2008 - 2009 Academic Calendar

July 1 – August 15 ..... Fall Semester Fee Payment
July 16 ..... Fall Orientation
August 9 ..... Fall Orientation
August 22 ..... Fall Orientation
August 25 ..... Bookstore Open
August 28 ..... Fall Semester Classes Begin
September 1 ..... Labor Day – College Closed
September 11 ..... Bookstore – Last Day for Returns
September 18 ..... Last Day to Drop/Add Classes
October 20 ..... First–Half Semester Classes End
October 21 ..... Second-Half Semester Classes Begin
November 4 ..... Title IV 61% Date
November 4 ..... Election Day – College Closed
November 11 ..... Veteran's Day – College Closed
November 25 ..... Last Day to Withdraw from Class
November 26 ..... Thanksgiving Break – College Open
November 27 & 28 ..... Thanksgiving Break – College Closed
December 8 – January 7 ..... Spring Semester Fee Payment
December 16 – 18 ..... Bookstore Buyback
December 18 ..... Last Day of Fall Semester Classes
December 19 – January 16 ..... Semester Break
December 19 – January 11 ..... Bookstore Closed
December 25 ..... Christmas Day – College Closed
January 1 ..... New Year's Day – College Closed
January 9 ..... Spring Orientation
January 12 ..... Bookstore Opens
January 19 ..... MLK Day – College Closed
January 20 ..... Spring Semester Classes Begin
February 3 ..... Bookstore – Last Day for Returns
February 6 ..... Last Day to Drop/Add Classes
February 16 ..... Presidents' Day – College Closed
March 11 ..... First–Half Semester Classes End
March 12 ..... Second–Half Semester Classes Begin
March 23 – 27 ..... Spring Break – No Classes, College Open
March 30 ..... Title IV 61% Date
April 20 ..... Last Day to Withdraw from a Class
May 6 – 8 ..... Bookstore Buyback
May 8 ..... Last Day of Spring Semester Classes
May 9 ..... Graduation

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Dean's Welcome

May I personally extend a warm welcome to you from The University of Montana – Helena College of Technology, one of Montana's premier centers of higher education since 1939. We are excited that you have expressed an interest in our College and that you are considering what the future might hold for you through the completion of one of our 34 degrees or certificates.

From my own personal experience I know that selecting a college and educational program can at times seem like an overwhelming venture. The staff and faculty at UM-Helena have developed a wide range of academic and student support services to help you succeed and would be happy to personally guide you through your educational endeavors. They can also help you identify potential scholarships, financial aid, and work study opportunities.

UM-Helena is a vibrant center of higher education committed to educational excellence and your personal success. Responding to the educational needs of our community, the College has recently completed a $9 million dollar facilities renovation and expansion project, providing additional opportunities for academic program development and diversification, the ability to expand our program scheduling, and the capacity to accommodate the needs of Montana's growing workforce. As a comprehensive technical college, we are focused on achieving our mission to succeed in meeting the needs of our community through the creation of a responsible and accessible learning environment.

I believe you will find UM-Helena to be an exciting place to explore a variety of career opportunities, prepare to transfer to a four year college, develop a diverse range of technical skills, or simply take a class for personal enrichment. Our carefully designed degrees, certificates, and personal interest courses will prepare you for the challenging world in which we live and for any new horizons you may face in the future.

I am convinced The University of Montana – Helena College of Technology will prove to be an excellent choice for you. May I extend a personal invitation to explore the many academic programs, activities, and services that UM-Helena has to offer.

Your future begins right now . . . are you ready?

Sincerely,

Daniel J. Bingham, PhD

General Information

Mission Statement

The University of Montana - Helena College of Technology promotes lifelong educational goals of learners, supports workforce development needs of employers, and fosters community involvement by providing a substantive, responsible, and accessible learning environment.

Core Value Statements

Learning
We uphold the principles of lifelong learning for our community of students, faculty, and staff.

Success
We promote the success of our community in meeting individual and common goals.

Community
We foster our connections with partners in business, industry, government, local communities, and fellow educators.

Access
We provide access to higher education, employment opportunities, continuing education, and personal and career development.

Growth
We encourage growth and progress of our community members, curricula, facilities, and resources.

Service
We serve our students, College, partners, and communities.

Vision Statement

The University of Montana - Helena College of Technology will be recognized as a responsive regional center of technical and academic education, as a partner in economic and community development, and as a diverse and accessible community of learners. UM-Helena will promote excellence in education; maintain fiscal and operational integrity; and cultivate an environment of fellowship, inclusiveness and respect.

The University of Montana – Helena Strategic Plan

Student Success
Direction: UM-Helena develops and offers instructional programs and student services that help students succeed in reaching their goals.

Priorities for action:

- Assist students in balancing life and school demands
- Provide transition services for students from application through graduation
- Develop and evaluate quality educational programs
- Increase access to student resource areas for the varying student populations

Connect with the Community
Direction: UM-Helena builds connections with a broad range of groups to respond to the diverse needs of the community we serve.

Priorities for action:

- Work collaboratively with business and industry, local and state governments, community organizations, and educational partners to accomplish common goals for statewide economic development
- Create communication avenues with the surrounding community
- Fully develop internships and service learning opportunities for students
- Identify and incorporate community interests/ business and industry needs in future planning
- Foster faculty, staff, and student involvement in community organizations and events

Create Access
Direction: UM-Helena makes access to higher education possible for the communities we serve.

Priorities for action:

- Develop alternative delivery methods for courses and degree obtainment including distance learning, evening and weekend offerings and collaboration with other educational institutions to enhance access to higher education
- Lessen the financial burden of higher education through the development and marketing of scholarship opportunities
- Improve access and services to people with disabilities

Develop Resources
Direction: UM-Helena proactively develops its fiscal, capital, technological and human resources to ensure the effective, efficient management of quality programs and services.

Priorities for action:

- Improve technological infrastructure and services including electronic mail, wireless networks, and computers
- Develop criteria for managing enrollment to sustain the quality of our programs and services including marketing and development
- Develop staffing and salary structure plans
- Expand the college's fiscal resource base through grants, private funding, and entrepreneurial activities that support college priorities
- Develop public/private partnerships and corporate sponsorship and in-kind donations
- Promote legislative awareness and support
- Support the excellence and growth of college faculty and staff members through professional development programs

Accreditation, Certification, and Approval

The University of Montana – Helena College of Technology is accredited by the Northwest Association of Schools and Colleges, certified by the National Automotive Technicians Education Foundation (NATEF), and approved by the Federal Aviation Administration, Vocational Rehabilitation, Bureau of Indian Affairs, United States Office of Education, and the Montana State Board of Nursing. UM-Helena is also approved for Veterans' education benefits.

History of UM-Helena

1939
The University of Montana – Helena College of Technology (UM-Helena), formerly the Helena College of Technology and the Helena Vocational-Technical Center, was founded in 1939 when the Office of Public Instruction designated five training centers for Montana. The Helena Center was the only one to accept the challenge.

1940s - 1960s
During World War II, thousands of war production workers were trained for shipyards, aircraft factories, and Air Force bases, as well as for other large and small production enterprises. At the same time, preflight training was conducted for students at Carroll College under a Navy training contract. Following World War II, courses were updated for veterans from all over Montana, as well as for local high school students. The curriculum was expanded to include auto mechanics, machine shop, welding, and electronics, in addition to the aviation program. During the mid-1950s, diesel mechanics, building trades, and pilot training were added. Additional programs were added during the 1960s, such as practical nursing, agricultural mechanics, data processing, and other business and office courses.

1967
A new building was completed at 1115 North Roberts Street. The building was named the Donaldson Building, in honor of the late Gene Donaldson, a long-time education supporter. The campus encompassed nearly 108,000 square feet of classroom, shop, and other instructional-related space.

1969
The Montana State Legislature reaffirmed the state designation of five vocational training centers established by statutory law.

1989
The Montana Legislature authorized the transfer of governance of the state's five Vocational-Technical Centers (in Billings, Butte, Great Falls, Helena, and Missoula) to the Montana Board of Regents of Higher Education. This transfer ended joint governance by the local school districts and the state Office of Public Instruction.

1973
The Montana Legislature authorized a major renovation project at the airport (original) facility.

1994
The Montana Board of Regents of Higher Education restructured the Montana University System, which resulted in the Helena Vocational-Technical Center becoming affiliated with The University of Montana. The institution was renamed the Helena College of Technology of The University of Montana.

1996
Construction of the Student Center was completed. Located at the Donaldson Campus, the facility included food service, a bookstore, and a lounge area. The project was initiated by the Student Senate.

2007 - Current
A $10 million expansion and renovation project was completed at the Airport and Donaldson Campuses. The expansion adds 21% more space to the Donaldson Campus including a new library, lecture hall, science labs, student services facilities, and a multi-purpose room for community education and academic instruction. As part of the expansion the Montana Arts Council commissioned Helena artist Richard Swanson to complete a sculpture entitled "Soar" near the new main entrance. Renovations of the existing space are completed to match the new expansion increasing classroom space and providing facilities for the Nursing and Fire & Rescue programs. The Airport Campus is expanded by 24% to include a new facility for the Auto Technology program and additional space for the Machine Tool program. The Construction Technology program is relocated to the Airport campus. The Montana Legislature approved funding for a further $3 million expansion of the Airport Campus to provide more space for the Welding Technology program. Construction is anticipated to begin in the summer of 2008.

History of Helena, Montana

Helena, Montana's state capital and the state's third territorial capital, became known as the "Queen City of the Rockies" with the boom brought on by the 1864 gold strike. In 1864, a group known as the "Four Georgians" (consisting of John Cowan, Daniel Jackson Miller, John Crab, and Reginald - or Robert - Stanley), stumbled upon gold in what is now Helena's main street. The claim was staked and named "Last Chance Gulch." The "Four Georgians" worked the gulch until 1867, at which time they went back East.

Once the news spread about the gold discovery, Helena became a boom town seemingly overnight. In only a few short years, several hundred businesses opened up shop in Helena, and more than 3,000 people called Helena home. Also, many previous mining strikes in other areas of Montana began to play out. As a result, many miners in these areas gravitated toward Helena.

As the gulch began to fill up with people, the miners decided they needed to come up with a name for the town. The name "Helena" was not immediately bestowed upon the town. The "Four Georgians" originally named it Crabtown after John Crab, one of the founders. However, many of the miners from Minnesota began to call the town Saint Helena, after a town in Minnesota. The name was eventually shortened to Helena, its current name.

Montana became a United States territory in 1864. In 1875, Helena became the capital of Montana Territory. When Montana became a state, the fight for the location of the state capital pitted "Copper King" Marcus Daly of Anaconda against rival William A. Clark, who supported Helena. Helena won, and ground was broken in October 1898 for the new capitol. Helena continues to serve as the seat of Montana's state government and politics.

In 1883, the Northern Pacific Railroad arrived in Helena and further fueled the town's growth. With establishment of the territorial capital in Helena, the town slowly began its transition from a typical mining town, which prevented the town's collapse when gold ran out in Last Chance Gulch.

By 1888, an estimated 50 millionaires made Helena their home. Last Chance Gulch produced an estimated $3.6 billion (in today's dollars) in gold over a 20-year period. Helena continued to prosper despite the depletion of gold. The town's central location in Montana, coupled with its designation as the state capital, continued to bring in new people and roads. Helena also functioned as a distribution point (due to the transportation hub of roads and railroads that developed) for outlying mining towns and other nearby resource extraction industries. Agriculture in the valley also helped sustain Helena's growth.

The downtown area of the capital city is situated in a steep gulch, with parts of the city perched on surrounding hillsides. This picturesque setting opens up into a wide valley to the north. On the upper eastside sits Montana's state capitol. Helena's glorious past is celebrated today with the spectacular 19th-century mansions, historic Last Chance Gulch businesses, and restored pioneer dwellings.

Program Entry Information

Program	Length of Training	Semester of Entry	Degree Type *
Accounting and Business Technology			
Accounting Technology	4 Semesters	Fall and Spring	A.A.S.
Bookkeeping	2 Semesters	Fall and Spring	C.A.S.
Small Business Entrepreneurship Technology	2 Semesters	Fall and Spring	C.A.S.
Small Business Management Technology	4 Semesters	Fall and Spring	A.A.S.
Automotive Technology	4 Semesters	Fall and Spring	A.A.S.
Aviation Maintenance Technology	4 Semesters	Fall and Spring	A.A.S.
Computer Technology			
Computer Assistant	2 Semesters	Fall and Spring	C.A.S.
Network Administration	4 Semesters	Fall and Spring	A.A.S.
Programming	4 Semesters	Fall and Spring	A.A.S.
Webmaster	4 Semesters	Fall and Spring	A.A.S.
Construction Technology	4 Semesters	Fall	A.A.S.
Carpentry	2 Semesters	Fall	C.A.S.
Interior Space Planning and Design	2 Semesters	Fall	C.A.S.
Diesel Technology	4 Semesters	Fall and Spring	A.A.S.
Electronics Technology			
Bio-Medical	4 Semesters	Fall and Spring	A.A.S.
Computer Systems	4 Semesters	Fall and Spring	A.A.S.
General	4 Semesters	Fall and Spring	A.A.S.
Fire and Rescue	4 Semesters	Fall	A.A.S.
General Transfer	4 Semesters	Fall, Spring and Summer	A.A., A.S.
Metals Technology	4 Semesters	Fall	A.A.S.
Machine Tool Technology	4 Semesters	Fall	A.A.S
Machine Tool Certificate	2 Semesters	Fall	C.A.S.
Office Technology			
Legal Administrative Specialist	4 Semesters	Fall and Spring	A.A.S.
Medical Administrative Specialist	4 Semesters	Fall and Spring	A.A.S.
Medical Assisting	2 Semesters	Fall and Spring	C.A.S.
Office Assistant	2 Semesters	Fall and Spring	C.A.S.
Office Technology Specialist	4 Semesters	Fall and Spring	A.A.S.
Nursing			
Practical Nursing	3 Semesters	Fall	C.A.S.
Registered Nursing	2 Semesters	Fall	A.S.
Welding Technology	4 Semesters	Fall	A.A.S
Welding Certificate	2 Semesters	Fall	C.A.S.

Additional Academic Opportunities at UM-Helena page 61
Bachelor of Applied Science – Business through Montana Tech page 62
Bachelor of Science – Business & Information Technology through Montana Tech page 63
Associate of Applied Science in Early Childhood Education through UM-Western page 65
Carroll College Transfer Programs page 66

Entry into any program of study is subject to sufficient enrollment.

** (A.A.) Associate of Arts and (A.S.) Associate of Science Degrees; (A.A.S.) Associate of Applied Science Degree; (C.A.S.) Certificate of Applied Science*

Learning Opportunities for High School Students

High school students seeking to get an early start on earning college credit have a number of opportunities at UM-Helena though Dual Credit courses, On Campus Experience and Tech Prep. College Level Examination Program (CLEP) and Advanced Placement (AP) credits are also accepted.

Dual Credit Courses
UM-Helena provides dual credit courses for high school students through interlocal agreements across the region with the following communities: Belgrade, Broadwater County, Drummond, Granite County, Helena School District, Jefferson County, Manhattan, Powell County, and Three Forks. Dual credit allows students to enroll in courses at their high schools that satisfy diploma requirements and provide college credits applicable towards degree and certificate programs at UM-Helena.

