing a Business Plan 1 credit

Prerequisites: SBM 101, 103, 106, 108, 110 and 112 or instructor permission

This is a capstone course for the Small Business certificate program. The student will write a business plan.

SBM 175 Special Topics 1-3 credits

This course provides students with a vehicle to pursue in depth exploration of special topics of interest.

SBM 185 Independent Study 1 credit

Prerequisite: Permission of instructor

This course meets the individual needs of students. Students engage in intensive study or research under the direction of a qualified instructor.

SOC- Sociology

[www.rccc.ccooes.edu/humanities/
sociology](http://www.rccc.ccooes.edu/humanities/sociology)

SOC 101 Introduction to Sociology I 3 credits

Examines the basic concepts, theories and principles of sociology, as well as human culture, social groups, and the social issues of age, gender, class and race.

SOC 102 Introduction to Sociology II 3 credits

Examines social institutions and organizations from the macro perspective. Emphasizes issues of social change, demography, social movements, and conflicts and trends within education, religion, family, political and economic structures.

SOC 205 Sociology of Family Dynamics 3 credits

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 215 Contemporary Social Problems 3 credits

Explores current social issues that result in societal problems. The course focuses on such issues as civil liberties, gender discrimination, substance abuse, crime, poverty and social change.

SOC 218 Sociology of Diversity 3 credits

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 227 Death and Dying 3 credits

Provides an opportunity to familiarize students 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

Examines the concepts, relationships, organizations, and research as they relate to violence in multiple cultural settings. SOC 265 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.

SPA- Spanish

www.rccc.edu/languages

SPA 101 Conversational Spanish I 3 credits

Offers beginning students the skills necessary to understand and speak Spanish. The material includes basic vocabulary, grammar, and expressions used in daily situations and in travel.

SPA 102 Conversational Spanish II
3 credits

Prerequisite: SPA 101 or permission of instructor.

Offers students the skills necessary to understand and speak Spanish. The material continues to cover basic conversation patterns, expressions, and grammar.

SPA 111 Spanish Language I
5 credits

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 instructor permission.

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 211 Spanish Language III
3 credits

Prerequisite: SPA 112 or instructor permission.

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 instructor permission.

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 231 Current Spanish-Spoken and Written I
3 credits

Prerequisite: SPA 112 or permission of instructor

This is a second year course leading to more fluent and current usage of Spanish. Current Spanish publications are used.

SPA 232 Current Spanish-Spoken and Written II
3 credits

Prerequisites: SPA 231 or permission of instructor

This course continues with more emphasis on fluency in speaking and current usage.

SPE- Speech

www.rrcc.edu/speech

SPE 115 Public Speaking
3 credits

Combines the basic theory of speech communication with public speech performance skills. Emphasis is on speech delivery, preparation, organization, support, and audience analysis.

SPE 125 Interpersonal Communication
3 credits

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.

SPE 216 Principles of Speech Communication II
3 credits

Prerequisite: SPE 115

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.

SPE 217 Group Communication
3 credits

This course enables students to improve their ability to analyze, evaluate and impact group discussions, group processes, leadership responsibilities, group dynamics, group decision making and other elements of group communication.



Speech students competed in the RRCC 12th Annual Speech Competition in the Spring of 2003. Marie Stallworth, third from left, won first place in the Red Rocks Speech Competition and advanced to the metro competition, where she also placed first against students from other local community colleges.

SPE 220 Intercultural Communication

3 credits

Prerequisite: SPE 115 or permission of instructor

Explores the link between culture and communication and 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, ethics, language, and nonverbal communication.

SPE 230 Argumentation and Debate

3 credits

Prerequisite: SPE 115 or permission of the instructor

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.

SPE 275 Special Topics

1-6 credits

Provides students with a vehicle to pursue in depth exploration of special topics of interest.

THE- Theatre Arts

www.rrcc.edu/theatre

THE 100 Technical Theatre Lab

1-3 credits

Provides students 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

Provides students with training in cutting and sewing techniques, as well as knowledge of fabric types, qualities, uses, and cleaning.

THE 105 Introduction to Theatre Arts

3 credits

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

Provides students with basic techniques in pattern drafting. Techniques will include exploring computer design as well as traditional drafting methods.

THE 111 Acting I

3 credits

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.

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 116 Technical Theatre

3 credits

Introduces hands-on methods of constructing and painting scenery and properties and operating stage lighting. Students also learn the proper procedures of using shop equipment and serving on stage crews.

THE 120 Drafting for the Performing Arts

3 credits

Prerequisites: THE 116 or permission of instructor

Teaches students 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, detailed and isometric drawings. Attention will be

given to drawing symbols, notations, dimensions and blueprint reading.

THE 125 Individual Singing Lessons for Musical Theater

0.5 credit

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

Builds a confident, talented and exciting audition. The course includes a mock video taped audition, and covers resumes, 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 130 Safety, Tools and Materials

3 credits

Prerequisite: THE 116 or permission of the instructor.

Addresses basic safety guidelines concerning the operation/use, care and storage of tools and materials. Areas covered include OSHA power tools, hand tools, hardware, lighting and sound equipment, paints, solvents, plastics, woods, steel, aluminum and ladders.

THE 131 Theatre Production I

3 credits

Prerequisite: THE 111, THE 112 or permission of instructor

Allows students 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

Allows students 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

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

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

Teaches students to develop skills in nine dialects and accents.

THE 141 Improvisation I
1 credit

Helps students learn improvisation skills for performance and character development. Emphasis is placed on "Second City" style of improvisation.

THE 142 Improvisation II
1 credit

Prerequisite: THE 141, THE 111 or permission of instructor.

Helps students 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

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 Emphasizes the Stanislavski approach. Students will explore acting skills through advanced material, including avant garde and classical.

THE 145 Audition Techniques
1 credit

Prerequisite: THE 143 or THE 144, or THE 111 or permission of instructor

This course focuses on the selection and preparation of audition materials, including prepared monologues, cold readings and improvisation techniques. The basics of resume preparation are also discussed.

THE 151 Stagecraft I
3 credits

Prerequisite: THE 116 or permission of the instructor.

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.

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 165 The Costume and Fashion Industry
3 credits

Provides students with an overview of the Theatre Costume and Fashion industries. Students will be introduced to many facets of both industries providing information that will assist in making career choices.

THE 200 Paint, Draw, Render, Model Techs
3 credits

Prerequisite: THE 105 or permission of instructor

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 206 Voice Practicum
1-3 credits

This course provides students with individual tutorials that define, design and applies 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 210 Singing for Actors
3 credits

Allows students to explore and perform Musical Theatre songs. Students use a pedagogical approach to evaluate their vocal structure and formulate a systematized series of vocal and whole body exercises to develop and enhance their self-confidence and vocal instrument through in-class performance and variety show presentation.

THE 211 Development of Theatre I
3 credits

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

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

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

Continues THE 213. Emphasis is on artistic concentration of voice and movement. A detailed character biography is required.

THE 215 Playwriting
3 credits

Gives students 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.

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: Acting I or consent of instructor

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

This course emphasizes two- and three-dimensional drawings and designs and color theory. Basic methods of artistic analysis and coordinating with other creative personnel are included. Students construct 3-D models and a theatrical stage set.

THE 230 Directing II
3 credits

Prerequisite: Directing I or permission of the instructor

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. Student will direct a one-act theatre piece for final project.

THE 231 Theatre Production III
3 credits

This course allows students 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 faculty consent.

Allows students 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 235 Costume Shop Organization
2 credits

Explores the various aspects of a costume shop, including organizing stock, materials and budget management.

THE 237 History of Costumes and Fashion
3 credits

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

Provides students 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.

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

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. Students will be introduced to pattern drafting.

THE 270 Resume and Portfolio Development
1 credit

Students will assemble a portfolio and resume for classroom presentation and job applications.

THE 284 Internship
1-6 credits

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.

THE 285 Independent Study
1 credit

Emphasizes structured and guided, individualized study that is organized and tailored around the interests and needs of the individual student.

WQM— WATER QUALITY MANAGEMENT TECHNOLOGY

(All courses are approved for CEUs and training units.)

www.rccc.edu/wqm

WQM 100 Introduction to Water Quality Management
3 credits

This course 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

This course provides students 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 106 Mechanical-Physical Treatment

3 credits

This course serves as a basic introduction into wastewater treatment. Topics include the technician and their responsibility, effects of waste discharges, natural cycles, solids in wastewater, NPDES permits, collection systems, pretreatment, primary treatment, secondary treatment, advanced treatment, flowmeasuring, solids handling and disposal.