- Dual credit courses are provided at a reduced cost for tuition and fees
- Earned credits are accepted by the high school and UM-Helena
- Earned credits can be transferable to other colleges and universities
- Course availability varies by high school location
- Certain eligibility requirements apply and students must satisfy all course prerequisites and placement policies
  (See Admission Requirements on page 8.)

Students interested in dual credit courses should contact their high school counselors and the Registrar's Office at UM-Helena, 406-444-6800 or 800-241-4882.

On Campus Experience
The On Campus Experience Program allows area high school students the opportunity to find out what college is all about by taking classes at UM-Helena. Eligible students can start working on a degree or certificate program offered by the college or earn transferable credits towards a four-year degree from the Montana University System.

- Courses are open based upon seat availability one week prior to the beginning of each semester
- Students pay only the cost for fees, books, and supplies. Tuition is free
- Students may register for up 6 credits per semester and must satisfy any course prerequisites or placement policies
- Students must be 16 years of age, in their junior or senior year, and must provide proof of high school enrollment or participation in a home schooling program
- Students must submit a non-degree application and a $30 nonrefundable application fee and meet with an advisor to register for courses
- Students and their parents are encouraged to attend the On Campus Experience Orientation normally scheduled in the evening, prior to the start of each semester

Students interested in participating in the On Campus Experience Program should contact Admissions at 406-444-6826 or 800-241-4882 x6826. Course registration opens one week prior to the beginning of each semester. High school students meeting enrollment eligibility requirements are welcome to register earlier for up to 6 course credits each semester by submitting a non-degree application; however, no tuition waiver will be granted.

Career Pathways and Tech Prep
The University of Montana-Helena College of Technology is a member of the Central Montana Tech Prep Consortium and an active participant in the development of Big Sky Pathways. In conjunction with these efforts high schools and colleges have partnered to create agreements which provide college credits for certain high school classes related to business & office technology, allied health technology, trades technology, human services, hospitality services, and commercial and graphic arts.

As the statewide efforts in developing and implementing Big Sky Pathways continue UM-Helena will continue to honor existing Tech Prep agreements, and new agreements developed through the Pathways.

Certain eligibility requirements apply and students must submit a Montana Petition for Tech Prep Credit Student Form to UM-Helena to claim their credits. Currently there are five Tech Prep regions in Montana, and credits from high schools in other regions are considered. Check with your high school counselor for approved Tech Prep classes or contact Admissions & New Student Services at 406-444-6826 or 800-241-4882.

Community Education

Lifelong Learning – Indulge Your Passion

The needs of our communities are very important. Whether you're a student, working professional, stay-at-home parent, non-native English speaker, preschooler, baby boomer, or just looking to learn something new, UM-Helena Community Education has something for you.

Our programs, both personal and professional, are developed and delivered in response to the educational needs of the people and the businesses in the communities we serve, and we look to you for input into our planning process.

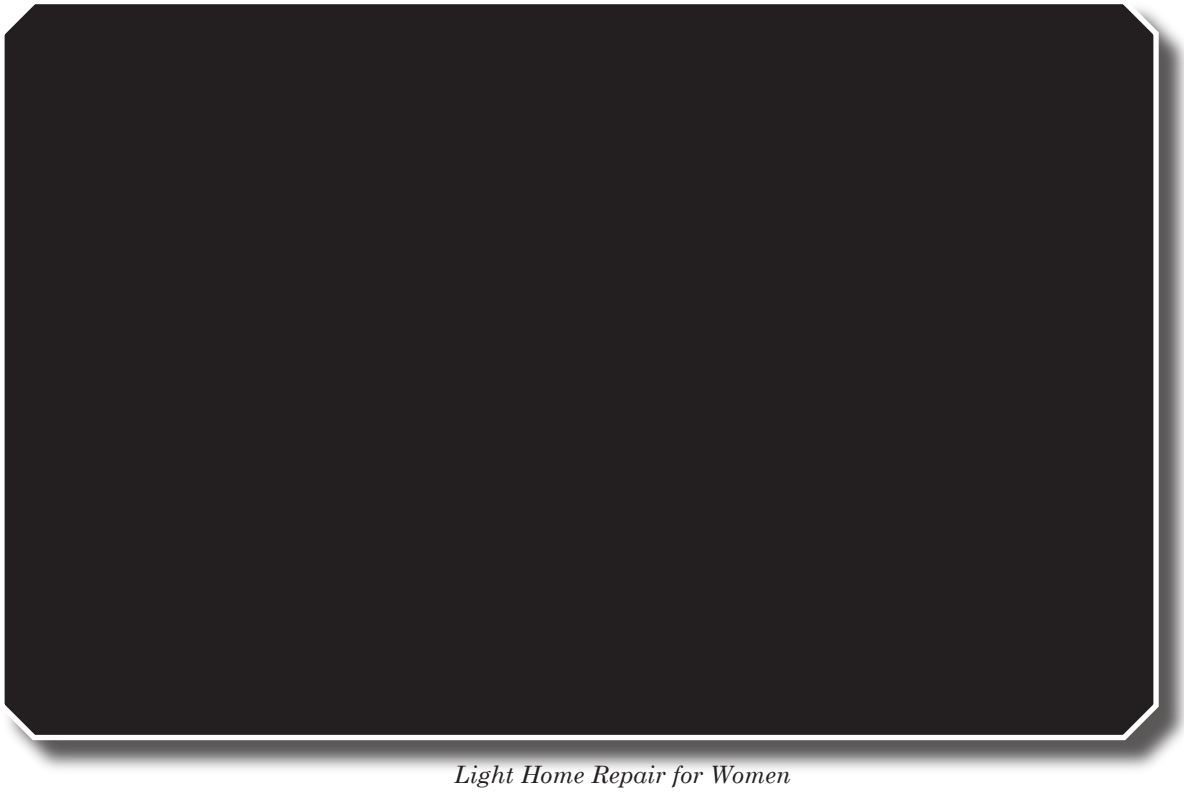
We invite you to indulge your passion for learning through an ever-changing array of short courses in:

- Art, crafts, interior design, exploring nature, Dutch oven cooking, Asian cooking
- Global positioning system (GPS), digital photography, knife building, welding
- Grant writing, stress management, computer software, Certified Nursing Assistant (CNA), basic wildland firefighting, small business classes and more

Learn about something you missed out on in college or pursue a long-held interest as part of a relaxed, engaged learning community.

Classes are all offered on an ongoing and continuous basis. They range in length from one hour to 30+ hours in duration and may be eligible for college credit or continuing education units. For a listing of current course offerings, view our website at www.umhelena.edu and click on Community Education and view the Community Education classes. To register for classes you may print the registration form from our website and mail it in, call Community Education at 439-1659, or call our main registration number, 444-6800.

Tour this season's exciting offerings, choose your favorite, and join our learning community, or share your knowledge and expertise as a part-time instructor. Now is the time to indulge your passion for learning! For more information on classes, whether you want to take a class or teach a class, or to offer suggestions, please contact Mary Lannert, Director of Community Education at 406-439-1659 or lannertm@umh.umt.edu.



Light Home Repair for Women

Admission Requirements and Procedures

Admissions & New Student Services

Admissions & New Student Services provides assistance to new and re-admitting students. Prospective students in search of an application, class schedule, information about courses and programs of study, admissions guidance or who want to check the status of a submitted application may contact Admissions & New Student Services at (406) 444-6826 or 1-800-241-4882, ext. 6826. Admissions & New Student Services is located in the Enrollment Services Center (Rm 101) near the main entrance to the Donaldson Campus.

Application Process

The open admission policy of the College allows any student who might benefit from a UM-Helena education the opportunity to enroll in classes. Applications for admission are accepted and processed in the order they are received though the 5th day of instruction for each semester. While there is no official deadline for applications, the priority deadline is one month prior to the start of each semester. Students are encouraged to apply early, as financial aid is offered and programs are filled on a first-come, first-served basis.

Freshman Admission

Students who plan to earn a degree or certificate, or enroll in seven or more credits in any one semester, and have completed no more than 11 college credits must submit the following information:

1. A completed and signed Application for Admission
2. A $30 nonrefundable application fee
3. Proof of immunization if born after December 31, 1956; proof of age if born before January 1, 1957 (See Immunization section, next page)
4. Official high school transcripts received from an accredited high school, with a graduation date posted, or a GED transcript. Home school and non-accredited high school graduates may be required to provide a GED transcript or to meet Ability to Benefit requirements (See the following section on Ability to Benefit)
5. Official college transcripts, if applicable
6. COMPASS assessment scores (See Placement Assessment section, next page)

Transfer Admission

Students who plan to earn a degree or certificate, or enroll in seven or more credits in any one semester, and who have completed twelve or more college credits with a cumulative grade point average of 2.0 on a 4.0 scale must submit the following information:

1. A completed and signed Application for Admission.
2. A $30 nonrefundable application fee
3. Proof of immunization if born after December 31, 1956; proof of age if born before January 1, 1957 (See Immunization section, next page)
4. Official college transcripts from all college(s) previously attended
5. COMPASS assessment scores (necessary for placement if a student will not transfer English and/or math credits)

Non-Degree Admission

Non-Degree admission is designed for students seeking personal enrichment who do not plan to earn a degree or certificate, do not seek financial aid, and who enroll in six credits or fewer in any one semester. The following information must be submitted:

1. A completed and signed Non-Degree Registration Form
2. A $30 nonrefundable application fee

Prerequisite courses may apply. Call 800-241-4882 or 406-444-6826 for more information.

Readmission

Students who have previously attended UM-Helena as degree-seeking students must reapply for admission if they have been absent from the College for one or more academic semester (excluding summer). Readmitted students must follow current catalog requirements upon return. The procedure for readmission to UM-Helena is as follows:

1. Submit a completed and signed Application for Readmission
2. Submit official transcripts from all college(s) attended since last attending UM-Helena
3. If readmissions follows academic suspension from UM-Helena, applicants must submit an academic plan with their application for readmission
4. COMPASS assessment scores are needed if the student has not completed math and/or English or if the previous COMPASS scores are three years or older

Ability to Benefit (ATB)

Students who graduate from home school programs or private/religious schools not accredited by the state may take the COMPASS assessment to prove their "Ability to Benefit" from higher education. The student must meet the minimum scores to determine college readiness and to qualify for Financial Aid.

Residency Requirements

The Montana University System classifies applicants for admission and current students as either in-state or out-of-state for fee purposes. In general, a person must meet the requirements listed below to qualify for in-state status:

1. A person must be physically present in Montana 12 or more consecutive months without an absence in excess of a total of 30 days. One must demonstrate by appropriate actions during the twelve-month period the intent to make Montana one's permanent home. The required twelve-month period does not begin until specific actions are taken to change legal ties to Montana.
2. An individual must be at least 51 percent financially self-sufficient during the entire twelve-month period, and that person must not be claimed as an exemption under federal income tax regulations by someone filing an out-of-state federal tax return.

3. A person must have filed a Montana income tax return or have had Montana income tax withheld as required by state tax laws during the twelve-month period.
4. If a person drives a motor vehicle in Montana, he or she must obtain a Montana operator's license within the required legal time limit.
5. If a person owns or operates a motor vehicle in Montana, he or she must license the vehicle in Montana within the required legal time limit.
6. An individual must register to vote in Montana if he or she expects to exercise the right to vote.
7. If an individual chooses to attend any unit of the Montana University System during the twelve-month period of continuous physical presence, he or she must limit enrollment to a maximum of six credits per semester.

There are additional regulations concerning married persons and others with special circumstances. The basic rules for making the classification are found in the *Student Guide to Montana's Residency Policy*, which can be obtained from Admissions & New Student Services. Contact Admissions & New Student Services at 800-241-4882, ex. 6826, 406- 444-6826 or e-mail admissions@umh.umt.edu with questions concerning residency.

Western Undergraduate Exchange (WUE)
Students who are residents of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming may be eligible to participate in the Western Undergraduate Exchange (WUE) program. If selected, students pay reduced fees which are approximately one and one-half times current resident fees. WUE application materials will be sent to students from participating states. Contact Admissions & New Student Services with WUE-related questions. Admissions & New Student Services will award available WUE waivers on a first-come first-served basis to qualifying applicants. This award extends to the completion of a student's program or two years, whichever comes first, provided the student: 1) maintains a 2.5 cumulative grade point average; 2) does not change her program of study; 3) completes a minimum of 12 credits each semester of enrollment; and 4) does not change her state of legal residence. Students who change any of these conditions stated above may lose the WUE award. Appeals will be considered on a case by case basis and should be directed to the Director of Admissions & New Student Services.

CLEP/AP/CBE CREDIT
Students may be awarded credits through credit by examination through the following three options:

CLEP (College Level Examination Program)
Required scores on the respective CLEP exams will warrant full course credit in the equivalent UM-Helena course. Official results must be sent directly from the CLEP Testing Center to Admissions and New Student Services.

AP (Advanced Placement)
A score of 3, 4, or 5 on an AP exam for any equivalent UM-Helena course will warrant the award of full course credit. Official results must be sent directly from the AP testing center to Admissions and New Student Services.

Credit By Exam
Students may receive credit through nationally recognized professional licenses or certificates gained through examinations. Students must be able to provide the original certification document and examples of the curriculum for the certification. The student must verify the certification through his or her advisor and the Registrar's Office. If curriculum and certification can not be verified, the student may be able to show competencies through the challenge process. Please see the Challenge Policy for more information.

A student will receive a grade of "EC" for any credits awarded through CLEP/AP/CBE. The total credits awarded for CLEP/AP/CBE for a student cannot exceed 25% of the credits required for his or her degree.

Immunization
All students taking seven or more credits born **after** December 31, 1956, must show proof of two immunizations against measles and one against rubella on or after their first birthday. The record of a physician, health agency, or school may verify immunization. After December 31, 1956, immunization against measles can also be verified by a physician's record of diagnosis of the disease. Such evidence must be presented before a student is permitted to register for classes.

All students born **before** January 1, 1957, must show proof of age by providing a copy of their birth certificate or current driver's license.

Students needing to update or verify their immunization(s) should contact their doctors or receive the required immunization at local county health departments. Students wishing to qualify for a religious exemption must file a notarized affidavit that the immunizations are contrary to the religious tenets and practices of the signer. This must be renewed and notarized each year on an affidavit provided by the county health department. For medical exemption purposes, a physician must indicate a student has a physical condition such that the immunization(s) would endanger the health of the student.

Should there be an outbreak of measles, students enrolling with a medical or religious exemption will not be allowed to attend classes during the outbreak.

Orientation
Orientation is held for all new students before the beginning of each semester. College policies, procedures, regulations, and financial aid information are explained to students. Orientation information is mailed to all accepted students approximately three weeks prior to the orientation session. All degree-seeking students, new and readmitting, are charged a $15 orientation fee.

Placement Assessment
Students without math and/or English transfer credits must submit COMPASS or ACT/SAT scores to assist with placement. A writing sample may be required from students to assist with placement into the appropriate writing course. ACT/SAT scores will be considered only for math placement. Results requiring coursework preparatory to program requirements could result in lengthening a student's program of study. Results are not used to determine a student's admission status to UM-Helena. Test scores that are not more than three years old will be accepted. There is a $15 COMPASS fee. Please call 800-241-4882, ext. 6826 or (406) 444-2766 to schedule a COMPASS test session.