WQM 107 Biological Treatment

3 credits

The course covers the major types of wastewater treatment processes, including trickling filters, rotating biological contactors, lagoons and activated sludge. Topics of each system include: design, operating guidelines, process control, testing procedures, maintenance and safety.

WQM 108 Sludge Treatment

3 credits

This course includes aerobic and anaerobic digestion; solids thickening using gravity, dissolved air, centrifuge, vacuum filters and drying beds; sludge stabilization by chemical means; sludge conditioning by chemical, thermal, wet oxidation or elutriation; volume reduction by composting or mechanical drying; sludge destruction by incineration; sludge storage; and land disposal with environmental controls.

WQM 109 Water Distribution

3 credits

This course covers the purpose, selection and location of water storage facilities and the operation and maintenance of related equipment. Topics include storage facilities and capabilities, boost-

er 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 115 Water Sources and Supply

3 credits

This course provides an introduction into the water supply systems and sources of water. Topics include sources and selection of water, water quality problems, reservoir management, intake structures, well and introductory plant operations.

WQM 116 Water Pre-Treatment

3 credits

This course covers coagulation, flocculation, sedimentation, filtering, corrosion, and taste and odors. Topics for each process include descriptions, operating procedures, associated calculations, startup and shutdown procedures, laboratory tests, trouble-shooting, maintenance, safety and records.

WQM 117 Domestic Water Treatment Processes

3 credits

This course covers iron and manganese control, fluoridation and softening, trihalomethanes, demineralization and handling of process waste. Topics for each process include process descriptions, operating procedures, startup and shutdown procedures, laboratory test, trouble-shooting, maintenance, safety and records.

WQM 118 Wastewater Collection Systems

3 credits

This course 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.

WQM 119 Basic Water Quality Analysis

4 credits

This course relates the results of laboratory control tests to the chemistry of water and wastewater treatment. Students 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, fluoride and biomonitoring.

WQM 120 Water Quality Equipment Maintenance

4 credits

This course 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

This course is designed to provide students 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 Basic Electricity for Water Quality Systems

3 credits

This course provides an understanding of electrical theory, various types of electrical equipment found in treatment facilities, operation, troubleshooting basic electrical problems and safety procedures.

WQM 124 Water Certification Review for Class C and D

2 credits

This course helps prepare students for the operators certification test in water at the C or D level. Topics include water principles, mathematics, hydraulics, water filtration, Colorado Primary Drinking Water Regulations, housekeeping and laboratory analysis.

WQM 125 Water-Wastewater Certification Review for Class C and D
2 credits

This course helps students 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 in the Water Quality Industry
3 credits

This course 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, safety with energy-electrical, mechanical, thermal and pressure, trenching, street work, laboratory, treatment equipment, construction vehicles/equipment and chlorine and other chemicals.

WQM 200 Hydraulics for Water Quality Management
4 credits

This course introduces the mathematical principles of density, specific gravity, pressures horsepower and energy costs, velocities, weirs, parshall flumes, venturimeters, California pipe method, flows from open-end pipes, settling velocities and classification of flow.

WQM 206 Design Interpretations of Water Quality Systems
4 credits

This course 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

The course 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, flows 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 208 Advanced Wastewater Treatment
3 credits

This course prepares students for the advanced stages of solids removal, nitrogen removal, solids removal, effluent disposal and wastewater reclamation. Topics include: design, troubleshooting, maintenance, startup and shutdown, monitoring and interpretation of test results.

WQM 216 Biological and Bacteriological Water Quality Analysis
4 credits

Prerequisites: WQM 119

This course 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 bio-monitoring.

WQM 217 Disinfection Techniques in Water Quality Systems
4 credits

This course 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 230 Industrial Monitoring and Treatment
3 credits

This course 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 sys-

tems, maintenance, plans and specification, various types of industrial wastes, and troubleshooting.

WQM 297 Co-operative Education
1-12 credits

Contact the Water Quality Management Technology department for information about this course at **303.914.6325**.

WQM 299 Independent Study
1-6 Credits

Contact the Water quality management Technology department for information about this course at **303.914.6325**.



Directory

Red Rocks employs 265 fulltime faculty and staff members.

To reach a Red Rocks employee, call 303.914.6100, ext. 1 for a directory by name.

SBCCOE

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Information
System/Computer Science
M.Ed., Colorado State
University, 1992; B.Ed.,
Colorado State University,
1986

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Faculty, Physician Assistant
Program
P.A.-C, University of
Colorado School of Medicine,
1997; B.A., Milliken
University, 1971

Paul Grant

Faculty, Fire Science
M.Ed., University of Phoenix,
2003; M.A., University of
Phoenix, 2001; B.S.,
University of Phoenix, 1999

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Assistant Professor, Physical
Education
M.A., University of Northern
Colorado, 1998; B.A.,
LaSalle University, 1970

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Assistant Professor, Biology
Ph.D., University of
California at Berkeley, 1990;
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at Berkeley, 1983

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Faculty, History
M.A., University of Texas at
Austin, 1998; B.A.,
University of Texas at Austin,
1996

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Faculty, Multimedia
Technology
B.S., University of Wyoming,
1970

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Faculty, Accounting
M.A., University of Phoenix,
1994; C.P.A., 1980; B.S.,
University of Idaho, 1964

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Professor, Speech
M.F.A., University of
Wisconsin, 1981; B.A.,
Montana State University,
1978

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Faculty Emeritus, History
M.A., University of Denver,
1969; A.B., Loretto Heights
College, 1967

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Associate Professor, Biology
M.Ed., University of Hawaii,
1984; B.A., University of
Hawaii, 1981

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Faculty, English
M.S., Illinois University,
1994; B.S., Bradley
University, 1992

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Faculty, Computer
Information
System/Computer Science
A.A.S., Red Rocks
Community College, 1987

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Information Systems/
Computer Science
M.S., Wichita State
University, 1972; B.B.A.,
Wichita State University,
1971; A.A., Otero Junior
College, 1963

Sharon Lantz

Faculty, Teacher Education
M.S., University of
Southwestern Louisiana,
1996; M.A., University of
Northern Colorado, 1979;
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University, 1973

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Professor, Real Estate
J.D., Drake University Law
School, 1973; B.A., Western
State College of Colorado,
1970

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Faculty, Fire Science
Technology
B.A., Metropolitan State
College of Denver, 1980;
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College of Denver, 1976

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Associate Professor, Criminal
Justice
M.A., University of Northern
Colorado, 1986; B.A.,
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Colorado, 1978

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M.S., University of Arizona,
1994; B.S., Austin Peay State
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D.B.A., University of
Kentucky, 1981; M.B.E.,
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1971

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Faculty, Math
M.S., University of Colorado
at Denver, 1991; B.S.,
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Champaign-Urbana, 1981;
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M.A., University of Nevada-
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Assistant Professor,
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1991; M.Ed., University of
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1973

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Careers
M.S., University of Phoenix,
2001; M.S., California State
University-Northridge, 1984;
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Health Sciences Center, 1992;
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University-Northridge, 1981

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Faculty, Construction
Technology
M.S., Montana State
University, 1990; B.S.,
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1988

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Accounting
B.S., Eastern Illinois
University, 1970

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Information
System/Computer Science
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M.A., California State
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M.A., University of
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College, 1973

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Faculty, Air Conditioning,
Heating and Refrigeration
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State University; Class A
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Construction Education and
Research Certification in
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Cindy Somers

Faculty, Chemistry
Ph.D., University of
Washington, 1989; B.A.,
University of California, 1983

John Sperling

Professor Emeritus, Carpentry
B.S., University of Colorado,
1970; Real Estate Broker's
License, Licensed Contractor

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Associate Master Teacher,
Engineering
B.E., Colorado State
University, 1987

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M.A., University of Northern
Colorado, 1974; B.A., Regis
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M.A., University of Northern
Colorado, 1989; B.A.,
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M.B.A., University of St.
Thomas, 1985; B.S.,
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Community College, 1997

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M.F.A., University of Denver,
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University, Herron School of
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M.B.A., Regis University,
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Administrators