Policy of Nondiscrimination
The University of Montana - Helena College of Technology is committed to providing all persons an equal opportunity for education, employment, and participation in activities as provided by law. It is unlawful:

1. To exclude, expel, limit, or otherwise discriminate against an individual seeking admission as a student or an individual enrolled as a student in the terms, conditions, or privileges of the institution because of race, creed, religion, sex, marital status, color, age, physical handicap, national origin, or mental handicap, unless based on reasonable grounds;
2. To make or use a written or oral inquiry or form of application for admission that elicits or attempts to elicit information or to make or keep a record concerning the race, color, sex, marital status, age, creed, religion, physical or mental handicap, or national origin of an applicant for admission;
3. To print, publish, or cause to be printed or published a catalog or other notice or advertisement indicating a limitation, specification, or discrimination based on the race, color, creed, religion, age, physical or mental handicap, sex, marital status, or national origin of an applicant for admission; or,
4. To announce or follow a policy of denial or limitation of educational opportunities of a group of its members through a quota or otherwise, because of race, color, sex, marital status, age, creed, religion, physical or mental handicap, or national origin.

In addition, this facility may not be used in the furtherance of any discriminatory practice, nor become a party to an agreement, arrangement, or plan which has the effect of sanctioning discriminatory practices. Racial or sexual harassment of students or faculty is unlawful.

This policy is in compliance with the requirements of Titles VI and VII of the Civil Rights Act of 1964 as amended, Title IX of the Educational Amendments of 1972, Titles VII and VIII of the Public Health Act, the Rehabilitation Act of 1973, the Americans with Disabilities Act, the Montana Human Rights Act and the Montana Governmental Code of Fair Practices. UM-Helena is an equal opportunity/affirmative action employer. The catalog, advertisements, and recruitment material will present programs and information in a way to discourage sexual stereotyping.

UM-Helena shall ensure that the non-discrimination policy, as it affects applicants and students, is published and disseminated. Students who have disabilities should contact Disability Services if accommodations are needed or if obstacles are encountered at UM-Helena. Students should follow the Student Due Process procedure outlined in this catalog if they believe this policy of nondiscrimination is not being followed.

Transfer of Credit
Students who have previously attended a regionally accredited technical school, college, or university may be eligible to receive transfer credits. Upon receipt of an official transcript, UM-Helena will cooperate with students to make a fair decision with regard to their transfer credits. Students should be aware of the following transfer credit guidelines:

- Courses must be college level, defined as those courses that are applicable toward a certificate, an associate of applied science, associate of arts, associate of science, or baccalaureate degree at their respective institution. In all cases, such courses shall not include remedial or developmental courses.

- Montana Board of Regents Policy 301.5.2 guarantees that coursework completed in the last five years will be reviewed for possible use in a student's specific program of study, and coursework completed in the last fifteen years will be reviewed for possible use in a student's general education program or as elective coursework. The guarantee only promises that courses falling into the relevant time periods will be analyzed and reviewed for possible use in a student's degree program. *It does not guarantee that the courses will be automatically accepted.* Further, the policy allows individual Montana University System campuses discretion with regard to outdated coursework. Consequently coursework falling outside these guarantee periods may be included in a transfer evaluation, and since it is a discretionary decision, it cannot be challenged. The provisions of this policy also govern the evaluation of "outdated" classes that have been completed at UM-Helena.

- Courses must have been completed with a letter grade of C- or better, *or* a Pass from a Pass/No Pass grading method *only* if the course would apply to the student's intended program of study. (See the Academic Information section for limits on pass/no pass credits.)

- All programs of study require that one-half of the academic credit hours be earned at UM-Helena.

- Courses accepted for transfer credit will appear on a student's transcript. The credits will be calculated into the total credits earned, but grades earned for accepted transfer credits will not be included in the grade point average (GPA).

- Completion of a student's admission file by the priority deadline, which is one month prior to the first day of classes of the term for which a student has applied, will facilitate the processing of evaluation of transcripts for transfer credit.

Students will be notified in writing of the admission decision, the total number of credits accepted for transfer to UM-Helena, and the transferability of *general education and/or elective* credits within ten working days of the receipt of a completed transfer application on or before the priority deadline. Students seeking transfer of credits to satisfy degree and/or certificate requirements must have their official transcripts reviewed by faculty from the appropriate academic program. Students completing their transfer application before the priority deadline will be notified of the transferability of credits towards specific degree and/or certificate requirements no later than the last day to add classes for the intended term of entry.

Students who complete their transfer application after the priority deadline will receive a complete evaluation of their credits for transfer and be notified of the results prior to registration for the following academic term.

Students wishing to appeal decisions made regarding their transfer credits must submit a signed written request to the admissions office. Appeals with regard to the transferability of credits to satisfy degree and/or certificate requirements will be reviewed by the appropriate program faculty and the academic dean as needed. Appeals with regard to the transferability of general education and/or elective credits will be reviewed by the appropriate faculty and the academic dean as needed. Students who have submitted their appeal in a timely manner will receive a response and final decision prior to registration for the following academic term.

Students wishing to transfer UM-Helena credits to another college or university should contact the admissions office at the receiving institution for information and policies concerning the evaluation and acceptance of transfer credits.

Students with questions or needing further information about transfer policies should contact Admissions & New Student Services at 406-444-6826 or 800-241-4882 x6826.

Application Fee
A $30 nonrefundable application fee is required of all first-time applicants to The University of Montana campuses, including The University of Montana - Missoula, The University of Montana College of Technology, Montana Tech, Montana Tech College of Technology, The University of Montana - Western, and The University of Montana – Helena College of Technology. If a student does not enroll within one calendar year of application fee payment, the application fee expires.

2008 – 2009 FEE SCHEDULE

The Board of Regents approved the following fee schedule for the 2008 - 2009 academic year which begins Fall Semester 2008. Tuition and fees are based on credit hours and are paid by the student each semester. Different fee schedules are applied for students with WUE residency. Contact Business Services for more information. These fees may change without notice. The $30.00 registration fee is nonrefundable.

Crs	Reg Fee	Tuition	Bldg Maint Fee*	Comp Technol Fees**	Equip Fee	Aca Fac Fee	Stud Gov	SU Bldg Fee	Res Total	NR Bldg Fee	NR Inc Fee	Non Res Total
1	30.00	98.25	3.75	8.00	3.80	2.00	15.00	5.20	166.00	3.40	204.75	374.15
2	30.00	196.50	7.50	16.00	7.60	4.00	15.00	10.40	287.00	6.80	409.50	703.30
3	30.00	294.75	11.25	24.00	11.40	6.00	15.00	15.60	408.00	10.20	614.25	1032.45
4	30.00	393.00	15.00	32.00	15.20	8.00	15.00	20.80	529.00	13.60	819.00	1361.60
5	30.00	491.25	18.75	40.00	19.00	10.00	15.00	26.00	650.00	17.00	1023.75	1690.75
6	30.00	589.50	22.50	48.00	22.80	12.00	15.00	31.20	771.00	20.40	1228.50	2019.90
7	30.00	687.75	26.25	56.00	26.60	14.00	15.00	36.40	892.00	23.80	1433.25	2349.05
8	30.00	786.00	30.00	64.00	30.40	16.00	15.00	41.60	1013.00	27.20	1638.00	2678.20
9	30.00	884.25	33.75	72.00	34.20	18.00	15.00	46.80	1134.00	30.60	1842.75	3007.35
10	30.00	982.50	37.50	80.00	38.00	20.00	15.00	52.00	1255.00	34.00	2047.50	3336.50
11	30.00	1080.75	41.25	88.00	41.80	22.00	15.00	57.20	1376.00	37.40	2252.25	3665.65
12	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	62.40	1497.00	40.80	2457.00	3994.80
13	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	67.60	1502.20	40.80	2457.00	4000.00
14	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	72.80	1507.40	40.80	2457.00	4005.20
15	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	78.00	1512.60	40.80	2457.00	4010.40
16	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	83.20	1517.80	40.80	2457.00	4015.60
17	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	88.40	1523.00	40.80	2457.00	4020.80
18	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
19	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
20	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
21	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
22	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
23	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
24	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00
25	30.00	1179.00	45.00	96.00	45.60	24.00	15.00	93.60	1528.20	40.80	2457.00	4026.00

** Includes Access Fee of $1.25 and Building Fee of $2.50 per credit*
*** Includes Computer Fee of $3.85 and Technology Fee of $4.15 per credit*
All fees are subject to Board of Regents approval.
All new students are charged a $12.50 Identification Card fee, and all new degree-seeking students are charged a $15.00 Orientation fee in addition to the above schedule.

Additional fees may be charged for students registered in some programs and/or courses. See Business Services for information.

Program Fees:

Aviation $75.00
CISCO $40.00
Electronics $50.00
Protective Services $50.00
2nd Year Welding.....$150.00

Course Fees:

Aircraft Rescue & Fire Fighting (FIRE210).....$400.00
EMT (FIRE105).....$30.00
Fire Service Certification Test (FIRE250).....$125.00
Nursing Name Tag $8.50
Nursing Pin $36.00
Nursing Test $35.00
Healthcare Liability Insurance $9.95
Welding - Related Programs.....$75.00
Science Lab
(SCI Class with a lab component).....$30.00
Distributed Learning Fee
(per credit for online course) $25.00

Books and Supplies
Books and supplies are purchased on a semester basis. Students should budget approximately $200 - $750 per semester depending on program of study. Textbooks and supplies are available at the bookstore located on the Donaldson Campus at 1115 North Roberts Street. Tools are required by each student entering Automotive, Aviation Maintenance, Carpentry and Construction, Electronics, Machine Tool, Diesel, and Welding Technology programs. Please refer to tool section of catalog.

Deferred Fee Payment Plan
A deferred fee payment plan is authorized providing that 1) at least one-third of total fees are paid at the time the deferred fee payment plan is initiated, 2) an additional one-third is paid within the first 30 days of the semester and 3) the full amount is paid within 60 days of the beginning of the semester. Tuition and mandatory fees less any financial aid are eligible for deferral. Execution of a promissory note with the terms and conditions of the deferment will be required. This plan is not available for the summer semester or to any person with an outstanding debt to the College. The Deferred Payment Agreement must be renewed in Business Services at the beginning of each semester.

Students participating in this plan will be assessed an administrative charge of $30 each semester. Failure to make scheduled payments will result in a student being ineligible for future deferment and may result in cancellation of a student's enrollment with no refund of payments already collected. A $15 fee will be assessed each time a scheduled payment is late.

Non-Payment
Any person who owes the College any fees, fines, or other charges will not be permitted to receive a transcript, diploma, certificate, or academic record; to register or attend classes; or to access any College facilities or services until the debt has been paid or satisfactorily adjusted through Business Services. Interest may be charged at the rate of 10% on the balance due from the day after the due date until the full amount has been paid, and any attorney's fees or other costs or charges necessary for the collection of the amount owed may be added to the balance due.

Payment of Tuition and Fees
All students must sign and return a schedule bill.
After registration, all students receive a schedule bill. Students are encouraged to review the corresponding Class Schedule for each semester's tuition and fee payment policies and deadlines. Dates and policies are subject to change each semester.

If the bill indicates an amount due, a student must enclose a check or provide credit card information (VISA or MasterCard accepted), including the verification number from the signature line on the back of the card.

Students with financial aid, agency, or other funding will pay their fees according to the agreement they make with the Financial Aid Office and/or agency. See each semester's Class Schedule for current information.

Tuition Refunds
Tuition refunds are made through Business Services subsequent to a student's withdrawal from a course(s). Refunds of fees are authorized according to the following procedures only if the student officially withdraws from the College and/or drops courses in the required manner:

1. The $30 registration fee and the $30 application fee are non-refundable.
2. Class days are determined by the College calendar of instructional days, not by the student's class schedule.
3. Refunds for withdrawal or dropping a class for courses for summer semester are computed on a pro-rated basis.

Withdrawal from school applies only to students dropping all courses: (Registration and Application Fees are non refundable.)

- 100 percent of all remaining tuition and fees are refunded before the first class day of the semester or half semester in which the course begins.
- 90 percent of all remaining fees will be refunded to the end of the 5th day of the semester or half semester in which the course begins.
- 75 percent of all remaining fees will be refunded to the end of the 10th instructional day of the semester or half semester in which the course begins.
- 50 percent of all remaining fees will be refunded to the end of the 15th instructional day of the semester or half semester in which the course begins.
- Beginning the 16th instructional day of the semester or half semester in which the course begins, no refunds will be made.

Course drop/adds apply to students making course schedule changes but remaining in attendance at the College:

1. An individual course dropped will be refunded at 100 percent for the first 15 days of the semester or half semester in which the course begins.
2. Beginning the 16th instructional day of the semester or half semester in which the course begins, no refunds will be made.
3. A processing fee of $10 will be assessed to drop a course after the 15th day of the course or to add a course after the 5th day of the course.

Acceptable Use of Electronic Resources

As an institution of higher education, UM-Helena endeavors to develop resources and provide services that meet its students' educational needs. It is within this context that the College provides students with access to computers, along with access to a wide variety of online material.

Students may find some of the material available online to be inaccurate, incomplete, or outdated; they may find other material sexually explicit or offensive. The University of Montana - Helena College of Technology does not guide, monitor, or censor students' computer research. The College does, however, restrict the use of computers, computer files, or network resources in the following ways:

1. Students are prohibited from violating copyright law and from engaging in theft or file theft with regard to College computers.
2. Students may not use College computers to violate others' privacy, to harass or intimidate others, to send abusive or patently offensive and unwanted material to others, or to interfere with the work of others. As students distribute or make material available to others, they need to be aware of people's sensitivities toward information or graphics that may seem offensive.
3. Students may not deliberately crash, or otherwise impair workstations or computer systems at the College, modify files without authorization, damage files, alter data, introduce viruses, penetrate or harm operating systems, resell bandwidth, or engage in any other illegal acts promulgated from or targeting the College's computers.
4. Students are prohibited from concealing or misrepresenting their names or affiliations to mask irresponsible, offensive, or illegal behavior.

Misuse of computer or network resources may constitute trespass, disruptive behavior, or sexual harassment and will not be tolerated by UM-Helena. Failure to comply with these guidelines may result in loss of electronic access, expulsion from a course or the College, and/or legal prosecution.

Associated Students of UM-Helena (ASUM-Helena)

UM-Helena has an active, dynamic, and involved student organization called the Associated Students of The University of Montana - Helena College of Technology (ASUM-Helena). The goals of ASUM-Helena are to help provide the students with a quality educational environment, provide a forum for student expression, promote the general welfare of the college, and establish student activities. ASUM-Helena sponsors social activities throughout the year, including barbecues, student contests, and parties. The organization also uses its funds for the promotion of future projects, clubs, and scholarships.

ASUM-Helena is comprised of student representatives from each program. Representatives are elected by student vote in the fall. Student representatives serve as the main communication link between ASUM-Helena and the student body. Representatives bring student suggestions to the organization and keep students informed about student government, school activities, and issues.