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Employment
M.A., University of
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M.A., Webster College,
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Dr. P.H., Loma Linda
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B.S. Indiana State
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M.Ed., Texas Tech
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College, 1966

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Metropolitan State College,
1978

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M.P.A., University of
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Instructional Services
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1974; B.A., University of
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Computer Technology
M.S., University of
Colorado at Boulder, 1991;
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Colorado at Boulder, 1986

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Business Services
B.S., University of Benin,
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Children's Center

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College of Education,
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University, 1967

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M.N.M., Regis University,
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Instructional Services
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Fairleigh Dickinson
University, 1989

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Toddler/Preschool Teacher
Children's Center

Daniel Doke
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School-Age Child Care
A.A.S., Art Institute of
Colorado, 2000

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Assistant Site Manager
School-Age Child Care

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Program Manager
School-Age Child Care
B.A.S., University of
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Toddler/Preschool Teacher
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B.A., Pacific Oaks College,
2001; A.A.S., Peninsula
College, 1995

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International Education
M.A., School of
International Training,
2002; B.A., Colorado State
University, 1991

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Wyoming, 1994; A.A.,

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Center Assistant
Student Life
A.S., Parks Junior College,
1990

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School-Age Child Care
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Program
M.A., George Washington
University, 1989; B.A., Park
College, 1979; A.S., Baylor
University, 1976

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Programs
Office of Student Life
B.S.Ed., Northeast Missouri
State University, 1987

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Business and Industry
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Rocky Mountain Education
Center

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Children's Center

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Lab and Shop Manager
Construction Technology
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1966

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School-Age Child Care

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President's Office
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Care
B.A., St. Joseph College,
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University, 1975; M.L.S.,
University of Pittsburgh,
1972; B.A., Bryn Mawr
College, 1970

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Computer Technology
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Computer Technology
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State University, 1985

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Resource Referral
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Specialist
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Telecommunications
Technician
Audio Visual
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Family Resources
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New Hampshire, 1980

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Leiden, 1980; A.A.,
Nieuwland Opleidingen,
1993

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Special Projects Coordinator
Family Resources
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Northern Colorado, 1981

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Technical Education
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Construction Technology
Certificate of Construction
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University, 1990; B.A.,
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1965

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1993

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Health Careers
M.B.A., Regis University,
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University, 1998

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Technical Equipment
Coordinator
Rocky Mountain Education
Center
A.A.S., Front Range
Community College, 1993

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Site Manager I
School-Age Child Care

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Special Services
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B.S., Metropolitan State
College of Denver, 1996;
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Community College, 1994

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Arvada Campus
B.S., University of Northern
Colorado, 1992; A.A.S.,
Red Rocks Community
College, 1998

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Children's Center

Mary Szydowski
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School-Age Child Care
B.S., University of Iowa,
2001

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Site Manager I
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Financial Aid Advisor
Financial Aid
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B.S., University of
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University, 1989; B.A.,
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Gabe Chavez
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Facility Services

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Library

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Assessment

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Computer Services

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Children's Center

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Records

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Facility Services

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Payroll

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Records

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Computer Services

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Information Technology
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Computer Services

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Administrative Assistant III
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Custodian I
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Labor, Trades and Crafts
Trainee III
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Human Resources