Confidentiality

The Family Educational Rights and Privacy Act (FERPA) of 1974 affords students certain rights with respect to their education records:

1. The right to inspect and review the student's education record.
2. The right to request the amendment of the student's education records to ensure they are not inaccurate, misleading, or in violation of the student's privacy or other rights.
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.
4. The right to file with the U.S. Department of Education a complaint concerning alleged failures by UM-Helena to comply with the requirements of FERPA.

Directory Information

The Family Educational Rights and Privacy Act (FERPA) of 1974 states that directory information may be disclosed to the public if the institution has notified the students of what items of information are designated directory information. The following are designated directory information and may be released by the College without the student's consent:

Name
Address
Telephone number
Date and place of birth
Major field of study
Enrollment status (full-time, part-time)
Participation in officially recognized activities
Dates of attendance
Degrees and academic awards (e.g. dean's list, honor roll, graduation honors)
Most recent educational agency/institution attended
College assigned student e-mail address
Photographic, video, or electronic images

Students have the right to prohibit the disclosure of any or all of their own directory information. The student must complete and sign a *Student Waiver to Release Information* form and submit it to the ACCESS Center before the end of the tenth instructional day of the semester. The form remains effective for the current academic year and must be filled out for each subsequent academic year.

Food Service

The Food Court provides breakfast, lunch, and snacks Monday through Friday during the academic year. It is located in the Student Center on the Donaldson Campus. Students may use their ID card as a debit card in the Food Court. Students must see the college cashier at the Donaldson Campus to make a deposit.

Health Insurance
The University of Montana - Helena College of Technology does not require mandatory student health insurance coverage and does not have coverage available for student purchase.

Housing
UM-Helena is a non-residential campus. Apartment rentals in the Helena area average $300 - $600 per one/two bedroom apartment. The College's housing brochure offers some tips on finding housing as well as lists helpful telephone numbers and addresses of newspapers, apartment finders, housing complexes, and child care. A Housing Bulletin Board is also maintained at the Donaldson Campus. A copy of apartments listed in the classified section of the newspaper can be accessed online at www.helenair.com.

Library
The library, located on the Donaldson Campus, provides resources and access to information in support of the College's programs. A variety of media formats and access is offered to complement instruction and encourage learning in all program areas, as well as to provide current occupational information related to each area.

The library houses over 5500 titles, three daily newspapers, five Sunday editions, and many magazines reflecting the diversity of programs at the College. The virtual library website (http://www.umhelena.edu) provides online access to articles from additional periodicals (magazines, journals, newspapers) and reference sources. All electronic databases are available from home or other off-campus locations.

In addition to the collection, the library provides computers/printers with Internet access, group and quiet study areas, a photocopier, and a reference section. Professional library staff are available for individual assistance or group instruction.

The library has reciprocal borrowing agreements with local libraries and access to libraries throughout Montana and other states via the Montana Library Network and WorldCat, a nationwide database of library collections. Free interlibrary loan is available on request.

Montana Campus Compact
UM-Helena is a member in good standing of The Montana Campus Compact. Through this affiliation, UM-Helena has shown its commitment to civic engagement by students, faculty, and staff.

The Montana Campus Compact is a coalition of college and university presidents, chancellors, and deans committed to fostering the values and skills of citizenship in Montana students through active involvement in civic engagement activities. To meet this goal, The Montana Campus Compact works to:

- Award student scholarships, faculty grants, and resources to member campuses to support civic engagement activities;
- Organize conferences, forums, and workshops to develop civic engagement initiatives;
- Foster partnerships between campus, business, community, and government leaders;
- Provide timely research and service related to its member campuses; and,
- Assist in state legislation promoting public and community service.

Parking
All vehicles must display the UM-Helena parking decal. More than one permit is available for those driving multiple vehicles to campus. Parking decals are available for a fee of $10 in Admissions & New Student Services on the Donaldson Campus with a valid student ID. General parking is not allowed in areas designated for visitors, handicapped, motorcycles, and bicycles. Students parking in non-designated areas may have their vehicles towed and are responsible for towing expenses. City police may ticket students parking in fire lanes, traffic lanes, or designated handicapped areas.

Parts and Supplies (Airport Campus)
The Airport Campus houses a parts department to supply mechanical and technical supplies for the Trades Program. Personal work done for or by students must have an assigned work order. Parts and materials must be ordered through the parts department. Invoices will be posted to the work order and marked up 20% over school cost. The College will not be liable for any personal work performed by students.

Personal Property Responsibility
Each student is responsible for their own personal property. However, any student who intentionally damages any other student's property, the College's property, third-party owner's property brought in for repair, or steals any equipment or parts including copying of computer software, will be prosecuted and/or dismissed.

Student Access Center Services

Advising and Academic Assistance
The ACCESS Center provides academic and personal support to enable students to succeed in college. The ACCESS Center provides services including the COMPASS test for placement purposes, counseling referrals and advising. Academic Advising available in the ACCESS Center includes college transition, course choice options, program choice options, transfer information, career planning, and academic success strategies. All new students are advised through the First Semester Advising system, which provides in-depth academic counseling.

For appointments for any services offered in the ACCESS Center, students can call 444.2766.

Career Services
The Career Services Office helps students gain skills and information to secure employment. The office provides workshops and individual counseling assisting students with exploring career choices, resume writing, and interviewing. Placement after graduation is not guaranteed and is influenced by the economy, occupational demand, student aptitudes, and academic records. Students interested in obtaining assistance with employment should contact the Career Services Office at (406) 444-0835.

Counseling
Short-term personal support is available to students who are experiencing difficulties that may be interfering with their educational progress. The emphasis is on clarifying choices, handling difficult situations, and accessing community resources.

Disability Services
Services for students with disabilities are provided at UM-Helena under the guidelines of Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Access to the College's programs and facilities is provided for all qualified students, and discrimination based on disability against any student is specifically prohibited under these laws. Services are housed in the ACCESS Center on the Donaldson Campus, and students are encouraged to contact the Director of Disability Services as early as possible to plan for possible accommodations. It is the student's choice to disclose any disability as well as his responsibility to request accommodations. Certain persons with disabilities may qualify for educational assistance through Montana Vocational Rehabilitation and should contact that office at 444-1710 for more information. All documentation related to the UM-Helena student's disability is kept in separate and confidential files in the office of Disability Services. More information can be found on the Disability Services page of the College's web site: www.umhelena.edu.

Learning Center
The Learning Center supports all academic programs at the College. Students will find a computer lab for their use that includes various software applications and printing capability, peer and faculty tutors who offer free tutoring in most academic areas of the College, and specialized testing services for students with disabilities. All instruction is designed to meet the specific learning needs of each student. Study skills and other student-based workshops can be offered through the Learning Center for faculty upon request. The Learning Center is housed in the ACCESS Center and is staffed by tutors in the fall and spring semesters.

Student Information Change
The student should fill out a change form if any of the information listed below changes:

1. Address (also available online)
2. Program
3. Name
4. Phone number (also available online)

Student Records and Transcripts
Student records are only released with a written request from the student. Official transcripts may be obtained at a charge of $3 from the Registrar's Office. Transcripts are withheld if a student owes a debt to the College.

Student Code Of Conduct
The Student Conduct Code embodies the ideals of academic integrity, honesty, and responsible citizenship. It governs all academic work and student behavior at UM-Helena College of Technology. The principles and policies that make up the Code set forth the standards of acceptable student conduct, disciplinary sanctions and procedures to be followed in adjudicating charges of both academic and non-academic misconduct.

For information regarding student rights and responsibilities, conduct code, and due process, please refer to the student handbook or contact the Executive Director of Enrollment Services.

Academic Integrity
The University of Montana - Helena College of Technology expects its students to adhere to a high standard of academic integrity. It is a violation of academic integrity to present the ideas, designs, or works of another person as one's own efforts or to permit another person to do so. The following guidelines are intended to clarify these issues for students, faculty, and administration.

The College will regard the following acts as violations of academic integrity constituting academic dishonesty:

Plagiarism - A student will be considered in violation of academic integrity if he or she submits an assignment, whether written, oral, graphic, or computer-generated, which consists wholly or partially of the words, work, or ideas of another individual without giving the original author proper credit.

Copying - A student will be considered in violation of academic integrity if he or she uses crib notes, cheat sheets, books, or any other material or electronic device as aids in an examination or any other graded exercise, unless the instructor of the class has given permission to use such materials**.** Collaboration with another student on an examination or other graded exercise, unless the instructor has given permission, also constitutes copying.

Contributing to Academic Dishonesty - A student will be considered in violation of academic integrity if he or she willfully assists another student in an act of academic dishonesty.

Academic dishonesty will not be tolerated. Academic sanctions for a first violation are at the discretion of the instructor and range from a failing grade for the particular instance to a failing grade in the course in which academic dishonesty occurs. When a faculty member assigns a failing course grade on the basis of academic dishonesty, he or she shall assign a grade of "FX." The student may petition the Registrar's Office by letter to remove only the "X" portion of the grade after successfully completing an Ethics course with a grade of "C" or better from any accredited college within three academic years of the original failure. Retaking the failed course does not remove the "F" or "FX" designation from the transcript. A student may not represent the College in any official manner nor hold a student government office with an "FX" grade.

Faculty must report all violations of academic integrity to the student involved, the appropriate Department Chair(s), and to the Associate Dean/Academic Affairs; in cases of repeated offenses, the Associate Dean/Academic Affairs will recommend disciplinary sanctions that may result in expulsion from the College. Students retain their right to due process and may refer to the Student Handbook or the Executive Director of Enrollment Services regarding any academic or disciplinary sanctions.

Application for Certificate or Degree

In accordance with Montana Board of Regents Policy 301.5.3 § 1A ¶ 3, students must earn a "C-" or higher in all classes that are used to satisfy the prerequisites or requirements for a major, minor, option, or certificate. Although credit is earned for a "D" grade, that course will not count towards graduation.

In the semester before his or her plan to graduate, a student must meet with his or her advisor and submit an *Application for Certificate or Degree* to the Registrar's Office. The Registrar has final authority on the approval of graduation applications. Students neglecting to submit an *Application for Certificate or Degree* will not be awarded a certificate or degree. Any student applying for a certificate or degree must pay a $25 fee. If applying for more than one certificate or degree, a fee is required for each application. Certificates and diplomas will be withheld if a student owes a debt to the College.

Associate of Applied Science Degree

The University of Montana - Helena College of Technology offers the Associate of Applied Science (A.A.S.) degree in Accounting Technology, Automotive Technology, Aviation Maintenance Technology, Computer Technology, Construction Technology, Diesel Technology, Electronics Technology, Fire and Rescue, Metals Technology, and Office Technology. The A.A.S. degree is awarded to any student satisfactorily completing a program as established by the College. The A.A.S. degree is not designed for transfer; however, graduates may be accepted into baccalaureate programs offered at several four-year institutions. A passing grade of "C-" or better in required courses and a 2.0 minimum cumulative grade point average (GPA) are required for a degree to be awarded. Courses numbered below 100 are not applied toward program completion requirements. Students seeking more than one program must inform and receive approval from the Registrar's Office and/or the Financial Aid Office. Students will be required to use the catalog in use at the time the program is declared unless a *Request to Graduate from Alternate Catalog* form is completed and approved. Students entering after a one-semester time lapse (excluding summer) or longer will re-enroll under the current catalog.

Associate of Arts and Associate of Science Degrees

The general Associate of Arts (A.A.) and the Associate of Science (A.S.) degrees are general transfer degrees, indicating the student has completed a course of study equivalent to the first two years toward a bachelor's degree. This degree does not officially include a major or minor course of study; however, the student must select one of several options. The student must meet the requirements as outlined under the Program Offerings section of this catalog to receive the A.A. or A.S. degree. The student must earn a ***minimum*** grade of "C-" in each course ***and*** maintain a 2.25 (2.5 for Nursing) cumulative GPA in the degree program for a degree to be awarded. Courses numbered below 100 are not applied toward program completion requirements. Students will be required to use the catalog in use at the time the program is declared unless a *Request to Graduate from Alternate Catalog* form is completed and approved. Students entering after a one-semester time lapse (excluding summer) or longer will re-enroll under the current catalog.

The UM-Helena general education core transfers as a unit and satisfies the lower division component of the general education requirements at all institutions of the Montana University System.

The Registered Nursing Program is a two semester associate degree program that prepares graduates to function as members and leaders of the health care teams in various health care environments. A current, unencumbered Montana LPN license is required. Please see the Nursing Department Program page for specific requirements.

Attendance

Since good attendance promotes good scholarship, students are expected to attend all class meetings and complete all assignments for courses in which they are enrolled. The attendance policy of the College is as follows:

1. Guidelines used to determine the extent that attendance will affect grades are implemented at the instructor's discretion and will be stated at the beginning of each course orally and in writing.
2. Excessive absenteeism and/or tardiness may adversely affect a student's grade.

Instructors may establish attendance policies to conform to the educational goals and requirements of their courses. Such policies will ordinarily be set out in the course syllabus which will describe the procedures for giving timely notice of absences, explain how work missed may be made up, and stipulate any penalty to be assessed for absences.

Audit

With the consent of the instructor, a student may enroll in a course for no-credit (audit). Audit students pay the same fee as students enrolled for credit. Audit students are not expected to complete course work as students who are enrolled for credit, nor will audit students take tests. Audit enrollments will not count toward financial aid or degree completion requirements. Students must inform the Registrar's Office within the first 15 instructional days of the course.

Certificate of Applied Science

The Certificate of Applied Science is awarded to any student satisfactorily completing a program as established by the College. Passing grades in required courses (a "C-" or better) and a 2.0 cumulative grade point average (GPA) are necessary before a certificate will be awarded. Courses numbered below 100 are not applied toward program completion requirements. Students seeking certification in more than one program must inform and receive approval from the Registrar's Office. Students will be required to use the catalog in use at the time the program is declared unless a *Request to Graduate from Alternate Catalog* form is completed and approved. Students entering after a one-semester time lapse (excluding summer) or longer will re-enroll under the current catalog.

Challenging a Course for Credit

A student who has completed course work through experiential learning or non-accredited learning experiences has the option of earning college credit by challenging designated courses. The challenge must be completed within the first 10 instructional days if the course can be challenged. It is important to note that not all courses can be challenged. The instructor will determine if the student's previous course work and/or experience supports the challenge request. The request must be approved by the Department Chair or a full time faculty member and then validated through the Registrar's Office. The exam must be completed with a grade of "B" or better in order to receive credits for the course. A grade of "CH" will be placed on the student's transcripts with successful completion of the examination. The grade received for the challenge does not affect the student's GPA. A student receiving a grade of "F", "NP", or "W" in a class at the college may not subsequently challenge the course. A student must register and pay tuition for any course being challenged. A student can not challenge more than 25% of the credits required for his or her degree.

Dean's List

To qualify for the Dean's List, the student must earn a semester GPA of 3.5 or higher while earning 12 or more semester credits with a grade of "C" or higher. (P/NP class credits are not included as earned credits for purposes of determining Dean's List standing.) Grades of "D," "F," or "NP" are not allowed. The student and his or her hometown newspaper will receive written notification of the award, and it will appear on his or her transcript for that term.

Drop/Add Classes

Students registered for fall or spring semesters and attending classes may drop or add classes during the first 15 instructional days of the semester. The student must initiate the drop/add process which can be done online for the first five days for adding classes and for the first fifteen 15 days for dropping classes. After the online drop/add window has passed, a drop/add form must be completed and returned to the cashier along with a $10 processing fee. If a student drops a class AFTER the first 15 days and prior to three weeks before the end of the course, a "W" (withdraw) will be given. Students cannot drop a class during the last three weeks of the semester and will receive a letter grade from the instructor based on coursework completed. Drop/adds are not used to withdraw completely from the College. Drop/adds for summer semester courses are computed on the same ratio stated above for hours attended to total course hours.

Evening/Saturday Classes

A variety of late afternoon and evening classes are offered based upon the needs of the community and UM-Helena students. These classes are available after 5 p.m., Monday through Thursday, and 9 a.m. to 4 p.m. on Saturdays. Applicants interested in classes may contact Admissions & New Student Services.

General Education

Basic academic skills, interpersonal skills, technological skills, and critical thinking skills are vitally important to the success of the individual worker and the workplace that he or she enters.

To receive a Certificate of Applied Science in a technical program, students need to demonstrate competence in basic skills in mathematics, communication, and computer technology related to effective performance on the job. They must also demonstrate an understanding of the human relationships and attitudes that affect the quality of life and productivity in the workplace. To receive an Associate of Applied Science degree, students must go beyond competence in basic skills and knowledge. A.A.S.-level general education courses focus on critically selecting, applying, adapting, and/or synthesizing a range of skills and perspectives in response to the varied expectations and changing conditions of the modern workplace.

UM-Helena also offers a sizable component of general education coursework, which emphasizes critical and creative thinking and expression; scientific inquiry; mathematical analysis; historical, sociological, psychological, and artistic perspectives. Through studies in the major areas of knowledge, general education provides students with the broad educational background that is excellent preparation for careers, further education, citizenship, and lifelong learning in a rapidly changing world.

General education coursework is required for both the Associate of Arts and the Associate of Science degrees, but the College encourages all students to challenge their abilities and broaden their perspectives by taking general education courses to meet the related instruction and elective requirements of their technical programs.

Grades and Grade Point Averages (GPA)

Student evaluation is reported at the end of each semester. A student's level of academic performance is determined through the calculation of a grade point average (GPA). The grade-point average is determined by dividing total grade points earned by the number of credits carried. The meaning of each grade and its value in grade points is as follows:

Grade	Quality of Work	Grade Points
A	Excellent	4.00
A-		3.67
B+		3.33
B	Above Average	3.00
B-		2.67
C+		2.33
C	Average	2.00*
C-		1.67*
D+		1.33
D	Passing	1.00
D-		0.67
F	Failing	0
FX	Failing (Academic Dishonesty)	0
AUD	Audit	N/A
EC	Credit by Exam (AP/CLEP)	N/A
I	Incomplete	N/A
MG	Missing Grade	N/A
NP	No Pass	N/A
CH	Challenge/Pass	N/A
P	Pass	N/A
TP	Tech Prep	N/A
TR	Transfer Course	N/A
R	Retake	N/A
SL	Service Learning	N/A
W	Withdraw	N/A

The use of the + and - grading system is up to the discretion of the individual instructor.

***Students must:**

(1) earn a minimum grade of "C-" in each class used to meet the prerequisites or requirements for a major, minor, option or certificate *and*

(2) maintain either:

a) a minimum 2.00 cumulative GPA (for students seeking Associate of Applied Science Degrees) ***or***

b) a minimum 2.25 GPA (for students seeking Associates of Arts or Associate of Science Degrees) ***or***

c) a minimum 2.5 GPA (for students seeking Associate of Science in Nursing)

Graduation Honors

Academic honors awards are acknowledged for A.A., A.S., and A.A.S. degrees at spring graduation. Calculation for these honors is the cumulative GPA at the end of the semester prior to graduation. Students with a cumulative GPA of 3.5 - 3.99 at the end of the semester prior to graduation receive the Honors Academic Award. Students with a cumulative GPA of 4.0 at the end of the semester prior to graduation receive the Highest Honors Academic Award.

Graduation Requirements

In accordance with Montana Board of Regents Policy 301.5.3 § 1¶ A.3., students must earn a "C-" or higher in all classes that are used to satisfy the pre-requisites or required courses for a major, minor, option or certificate. Students are also required to meet the overall Montana University System standard of a 2.00 grade point average for satisfactory academic progress (Policy 301.8).

Incomplete

An incomplete (I) grade may be given with the approval of the Registrar's Office when, in the opinion of the instructor, there is a reasonable probability that students can complete the course without retaking it and without instructor participation. The incomplete grade is not an option to be exercised at the discretion of the student and is given only in cases of extreme personal hardship or unusual academic situations. Eligibility for an incomplete is determined within the following guidelines:

1. An incomplete may be assigned to a student when he or she has been in attendance and doing passing work up to three weeks before the end of the course, and for reasons beyond his or her control, he or she has been unable to complete the requirements on time. Negligence, indifference, or excessive absences are not acceptable reasons.
2. The instructor will set the conditions for completion of the coursework. When these conditions have been met, the instructor will assign a grade based upon an evaluation of the total work done by the student in the course.
3. An incomplete ("I") which is not made up during the next regularly scheduled semester will automatically convert to a grade of "F."

Pass/No Pass

Student Option**:** To encourage students to venture into courses where they might otherwise hesitate because of uncertainty regarding their aptitude or preparation, they may enroll in certain courses on a pass/no pass basis. An instructor may indicate that a particular course is not available under the pass/no pass option.

No more than six pass/no pass credits may be counted toward program completion. The pass/no pass option does not extend to courses required by the student's program or program option, except at the discretion of the departments concerned. Courses numbered below 100 are not calculated in the pass/no pass limit or toward program completion.

The grades of pass/no pass are not formally defined in terms of their relationship to the traditional grades of A, B, C, D, F; a "P" is given for work considered to be passing and therefore deserving credit, and an "NP" for work not passed. "P" and "NP" grades do not affect grade point average.

Election of the pass/no pass option must be indicated at registration time on the registration form. After registration, but prior to the end of the 15th day of instruction, a student may change the grading option from pass/no pass to traditional (A - F) grading, or vice versa, by submitting a drop/add form.

The College cautions students that many schools and some employers do not recognize non-traditional grades (i.e., those other than A, B, C, D, F) or may discriminate against students who use the pass/no pass option.

Faculty Option: A department may elect to offer an entire class on a pass/no pass basis. This method of grading is used in courses where more precise grading is inappropriate.

Repeating a Course

Students may retake a course to improve their grade by registering and paying tuition and fees for the course. They must submit a *Request to Change Grade for Repeated Courses* to the Registrar's Office upon completion of the course. The letter grade for the repeated course will be posted to the student's transcript and the previous grade will be replaced with an "R" to indicate that the course was retaken. A grade of "R" is not calculated into GPA.

A student's academic standing (Dean's list, probation, suspension, etc.) cannot be retroactively changed by retaking classes.

Scholastic Requirements

Academic Probation or Continued Probation: Students will be placed on academic probation, or continued probation, at the end of any term (including Summer Session) if their cumulative GPA drops below or remains below 2.00.

Students on academic/continued probation should contact their advisor, ACCESS Center personnel and/or any other Student Services official or faculty member who might provide guidance, advice, or academic assistance. The Student Handbook contains a list of services available to enrolled students at UM-Helena.

"Academic Probation" or "Continued Probation" notations are posted to a student's permanent UM-Helena academic record.

Students placed on academic probation must show satisfactory academic progress - i.e. earn a 2.00 cumulative GPA - during their next term of enrollment (including Summer) or face academic suspension. Students who raise their cumulative GPA to the minimum 2.00 will be removed from "probationary status" and in most cases enrollment restrictions will be lifted.

Students placed on academic probation will be notified of their status in writing within a reasonable time following the end of the term. Notification will explain enrollment limitations and conditions and warn students of consequences if they fail to improve their scholastic performance during future terms of enrollment.

Academic Suspension: Students will be academically suspended at the end of any semester if they were placed on academic probation in their last semester of attendance and their cumulative grade average is still below a 2.00.

Students placed on academic suspension status for the first time MAY NOT enroll at UM-Helena during the next semester (fall or spring, whichever applies) nor Summer Session if a student is suspended at the end of Spring Semester. That is, a student who has been academically suspended from UM-Helena *for the first time* must "sit out" one regular semester, plus Summer Session if a student is suspended at the end of Spring Semester.

Students who are suspended for academic reasons a *second* or *third time* MAY NOT re-enroll at UM-Helena for a minimum of ONE FULL CALENDAR YEAR.

"Academic Suspension" notation is posted to a student's permanent UM-Helena academic record.

Students who are suspended for academic reasons will be informed of their status in writing as soon as possible following the end of the term. Any/all future enrollments (future class schedules that exist in UM-Helena's computer system through pre-registration prior to the end of the term in question) of academically suspended students *will be canceled*. Written notification of academic suspension will explain options available to the suspended student.

Readmission Following Suspension: Students who are suspended for academic reasons must apply for readmission to UM-Helena.

Students who seek readmission after "Sitting Out" the required suspension period - must submit:

1. a properly completed Application for Readmission form;
2. a carefully prepared plan which indicates how the suspended student will improve his or her academic performance if re-admitted, and will include a statement of the student's education and career goals; and
3. any other documents that might be required by other UM-Helena offices.

Withdrawal

Withdrawal from the College is the student's responsibility. In order to withdraw from all classes, a student must meet with a representative of the ACCESS Center and complete the withdrawal form. The form must be completed, signed by the student and returned to the ACCESS Center. If a student withdraws from the College after the first 15 instructional days and prior to three weeks before the end of the course, a "W" (withdrawn) will be assigned. During the last three weeks of the semester, a student may not officially withdraw and will receive a letter grade from the instructor based on an evaluation of the total work done by the student in the course. Withdrawal from a course in which the student has received an "FX" for academic dishonesty is not permitted.

It is important to note that a complete withdrawal cannot be done online.

Financial Aid Office

The Financial Aid Office provides students with financial assistance using federal, state, and institutional guidelines. The Free Application for Federal Student Aid (FAFSA) is used to determine financial need for students. This form is available at www.fafsa.ed.gov or by calling 1-800-433-3243. All students are eligible for student loans and may be eligible for Pell grants. All other state and federal aid is awarded based on a first-in basis with March 1st as the priority deadline. Upon receipt of the Student Aid Report generated from the FAFSA filing and the completion of an admissions application, the Financial Aid office will send students an estimate of their financial aid eligibility.

All federal and state financial aid is subject to rules and regulations that are set by the Federal and State governments and UM-Helena's Institutional guidelines. Students must be making satisfactory academic progress to continue receiving financial aid. All policies are available at www.umhelena.edu, click on Financial Aid – Policy & Procedures. All students will receive a copy of their Rights and Responsibilities with their Initial Notification Letters. Written policies are also available through the Financial Aid office on the Donaldson Campus, Room 101.

Scholarship information is available in the Financial Aid Office or on the website at www.umhelena.edu, click on Financial Aid – Scholarship Information.

Program Offerings

ASSOCIATE OF ARTS DEGREE
4 Semesters, General Transfer
Emphases in Accounting, Business, English, Fine Arts, General Science, History, Mathematics, Social Sciences, and Mental Health Direct Care

ASSOCIATE OF SCIENCE DEGREE
4 Semesters, General Transfer
Emphases in Accounting, Business, Computers, Environmental Science, and Wild Lands Fire Suppression *

ASSOCIATE OF SCIENCE REGISTERED NURSING DEGREE
2 Semesters, Leading to Registered Nursing
Completion Program for Licensed Practical Nurses

ASSOCIATE OF APPLIED SCIENCE DEGREES
4 Semesters

Accounting and Business Technology
Accounting Technology
Small Business Management Technology
Automotive Technology
Aviation Maintenance Technology
Computer Technology
Network Administration
Programming
Webmaster
Construction Technology
Diesel Technology
Electronics Technology
Bio-Medical
Computer Systems
General
Fire and Rescue
Machine Tool Technology
Metals Technology
Office Technology
Office Technology Specialist
Legal Administrative Specialist
Medical Administrative Specialist
Welding

CERTIFICATES OF APPLIED SCIENCE

Bookkeeping	2 Semesters
Carpentry	2 Semesters
Computer Assistant	2 Semesters
Interior Space Planning and Design	2 Semesters
Machine Tool Technology	2 Semesters
Medical Assisting	2 Semesters
Office Assistant	2 Semesters
Practical Nursing	3 Semesters
Small Business Entrepreneurship Technology	2 Semesters
Welding Technology	2 Semesters

**Wild Lands Fire Suppression is on moratorium and is not currently accepting new students.*

Associate of Arts and Associate of Science

*T*he Associate of Arts (A.A.) and Associate of Science (A.S.) degrees are general transfer degrees. Completion of either program indicates the student has completed a course of study equivalent to the first two years of a bachelor's degree. Associate of Arts and Associate of Science degrees do not officially include a major or minor course of study; nevertheless, students do complete 22 credit program of study option for either an A.A. or A.S. degree. (For specific information on the Associate of Science degree in nursing, please see the Nursing Department Program page).

Students may also accumulate credits to transfer to another college or university. Completion of the UM-Helena general education core requirements (31+ credits) satisfies the general core requirements of the Montana University System. All Montana University System institutions will accept the UM-Helena general education core to satisfy their lower division general education requirements.

Students with Disabilities: Many General Education courses lend themselves well to field trips as an enhancement to the course's curriculum; some science and fine arts courses routinely take advantage of field trip opportunities, both planned and unplanned. At the instructor's discretion, field trip activities may be graded assignments; however, the College and the instructor must provide reasonable accommodation to any student with a documented disability that prevents or hinders the student's full participation. Students with disabilities are advised to consult with the instructor and with Disability Services in the ACCESS Center for appropriate arrangements and/or accommodation prior to the field trip activity.

Faculty Advisors: Mike Cronin, Michelle Holt, Nathan Munn, Viktor Shchuchinov, and Robin Shropshire

Length of Program: 4 Semesters

Type of Program: Associate of Arts, Associate of Science
Semester of Entry: Fall, Spring, and Summer

Minimum Requirements for A.A. and A.S.

Completion of 60 semester credit hours, 15 credits of which are at the 200 level.
Completion of 36 credits in General Education, 22 Credits in a Program of Study, and 2 credits in a Capstone Project.
An overall GPA of 2.25 upon completion of the degree.
A grade of "C-" or higher in each course in the program of study.

NOTES:

* Indicates second half of science sequence required for A.S. degree (see below under "Additional General Education Requirements for Degree-Seeking Students")
"C" Indicates the course may be taken for capstone credits
"D" Indicates the course meets the core diversity requirement (see requirement "F" below)

I. General Education Core (31+ credits)

The General Education Core of the UM-Helena College of Technology provides students with the broad foundation of knowledge essential for success at the associate and baccalaureate levels.

All students are prepared for independent, abstract, and critical thinking; responding creatively to problems; applying quantitative and mathematical knowledge; finding information, and communicating both orally and in written forms. This is done to engender life-long learning skills, a foundation of knowledge in a variety of disciplines, and a broadened perspective on our interdependent, changing global community.