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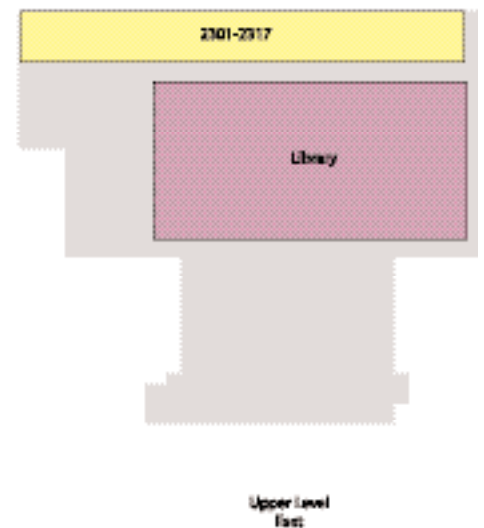
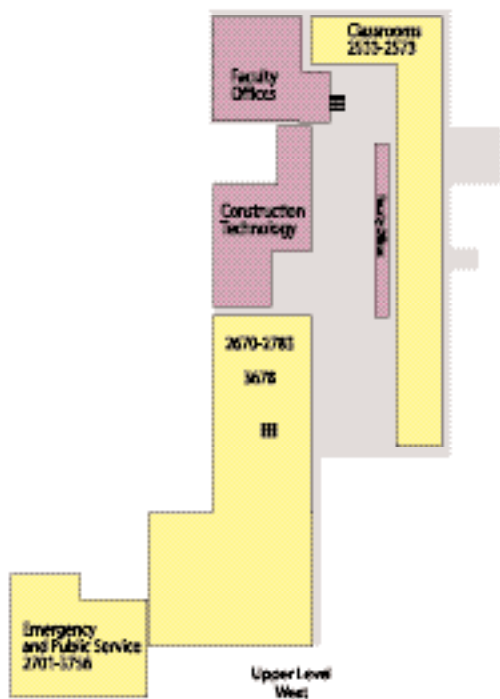
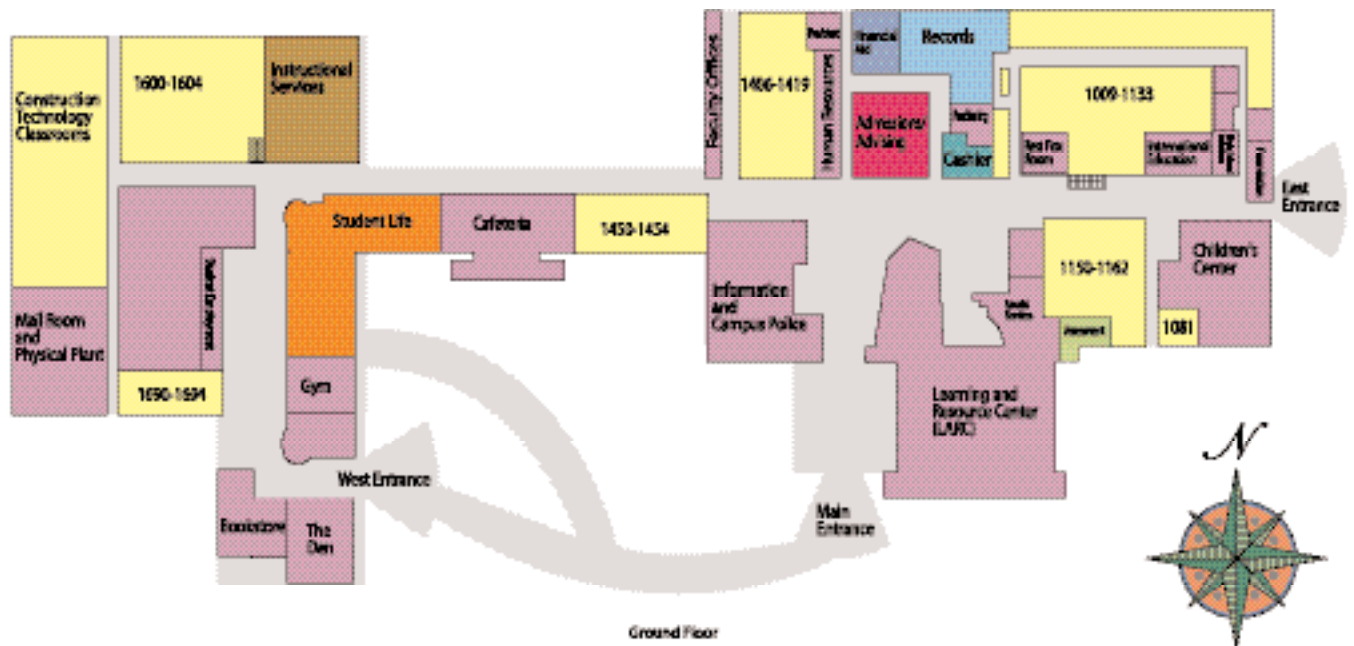
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Lakewood Campus



Key	
 Admissions/Advising	 Instructional Services
 Financial Aid	 Student Life
 Cashier	 Testing and Assessment
 Classrooms	 Other



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