A: Natural Sciences/Mathematics (10+ credits)

Math and Sciences Outcomes

- Understand and demonstrate methods used to gather, test, and interpret scientific data.
- Understand basic principles that explain the natural world.
- Solve quantitative problems and interpret solutions.
- Use inductive and deductive scientific reasoning to solve novel problems.

To complete the science/math requirement, students must include one natural science with lab and MA107 Math for the Liberal Arts (or higher) for A.A. degrees or MA108 College Algebra (or higher) for A.S. degrees.

Course Number	Course Title	Credits		
❑ BIOL101	Biology I with Lab	4		
❑ BIOL107	Basic Anatomy and Physiology I with Lab	4		
❑ BIOL201	Biology II with Lab	4	*	(C)
❑ BIOL207	Anatomy and Physiology I with Lab	4		

Course Number	Course Title	Credits		
❑ BIOL208	Anatomy and Physiology II with Lab	4	*	
❑ BIOL219	ASRN Microbiology	3		
❑ BIOL220	Microbiology	3		
❑ BIOL221	Microbiology Lab	1		
❑ CHEM150	General and Inorganic Chemistry	3		
❑ CHEM151	General and Inorganic Chemistry Lab	1		
❑ CHEM250	Organic and Biological Chemistry	3	*	(C)
❑ CHEM251	Organic and Biological Chemistry Lab	1		(C)
❑ EVSC130	Introduction to Environmental Studies	3		(D)
❑ EVSC140	Introduction to Geographic Information Systems (GIS)	3		
❑ EVSC230	Nature and Society	3		(C, D)
❑ GEOL211	Physical Geology with Lab	4		(C)
❑ MA107	Math for the Liberal Arts	3		
❑ MA108	College Algebra	3	*	
❑ MA110	Probability and Linear Math	3		
❑ MA112	Trigonometry	3		
❑ MA120	Calculus I	4		
❑ MA121	Calculus II	4		
❑ MA220	Statistics	3		(C)
❑ NUTR112	Nutrition	3		
❑ PHYS101	Physics with Lab	4		
❑ PHYS210	Astronomy with Lab	4		

B: Written Communication (6 credits)

Written/Oral Communications Outcomes

- Demonstrate mastery of engaging, clear, and coherent structures for presenting ideas in a variety of expository and argumentative models.
- Develop ideas logically, clearly, convincingly and ethically.
- Control the effect of voice in achieving specific communication purposes with specific audiences.
- Control the conventions of language.
- Understand and apply research skills necessary for academic study.
- Employ analysis, synthesis, and evaluation in both writing and reading.
- Exercise proficiency, confidence, and self-reliance in the application of academic activities.

❑ ENG101	College Writing	3
❑ ENG122	Advanced English Composition	3

C: Oral Communication (3 credits)

❑ COMM131	Introduction to Public Speaking	3

D: Social and Behavioral Sciences (6+ credits)

Social Science Outcomes

- Have an awareness of major perspectives in social and individual behavior.
- Be able to apply social science theories to multicultural perspectives.
- Understand how historical experiences influence current theories.
- Be able to apply critical thinking skills.
- Be able to recognize and practice ethical research techniques.

Course Number	Course Title	Credits	
❑ ANTH101	Introduction to Anthropology	3	(D)
❑ ANTH103	Introduction to Archaeology	3	(D)
❑ ANTH150	Introduction to Latin American Studies	3	(D)
❑ ANTH225	Native American Culture	3	(D)
❑ ECON255	Microeconomics	3	
❑ ECON256	Macroeconomics	3	
❑ PSYC101	Introduction to Psychology	3	

❑	PSYC116	Stress Management	3	
❑	PSYC214	Introduction to Marriage and Family	3	(C, D)
❑	PSYC220	Social Psychology	3	(C, D)
❑	PSYC223	Abnormal Psychology	3	(C)
❑	PSYC226	Developmental Psychology	3	(C)
❑	PSYC260	Organizational Psychology	3	
❑	SOC101	Introduction to Sociology	3	
❑	SOC230	Social Problems	3	(C, D)
❑	SOC235	Aging and Society	3	(C, D)

E: Humanities/Fine Arts (6+ credits)

Humanities and Fine Arts Outcomes

- Identify a variety of artistic styles, movements, schools of thought/expression, and cultures.
- Analyze, interpret, and evaluate a range of human expressions and values using critical strategies.
- Engage in imaginative expression.
- Appreciate a diversity of world-views or perspectives.

❑	ARTS101	Art Appreciation	3	
❑	ARTS120	Introduction to the Theater	3	
❑	ARTS125	Beginning Acting	3	
❑	ARTS140	Art Fundamentals	3	
❑	ARTS212	Basic Drawing	3	
❑	ARTS240	Basic Painting	3	
❑	COMM132	Interpersonal Communication	1	
❑	COMM133	Small Group Communication	1	
❑	COMM201	Introduction to Public Relations	3	
❑	ENG201	Approaches to Literature	3	
❑	ENG210	American Literature	3	(C)
❑	ENG211	Introduction to Irish Literature	3	(C)
❑	ENG221	Comparative Literature	3	(C, D)
❑	ENG222	Introduction to Creative Writing	3	(C)
❑	ENG225	Introduction to the Novel	3	(C)
❑	ENG227	Introduction to Shakespeare	3	(C)
❑	ENG232	Special Topics Variable	3	(C)
❑	ENG251	British Literature, pre-1800	3	(C)
❑	ENG252	British Literature, 1800-Present	3	(C)
❑	HIST150	The History of Montana	3	
❑	HIST170	History of the American West	3	
❑	HIST201	U.S. History: Settlement to Reconstruction	3	
❑	HIST202	U.S. History: Reconstruction to Present	3	
❑	HIST205	U.S. History: Post World War II	3	
❑	LANG101	Elementary Spanish I	4	(D)
❑	LANG102	Elementary Spanish II	4	(D)
❑	PHIL101	Ethics	3	
❑	PHIL187	Introduction to Consciousness Studies	3	

F: Diversity Requirement

Diversity Component of General Education: Student Learning Outcomes

- Students will appreciate diversity across cultures and be able to reflect upon their own cultural values and systems.
- Students will understand and be able to analyze the complex political, social, and economic relationships within and among cultures.
- Students will appreciate the creative works, values, and ways of life and/or history of a cultural group outside of their own culture.

Within their core of 31+ credits, students must take at least 3 credits in courses that explore cultural diversity. Such courses are marked "D." Courses labeled "D" can be counted **twice,** once for diversity AND once for the core requirement.

II. Additional General Education Requirements for Degree-Seeking Students (5+ credits)

A: A.S. Degree (5+ credits in math/science)

Students seeking an A.S. degree must complete an additional 5+ credits in math/science. Students must complete the second half of one of the science sequences noted above (*).

B: A.A. Degree (5+ credits in social science/humanities)

Students seeking an A.A. degree must complete an additional 5+ credits in humanities/social science—these additional credits must include one foreign language course.

III. Program of Study Options (22 credits)

A: Associate of Arts -- Transfer

1. Students must complete 22 credits in one of the following areas (Math may be combined with either General Science, Social Science, or Humanities/Fine Arts):

Accounting, Business, Humanities/Fine Arts, General Science, Math, Social Sciences

Students planning to transfer are advised to work closely with the receiving four-year institution to ensure the applicability of UM-Helena courses to their intended program of study.

2. Associate of Arts -- Mental Health Direct Care

Course Number	Course Title	Credits
❑ PSYC101	Introduction to Psychology	3
❑ PSYC226	Developmental Psychology	3
❑ PSYC223	Abnormal Psychology	3
❑ PSYC220	Social Psychology	3
❑ OT112	Introduction to Microcomputers	3
❑ PSYC260	Organizational Psychology	3
❑ BIOL107	Basic Anatomy & Physiology I with Lab	4

B: Associate of Science

1. Environmental Science

Students in this program need to work closely with an advisor to insure they meet specialized Gen Ed requirements for Environmental Science.

I. General Education Credits (36 credits)

A. Natural Sciences/Mathematics (15 credits)

- ❑ MA108 College Algebra 3
- ❑ CHEM150 or BIOL101 4
- ❑ CHEM250 or BIOL201 4

Math or Science Elective 4

B. Written Communication (6 credits)

- ❑ ENG101 3
- ❑ ENG122 3

C. Oral Communication (3 credits)

- ❑ COMM131 3

D. Social and Behavioral Sciences (6 credits)

Choose two of the following:

- ❑ ANTH101 3
- ❑ ECON255 3
- ❑ ECON256 3
- ❑ PSYCH101 3
- ❑ SOC101 3
- ❑ ANTH103 3

E. Humanities/Fine Arts (6 credits)
Choose from catalog listing

II. Program of Study Credits (22 credits)

Course Number	Course Title	Credits
❑ EVSC120	Introduction to Water Resources	3
❑ EVSC130	Introduction to Environmental Science	3
❑ EVSC140	Introduction to Geographic Information Systems (GIS)	3
❑ EVSC230	Nature and Society	3
❑ EVSC240	Geographic Information Systems (GIS)	3
❑ GEOL221	Geology	4
❑	Math Trigonometry, Statistics, or Linear Math	3

III. Capstone 2

2. Computer Technology ~ *Students may pursue a Bachelors of Science in Computer Science at Carroll College.* *Please see page 67 for details.*

a: Programming Option - REQUIRED

❑	CT102	Introduction to Programming	3
❑	CT131	Visual Basic	3
❑	CT216	Introduction to Object Oriented Programming	4
❑	CT254	Database Design and SQL	4

Choose THREE of the following courses:

❑	CT253	Developing Web Applications	3
❑	CT260	Systems Analysis	3
❑	CT262	Web Databases	4
❑	CT264	PL/SQL Oracle Developer	4
❑	CT268	Advanced .NET Applications	3
❑	CT270	Oracle Enterprise Applications	4

b: Webmaster Option - REQUIRED

❑	CT102	Introduction to Programming	3
❑	CT115	Web Pages	3
❑	CT216	Introduction to Object Oriented Programming	4
❑	CT254	Database Design and SQL	4

Choose THREE of the following courses:

❑	CT217	Advanced Java	4
❑	CT227	PHP Web Development	3
❑	CT253	Developing Web Applications	3
❑	CT262	Web Databases	4

c: Network Administration Option - REQUIRED

❑	CT102	Introduction to Programming	3
❑	CT121	Perl Scripting for Administration	3
❑	CT218	Microsoft Server Administration	4
❑	CT219	Unix	3
❑	ELCR126	Network Fundamentals	3

Choose TWO of the following courses:

❑	CT254	Database Design with SQL	4
❑	ELCR176	Router Technology	3
❑	ELCR227	Routing and Switching	3

3. Wild Lands Fire Suppression*

** PLEASE NOTE: Wild Lands Fire Suppression is on moratorium, and therefore, is **not** currently accepting new students.*

C: Associate of Science OR Associate of Arts ~ *4-year degree in Business available at UM-Helena through partnership with Montana Tech. Please see pages 62 & 63 for details.*

1. Accounting Technology

- ❑ ACCT110 Accounting I 4
- ❑ ACCT120 Accounting II 4
- ❑ ACCT210 Principles of Financial Accounting 3
- ❑ ACCT220 Principles of Managerial Accounting 3
- ❑ BUS105 Introduction to Business 3

Choose TWO of the following courses:

- ❑ ACCT135 Income Tax 3
- ❑ ACCT140 Payroll Accounting 3
- ❑ ACCT205 Computerized Accounting 3
- ❑ ACCT231 Governmental and Not for Profit Accounting 3

2. Business Technology

- ❑ ACCT110 Accounting I 4
- ❑ ACCT210 Principles of Financial Accounting 3
- ❑ ACCT220 Principles of Managerial Accounting 3
- ❑ BUS105 Introduction to Business 3
- ❑ BUS210 Marketing 3
- ❑ BUS260 Management 3

Choose ONE of the following courses:

- ❑ BUS205 Business Ethics 3
- ❑ BUS246 Business Law I 3
- ❑ BUS247 Business Law II 3
- ❑ BUS250 Contemporary Economics 3
- ❑ BUS265 Finance 3

IV. Capstone (2 credits)

A.A. and A.S. degree-seeking students complete their degrees with a capstone course that synthesizes their educational experiences across the curriculum from within their Program of Study. Capstones for Programs of Study in Business, Accounting, Computer Technology, Environmental Science, and Mental Health Direct Care have specific capstone courses: BUS270, ACCT265, CT265, GEN265, and GEN275.

Capstones for Programs of Study in Humanities/Fine Arts, General Science, Math, and Social Sciences are designated in this Catalog as GEN270. Students in these programs enroll in GEN270; however, their projects are attached to a particular capstone-designated course in which they must be enrolled and through which they collaborate with the instructor for their capstone projects. Courses eligible for capstone credits are indicated in this section of the Catalog by a "C" and in the "Course Descriptions" section as "capstone eligible."

Students must officially declare a Program of Study before enrolling in any capstone, and the course must qualify within that Program of Study. Students undertake capstone projects during their sophomore year and are encouraged to do so during their final semester when appropriate. In the case of a dual Program of Study, students should take a capstone from the predominant program. ENG122 Advanced English Composition is a prerequisite to all capstone courses.

- ❑ ACCT265 Accounting Portfolio (for Accounting program of study) 2
- ❑ BUS270 Business Plan (for Business program of study) 2
- ❑ GEN265 A.S. Capstone 2
- ❑ GEN270 A.A. Capstone 2
- ❑ GEN275 Mental Health Direct Care 2

Accounting And Business Technology

The Accounting and Business Technology program area prepares students to enter the business world – as bookkeepers, as accountants, or as entrepreneurs. Graduates of the Accounting track learn skills readying them to be accounting technicians with private, government, or not for profit agencies. Graduates of the Business track gain knowledge as associates in business or entrepreneurs of their own ventures. Students choosing either option may transfer their A.A.S. degree toward earning a Bachelor of Applied Science in business through other Montana higher education institutions.

Entry Requirements for all Accounting and Business certificates and degrees: Students must be able to begin their math requirements in at least MAT120 Applied Business Math and their English requirements in at least ENG107T Technical Writing or ENG117T Effective Business Communication. Students who do not meet these requirements will be required to take additional English and mathematics courses at the beginning of their program, although the credits may be used to meet the elective requirements in later semesters.

Faculty Advisors: Barbara Yahvah and George Sonnenberg

BOOKKEEPING

The Accounting track emphasizes accounting procedures with other business, communication, and computer courses to complement the needs of today's employers. Students successfully completing the Certificate of Applied Science – Bookkeeping program will be able to maintain accounting records in journals, ledgers, and other accounting forms, both manual and computerized. In addition to those skills, students completing the Associate of Applied Science – Accounting Technology program will have a general knowledge of financial statement presentation, non-profit accounting, managerial accounting, payroll procedures, and income tax preparation. The Associate of Applied Science – Accounting Technology further emphasizes critical thinking, problem-solving, and communication skills for students with instruction in business law, economics, ethics, finance, and a capstone experience.

Length of Option: 2 Semesters
Type of Program: Certificate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ ACCT110	Accounting I	4
❑ BUS105	Introduction to Business	3
❑ *Math Requirement*		3
	❑ MAT120T Applied Business Math (3) ***or***	
	❑ MAT130T Introductory Algebra (3) ***or***	
	❑ MA100D ***or higher*** (3-4) (transferable)	
❑ OT112	Introduction to Microcomputers	3
❑ OT114	Keyboarding and Document Processing ***or***	3
	❑ OT122 Word Processing Applications (3)	
	Total Credits	**16**

Second Semester

❑ ACCT120	Accounting II	4
❑ ACCT205	Computerized Accounting	3
❑ *English Requirement*		3
	❑ ENG107T Technical Communication (3) ***or***	
	❑ ENG101 College Writing (3) (transferable)	
❑ HR110T	Career Development and Human Relations ***or***	3
	❑ SOC101 Introduction to Sociology (3) (transferable) ***or***	
	❑ PSYC101 Introduction to Psychology (3) (transferable)	
❑ OT137	Spreadsheet Applications	3
❑ *Electives* *		2
	Total Credits	**18** **(34)**

Accounting

The Accounting track emphasizes accounting procedures with other business, communication, and computer courses to complement the needs of today's employers. Students successfully completing the Certificate of Applied Science – Bookkeeping program will be able to maintain accounting records in journals, ledgers, and other accounting forms, both manual and computerized. In addition to those skills, students completing the Associate of Applied Science – Accounting Technology program will have a general knowledge of financial statement presentation, non-profit accounting, managerial accounting, payroll procedures, and income tax preparation. The Associate of Applied Science – Accounting Technology further emphasizes critical thinking, problem-solving, and communication skills for students with instruction in business law, economics, ethics, finance, and a capstone experience.

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

First Semester

Course Number	Course Title	Credits
❑ ACCT110	Accounting I	4
❑ BUS105	Introduction to Business	3
❑ *Math Requirement*		3
	❑ MAT120T Applied Business Math (3) *or*	
	❑ MAT130T Introductory Algebra (3) *or*	
	❑ MA100D Intermediate Algebra (4) *or higher* (3-4) (transferable)	
❑ OT112	Introduction to Microcomputers	3
❑ OT114	Keyboarding and Document Processing *or*	3
❑ OT122	Word Processing Applications (3)	
	Total Credits	**16**

Second Semester

❑ ACCT120	Accounting II	4
❑ ACCT205	Computerized Accounting	3
❑ ENG107T	Technical Communication *or*	3
	❑ ENG101 College Writing (3) (transferable)	
❑ HR110T	Career Development and Human Relations *or*	3
	❑ SOC101 Introduction to Sociology (3) (transferable) *or*	
	❑ PSYC101 Introduction to Psychology (3) (transferable)	
❑ OT137	Spreadsheet Applications	3
❑ *Electives**		2
	Total Credits	**18** **(34)**

Third Semester

❑ ACCT135	Income Tax	3
❑ ACCT140	Payroll Accounting	3
❑ ACCT210	Principles of Financial Accounting	3
❑ BUS250	Contemporary Economics *or*	3
	❑ ECON255 Microeconomics (3) (transferable) *or*	
	❑ ECON256 Macroeconomics (3) (transferable)	
❑ *English or Communications Electives*		3
❑ ENG107T Technical Communication *or*		
	❑ ENG101 College Writing *or higher* (3) (transferable) *or*	
	❑ COMM131 Introduction to Public Speaking (3) (transferable)	
❑ *Electives* *		3
	Total Credits	**18**

Fourth Semester

❑ ACCT220	Principles of Managerial Accounting	3
❑ ACCT230	Introduction to Statewide Accounting, Budgeting, and Human Resource System (SABHRS) *or*	2
	❑ ACCT288 Internship (1-3)	
❑ ACCT231	Governmental and Not for Profit Accounting	3
❑ ACCT265	Accounting Portfolio	2
❑ BUS205	Business Ethics	3
❑ BUS246	Business Law I *or*	3
	❑ BUS247 Business Law II (3)	
	Total Credits	**16** **(68)**

4-year degree in Business available at UM-Helena through partnership with Montana Tech. Please see pages 62 & 63 for details.

Bookkeeping Specialist

Bookkeeping Specialist is designed for a student who has an earned degree or work experience in communications, business, or a related field. Upon successful completion of the course requirements for the Bookkeeping Specialist, the student receives a focus of study that is preparation for the national certification exam to become a *Certified Bookkeeper* (CB):

Type of Program: Focus of Study
Semester of Entry: Fall and Spring

	Course Number	Course Title	Credits
❑	OT112	Introduction to Microcomputers	3
❑	ACCT110	Accounting I	4
❑	ACCT120	Accounting II	4
❑	ACCT135	Income Tax (fall only)	3
❑	ACCT140	Payroll Accounting (fall only)	3
❑	ACCT205	Computerized Accounting	3
		Total Credits	**20**

Human Resource Specialist

The Human Resource Specialist is designed for a student who has an earned degree or work experience in communications, business, or a related field. Upon successful completion of the course requirements for the Human Resource Specialist, the student receives a focus of study in human resource management.

Type of Program: Focus of Study
Semester of Entry: Fall and Spring

	Course Number	Course Title	Credits
❑	ACCT110	Accounting I	4
❑	ACCT140	Payroll Accounting (fall only)	3
❑	BUS105	Introduction to Business	3
❑	BUS205	Business Ethics (spring only)	3
❑	BUS261	Human Resource Management (fall only)	3
❑	BUS263	Legal Issues in Human Resources (spring only)	3
		Total Credits	**19**

Small Business Entrepreneurship

The Business track emphasizes general business courses to provide students with a broad background for the business environment. The Small Business Entrepreneurship Certificate of Applied Science features courses in entrepreneurship, accounting, computer applications, and general education. The Associate of Applied Science – Small Business Management Technology degree further offers management, marketing, ethics, and finance courses. The two options will provide educational opportunities for students to develop the necessary skills to manage their own businesses.

Length of Option: 2 Semesters
Type of Program: Certificate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ ACCT110	Accounting I	4
❑ BUS105	Introduction to Business	3
❑ *Math Requirement*		3
	❑ MAT120T Applied Business Math (3) *or*	
	❑ MAT130T Introductory Algebra (3) *or*	
	❑ MA100D Intermediate Algebra (4) *or higher* (3-4) (transferable)	
❑ OT112	Introduction to Microcomputers	3
❑ OT114	Keyboarding and Document Processing *or*	3
	❑ OT122 Word Processing Applications (3)	
	Total Credits	**16**

Second Semester

❑ ACCT205	Computerized Accounting	3
❑ BUS200	Small Business Entrepreneurship	2
❑ ENG107T	Technical Communication *or*	3
	❑ ENG101 College Writing (3) (transferable)	
❑ HR110T	Career Development and Human Relations *or*	3
	❑ SOC101 Introduction to Sociology (3) (transferable) *or*	
	❑ PSYC101 Introduction to Psychology (3) (transferable)	
❑ OT137	Spreadsheet Applications	3
❑ *Electives*		4
	Total Credits	**18 (34)**

Small Business Management

The Business track emphasizes general business courses to provide students with a broad background for the business environment. The Small Business Entrepreneurship Certificate of Applied Science features courses in entrepreneurship, accounting, computer applications, and general education. The Associate of Applied Science – Small Business Management Technology degree further offers management, marketing, ethics, and finance courses. The two options will provide educational opportunities for students to develop the necessary skills to manage their own businesses.

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

First Semester

Course Number	Course Title	Credits
❑ ACCT110	Accounting I	4
❑ BUS105	Introduction to Business	3
❑ *Math Requirement*		3
	❑ MAT120T Applied Business Math (3) *or*	
	❑ MAT130T Introductory Algebra (3) *or*	
	❑ MA100D Intermediate Algebra (4) *or higher* (3-4) (transferable)	
❑ OT112	Introduction to Microcomputers	3
❑ OT114	Keyboarding and Document Processing *or*	3
❑ OT122	Word Processing Applications (3)	
	Total Credits	**16**

Second Semester

❑ ACCT205	Computerized Accounting	3
❑ BUS200	Small Business Entrepreneurship	2
❑ ENG107T	Technical Communication *or*	3
	❑ ENG101 College Writing (3) (transferable)	
❑ HR110T	Career Development and Human Relations *or*	3
	❑ SOC101 Introduction to Sociology (3) (transferable) *or*	
	❑ PSYC101 Introduction to Psychology (3) (transferable)	
❑ OT137	Spreadsheet Applications	3
❑ *Elective Credits*	4	
	Total Credits	**18** **(34)**

Third Semester

❑ ACCT140	Payroll Accounting	3
❑ BUS210	Marketing	3
❑ BUS250	Contemporary Economics *or*	3
	❑ ECON255 Microeconomics (3) (transferable) *or*	
	❑ ECON256 Macroeconomics (3) (transferable)	
❑ BUS261	Human Resource Management *or*	3
	❑ BUS263 Legal Issues in Human Resources (3) *or*	
	❑ BUS288 Internship (3)	
❑ BUS265	Finance	3
❑ *English or Communications Electives*		3
	❑ COMM131 Introduction to Public Speaking (3) (transferable) *or*	
	❑ ENG107T Technical Communication (3) *or*	
	❑ ENG101 College Writing *or higher* (3) (transferable)	
	Total Credits	**18**

Fourth Semester

❑ BUS205	Business Ethics	3
❑ BUS246	Business Law I *or*	3
	❑ BUS247 Business Law II (3)	
❑ BUS260	Management	3
❑ BUS270	Business Plan	2
❑ OT138	Multimedia Presentations	2
❑ *Elective Credits*	3	
	Total Credits	**16** **(68)**

4-year degree in Business available at UM-Helena through partnership with Montana Tech. Please see pages 62 & 63 for details.

Automotive

The Automotive Technology **C**urriculum consists of eight areas of study as defined by the National Institute for Automotive Service Excellence (ASE). This is a non-profit corporation dedicated to improving the quality of automotive service and repair as well as assisting in training and program development throughout the nation. The eight content areas of study, along with the College's general education requirements, are structured into four groups with all eight areas of study being offered during a two-year period. Successful completion of this program will enable students to enter the automotive job market.

Upon admission to the Automotive Program, students are required to purchase a tool set as outlined in the tool section of this catalog. Students are also required to purchase school-approved coveralls and red rags for use in the shops and are responsible for a cleaning fee each semester.

Faculty Advisors: Dave Jones and Steve Schlauch
Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

First Semester

	Course Number	Course Title	Credits
❑	AUTO105	Manual Drive Trains and Axles	7
❑	MECH101	Shop Safety	1
❑	MECH100	Electrical/Electronic Systems	6
❑	MECH110	Electrical/Electronic Systems Lab	2
❑	MAT110T	Technical Math	3
		Total Credits	**19**

Second Semester

❑	AUTO110	Engine Repair	5
❑	AUTO113	Electrical/Electronic Systems II	4
❑	MECH130	Heating and Air Conditioning	3
❑	MECH150	Heating and Air Conditioning Lab	2
❑	OT112	Introduction to Microcomputers	3
		Total Credits	**17 (36)**

Third Semester

❑	AUTO216	Engine Performance I	7
❑	AUTO221	Brakes and Chassis	6
❑	ENG107T	Technical Communication	3
❑	WELD100	Welding Fundamentals	1
		Total Credits	**17**

Fourth Semester

❑	AUTO260	Applied Lab Experience and Light Repair	4
❑	AUTO231	Engine Performance II	5
❑	AUTO225	Automatic Transmissions / Transaxles and Lab	7
❑	HR110T	Career Development and Human Relations	3
		Total Credits	**19 (72)**

Aviation Maintenance Technology

The Aviation Maintenance Technology program provides students with the basic skills common to all mechanics as well as the specialized requirements unique to aircraft maintenance. A partial listing of the special skills a student will learn can be found in the course curriculum printed below.

Satisfactory completion of the program prepares and qualifies students for the Federal Aviation Administration's tests to obtain an Airframe and Powerplant Mechanic license. Completion of the program will also give the student the necessary job skills to gain employment in the aircraft industry. The Aviation Maintenance Technology program is approved and licensed by the FAA and requires four semesters of study to complete the course.

Students will need professional tools to gain employment upon graduation; therefore, they are required to purchase a tool set as outlined in the tool section. Students are required to purchase school-approved coveralls and red rags for use in the shops and are responsible for a cleaning fee each semester.

Faculty Advisor: Karl Kruger
Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

First Semester

	Course Number	Course Title	Credits
❑	AVIA100	Intro to Aviation Maintenance / Mathematics / Basic Physics	2
❑	AVIA105	Basic Electricity	2
❑	AVIA110	Aircraft Drawings / Weight and Balance	2
❑	AVIA115	Materials and Processes / Fluid Lines and Fittings / Cleaning and Corrosion Control	3
❑	AVIA120	Ground Operation and Servicing	2
❑	AVIA125	Maintenance Publications / Forms and Records / Mechanic Privileges and Limitations	2
❑	AVIA130	Basic Aerodynamics	2
❑	AVIA135	Assembly and Rigging / Airframe Inspection	3
❑	MAT110T	Technical Math	3
		Total Credits	**21**

Second Semester

❑	AVIA140	Sheet Metal	3
❑	AVIA145	Composites and Plastics	3
❑	AVIA150	Wood Structures	2
❑	AVIA155	Aircraft Covering / Aircraft Finishes	2
❑	AVIA160	Welding	3
❑	AVIA165	Hydraulic and Pneumatic Power Systems	3
❑	AVIA170	Aircraft Landing Gear Systems / Position and Warning Systems	2
❑	OT112	Introduction to Microcomputers	3
		Total Credits	**21** **(42)**

Third Semester

❑	AVIA205	Aircraft Electrical Systems	2
❑	AVIA210	Aircraft Fuel Systems / Fire Protection Systems / Ice and Rain Control Systems	3
❑	AVIA215	Cabin Atmosphere Control Systems	2
❑	AVIA220	Aircraft Instrument Systems / Communication and Navigation Systems	3
❑	AVIA225	Development of Aircraft Powerplants	2
❑	AVIA230	Reciprocating Engines and Systems	6
❑	ENG107T	Technical Communication	3
		Total Credits	**21**

Fourth Semester

❑	AVIA235	Turbine Engines and Systems	6
❑	AVIA240	Engine Instrument Systems	2
❑	AVIA245	Engine Electrical Systems / Auxiliary Power Unit	2
❑	AVIA250	Engine Fire Protection Systems	2
❑	AVIA255	Propellers and Unducted Fans	6
❑	HR110T	Career Development and Human Relations	3
		Total Credits	**21** **(84)**

Computer Technology

Computer Technology is designed to teach students the basic knowledge and skills necessary to solve technical and business oriented problems using computer development tools and to build and maintain computer systems and networks. Students will experience a variety of course work using Web development, workstation, and server based computer systems. Courses are organized to provide a mix of lecture and hands-on experiences. Typical classes cover personal computer applications and languages including Oracle, Dreamweaver, Visual Basic, Java, SQL, PL/SQL, C#, ASP.NET, JSP, PHP, Perl, XML, and Java Script. Operating systems used are Windows Vista, Windows 2008 Server, Cisco IOS, and Linux.

Completion of the first year's curriculum in Network Architecture, Programming, or Webmaster leads to a certificate in Computer Assistant. The two-year curriculum leads to an Associate of Applied Science degree with options in Network Administration, Programming, or Webmaster. Graduates in Network Administration have worked toward Cisco's CCNA and Microsoft's MSCE certification and are marketable as network managers. Graduates in Programming are employable in large organizations, typically with Oracle, Java, or Microsoft-based systems and have worked toward several Oracle and Microsoft certifications. Graduates with the Webmaster option are marketable as webmasters and web developers and have worked toward Java and Microsoft certification. Note also that there are options in the A.A. and A.S. degrees that emphasize transfer to 4-year programs.

Students are required to take the classes and credits shown below from a selected option: Network Administration, Programming, or Webmaster. Elective credits are entirely up to the student and may be any 100 level or higher course as shown in the course schedule. Common choices include other computer classes, Electronics classes, Microsoft Office classes, or Business and Accounting classes.

Faculty Advisors: Bryon Steinwand
Entry Requirements for all programs: Students must be able to begin their math requirements in at least MAT130 Fundamentals of Algebra and their English requirements in at least ENG107T Technical Writing. *Students must have a computer competency equal to CT101 Introduction to Computer Technology and Intro to Micros OT112. These placements are determined through placement testing at enrollment (or previous accredited classes).* Students who do not meet these requirements will be required to take them at the beginning of their program, although the credits may be used to meet the Elective requirements in the first semester.

Length of Programs: Computer Assistant - 2 Semesters
Computer Technology - 4 Semesters
Type of Program: Computer Assistant - Certificate of Applied Science
Computer Technology - Associate of Applied Science

Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

Computer Assistant

A one year certificate is earned by completing the courses shown for the first year in any of the three options to total 33 or 34 credits.

Network Administration

Sequence is for fall entry; see your advisor for spring entry sequences.
First Semester * = Requires Successful CT Placement / challenge

First Semester

Course Number	Course Title	Credits
❑	**Successful CT Placement**	
❑	*Electives*	4
❑	**Unsuccessful CT Placement**	
❑ CT101	Introduction to Computer Technology	1
❑ OT112	Introduction to Microcomputers	3
❑ CT102	Introduction to Programming	3
❑ ELCR126	Network Fundamentals (CISCO I)*	3
❑ ENG101	College Writing (transferable) *or*	3
	❑ ENG107T Technical Communication (3)	
❑ MA100D	Intermediate Algebra (4) *or higher* (3-4) (transferable) *or*	3/4
	❑ MAT130T Introductory Algebra	
	Total Credits	**16/17**

Second Semester

❑	CT121	Perl Scripting for Administration	3
❑	CT254	Database Design and SQL	4
❑	ELCR176	Router Technology (CISCO II)	3
❑	ELCR242	PC Troubleshooting	4
❑	*English or Communications Elective*		3
		❑ COMM131 Intro to Public Speaking (3) *or*	
		❑ ENG101 College Writing (3) *or higher*	
❑	*Electives*		1
		Total Credits	**18**

Third Semester

Course Number	Course Title	Credits
❑ BUS105	Introduction to Business (fall only)	3
❑ CT115	Web Pages	3
❑ CT247	Operating Systems (fall only)	3
❑ ELCR227	Routing and Switching (CISCO III)	3
❑ CT219	Unix (fall only)	3
❑ SOC101	Introduction to Sociology (transferable) *or*	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
	❑ HR110T Career Development and Human Relations (3)	
	Total Credits	**18**

Fourth Semester

❑	CT218	Microsoft Server Administration (spring only)	4
❑	CT243	Web Server Administration and Security (spring only)	3
❑	CT266	Network Administration Seminar (spring only)	3
❑	ELCR276	WAN Technologies (CISCO IV) (spring only)	3
❑	CT288	Internship (arrange) *or*	2
		❑ CT265 Capstone (prior approval required)	
❑	PHIL101	Ethics *or*	3
		❑ BUS205 Business Ethics (3)	
		Total Credits	**18 (70/71)**

Programming

Sequence is for fall entry; see your advisor for spring entry sequences.

First Semester

❑	**Successful CT Placement**		
❑	*Electives*		4
❑	**Unsuccessful CT Placement**		
❑	CT101	Introduction to Computer Technology	1
❑	OT112	Introduction to Microcomputers	3
❑	CT102	Introduction to Programming	3
❑	CT115	Web Pages	3
❑	ENG101	College Writing (transferable) *or*	3
		❑ ENG107T Technical Communication	
❑	MA100D	Intermediate Algebra (4) *or higher* (3-4) (transferable)	3/4
		❑ MAT130T Introductory Algebra (3)	
		Total Credits	**16/17**

Second Semester

❑	CT131	Visual Basic	3
❑	CT254	Database Design and SQL	4
❑	ELCR242	PC Troubleshooting	4
❑	*English or Communications Elective*		3
		❑ COMM131 Intro to Public Speaking (3) (transferable) *or*	
		❑ ENG101 College Writing (3) (transferable) *or higher*	
❑	SOC101	Introduction to Sociology (3) (transferable) *or*	3
		❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
		❑ HR110T Career Development and Human Relations (3)	
		Total Credits	**17**

Third Semester

❑	CT216	Introduction to Object Oriented Programming (fall only)	4
❑	CT253	Developing Web Applications (fall only)	3
❑	CT260	Systems Analysis and Design (fall only)	3
❑	CT264	PL/SQL Oracle Developer (fall only)	4
❑	CT268	Advanced .NET Applications (fall only)	3
❑	CT288	Internship (arrange) *or*	2
❑	CT265	Capstone (prior approval required)	
		Total Credits	**19**

Fourth Semester

❑	CT210	Project Management (spring only)	3
❑	CT217	Advanced Java (spring only)	4
❑	CT262	Web Databases (spring only)	4
❑	CT270	Oracle Enterprise Applications (spring only)	4
❑	PHIL101	Ethics *or*	3
		❑ BUS205 Business Ethics (3)	
		Total Credits	**18**

(70/71)

Webmaster

Sequence is for fall entry; see your advisor for spring entry sequences.

First Semester

	Course Number	Course Title	Credits
❑	**Successful CT Placement**		
❑	*Electives*		4
❑	**Unsuccessful CT Placement**		
❑	CT101	Introduction to Computer Technology	1
❑	OT112	Introduction to Microcomputers	3
❑	CT102	Introduction to Programming	3
❑	CT115	Web Pages	3
❑	ENG101	College Writing (transferable) *or*	3
		❑ ENG107T Technical Communication (3)	
❑	MA100D	Intermediate Algebra (4) *or higher* (3-4) (transferable) *or*	3/4
		❑ MAT130T Introductory Algebra (3)	
		Total Credits	**16/17**

Second Semester

❑	CT131	Visual Basic	3
❑	CT254	Database Design and SQL	4
❑	ELCR242	PC Troubleshooting	4
❑	*English or Communication Elective*		3
		❑ COMM131 Intro to Public Speaking (3) (transferable) *or*	
		❑ ENG101 College Writing (3) (transferable) *or higher*	
❑	SOC101 Introduction to Sociology (transferable) *or*		3
		❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
		❑ HR110T Career Development and Human Relations (3)	
		Total Credits	**17**

Third Semester

❑	CT216	Introduction to Object Oriented Programming (fall only)	4
❑	CT219	Unix (fall only)	3
❑	CT227	PHP Web Development	3
❑	CT253	Developing Web Applications (fall only)	3
❑	CT268	Advanced .NET Applications (fall only)	3
❑	CT288	Internship (arrange) *or*	2
		❑ CT265 Capstone (prior approval required)	
		Total Credits	**18**

Fourth Semester

❑	CT161	Web Page Graphic Design (spring only)	2
❑	CT181	Client Side Web Development (spring only)	3
❑	CT217	Advanced Java (spring only)	4
❑	CT243	Web Server Administration and Security (spring only)	3
❑	CT262	Web Databases (spring only)	4
❑	PHIL101	Ethics *or*	3
		❑ BUS205 Business Ethics (3)	
		Total Credits	**19**

(70/71)

Students may pursue a Bachelors of Science in Computer Science at Carroll College. Please see page 66 for details.

Construction Technology

Construction Technology prepares students with entry level skills for the construction industry. This program provides students with three options. The Certificate of Applied Science, or one-year Carpentry program, includes site layout, framing, floors, walls, and roofs, as well as interior and exterior finishing, and welding. The two-year Associate of Applied Science program adds stationary tools, electrical, plumbing, construction management, estimating, metal construction, and masonry. These classes are taught using a combination of classroom work and hands-on building. Students will need professional tools to gain employment upon graduation; therefore, they are required to purchase a tool set as outlined in the tool section.

The Interior Space Planning & Design Certificate prepares students to work in interior design CAD positions, merchandising and sales. Students can also transfer to a four-year institution to earn a Bachelor's degree in Interior Design.

Faculty Advisors: Mike Ceartin, Harold Kelly, and Ron Plagerman
Semester of Entry: Fall

Carpentry

Length of Program: 2 Semesters
Type of Program: Certificate of Applied Science

First Semester

	Course Number	Course Title	Credits
❑	CSTR103	Occupational Related Safety and Tool Usage	3
❑	CSTR120	Rough Framing - Floors, Walls, Stairs, Trusses, Rafters	5
❑	CSTR125	Construction Concepts & Building Lab	3
❑	CSTR145	Drafting, Blueprint Reading, and House Development	3
❑	HR100T	Human Relations	2
❑	MAT100T	Introduction Technical Math	1
		Total Credits	**17**

Second Semester

❑	CSTR131	Windows, Doors, and Exterior Finishing	3
❑	CSTR135	Insulation and Energy Building Practices	2
❑	CSTR150	Roofing Applications	3
❑	CSTR160	Drywall Application and Finishing	3
❑	CSTR165	Cabinet Installation, Interior/ Finish/Paint	2
❑	CSTR171	Construction Concepts & Building Lab II	3
❑	ENG104T	Workplace Communication	2
❑	OT105	Introduction to Personal Computers	1
		Total Credits	**19** **(36)**

Construction

Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Prerequisites: Enrollment in the second year is dependent on successful completion of the first year or prior faculty approval.

First Semester

	Course Number	Course Title	Credits
❑	CSTR103	Occupational Related Safety and Tool Usage	3
❑	CSTR120	Rough Framing - Floors, Walls, Stairs, Trusses, Rafters	5
❑	CSTR125	Construction Concepts & Building Lab	3
❑	CSTR145	Drafting, Blueprint Reading, and House Development	3
❑	MAT110T	Technical Math	3
		Total Credits	**17**

Second Semester

	Course Number	Course Title	Credits	
❑	CSTR131	Windows, Doors, and Exterior Finishing	3	
❑	CSTR135	Insulation and Energy Building Practices	2	
❑	CSTR150	Roofing Applications	3	
❑	CSTR160	Drywall Application and Finishing	3	
❑	CSTR165	Cabinet Installation, Interior/Finish/Paint	2	
❑	CSTR171	Construction Concepts & Building Lab II	3	
❑	OT112	Introduction to Microcomputers	3	
		Total Credits	**19**	**(36)**

Third Semester

❑	CSTR200	Light Equipment and Rigging	3	
❑	CSTR216	Advanced Structural Concepts & Building Lab III	4	
❑	CSTR232	Stationary Machines and Joinery	2	
❑	CSTR260	Advanced Framing Systems	3	
❑	CSTR270	Special Topics in Construction	2	
❑	HR110T	Career Development and Human Relations	3	
		Total Credits	**17**	

Fourth Semester

❑	CSTR218	Site Prep, Foundations, and Concrete Installation	3	
❑	CSTR220	Construction Project Management	2	
❑	CSTR225	Decks and Patios	2	
❑	CSTR226	Advanced Structural Concepts & Building Lab IV	3	
❑	CSTR233	Advanced Stationary Machines & Joinery	2	
❑	CSTR250	Construction Estimating	3	
❑	WELD100	Welding Fundamentals	1	
❑	ENG107T	Technical Communications	3	
		Total Credits	**19**	**(72)**

Interior Space Planning & Design

Length of Program: 2 Semesters
Type of Program: Certificate of Applied Science
This program is tentative and up for approval during Summer 2008. Please check with an advisor on its status

First Semester

	Course Number	Course Title	Credits
❑	DESN101	Introduction to Interior Design	3
❑	DESN120	Beginning Space Planning and Design	3
❑	DFT150	AutoCAD 2D	3
❑	ENG107T	Technical Communication	3
❑	ARTS212	Basic Drawing	3
		Total Credits	**15**

Second Semester

	Course Number	Course Title	Credits	
❑	DESN130	Residential Studio	3	
❑	DESN140	Public Studio	3	
❑	DFT200	AutoCAD 3D	3	
❑	MAT110T	Technical Math	3	
❑	BUS105	Introduction to Business	3	
		Total Credits	**15**	**(30)**

Computer Aided Drafting

Length of Program: 9 Semester Credits
Type of Program: Focus of study

The Computer Aided Drafting focus will provide students with a solid foundation in the utilization of CAD as a tool for various drafting technologies. Those students who are exploring the field of Computer Aided Design, or need to develop CAD skills, will find this certificate challenging and beneficial for future applications. Students are able to select Architecture or Technical options. This focus is designed to be completed in correlation with an A.A.S. degree, and it will take 3 semesters to complete the sequence.

Course Number	Course Title	Credits
❑ DFT150	AutoCAD 2D	3
❑ DFT200	AutoCAD 3D	3
❑ DFT210	Technical Drafting I - CAD 2D *or*	3
	❑ DFT225 Architectural Drafting I - CAD (3)	
	Total Credits	**9**

Diesel Technology

Diesel Technology prepares the student to enter various segments of the diesel repair industry as an entry-level technician. This includes, but is not limited to, the agricultural, the industrial equipment, and the heavy-duty diesel truck repair industry. This program provides comprehensive training in maintenance, diagnosis, and repair of related electrical/electronic systems, mobile hydraulic systems, manual and hydraulic drive trains, brakes, air systems, diesel engines, general maintenance, alignment and undercarriages, and air conditioning systems as used in equipment common to the diesel repair industry. Major placement areas for the Diesel Technology graduate are agriculture and truck dealerships, truck fleets, construction, mining, oil exploration companies, farms and ranches, and independent truck repair shops.

Students will need professional tools to gain employment upon graduation; therefore, they are required to purchase a tool set as outlined in the tool section. Students are required to purchase school-approved coveralls and red rags for use in the shops and are responsible for a cleaning fee each semester.

Faculty Advisors: Ralph Rinehart
Length of Program: 4 Semesters
Type of Programs: Associate of Applied Science
Semester of Entry: Fall and Spring. *The suggested sequence in this catalog is for students entering in the fall semester. Please see your advisor for a suggested spring entry sequence.*

First Semester

Course Number	Course Title	Credits
❑ DESL120	Hydraulics	3
❑ DESL125	Hydraulics Lab	3
❑ MECH101	Shop Safety	1
❑ MECH100	Electrical / Electronic Systems	6
❑ MECH110	Electrical/Electronic System Lab	2
❑ MAT110T	Technical Math	3
❑ WELD100	Welding Fundamentals	1
	Total Credits	**19**

Second Semester

❑ DESL135	Diesel Engine Repair	6
❑ MECH130	Heating and Air Conditioning *and*	3
❑ MECH150	Heating and Air Conditioning Lab *or*	2
	❑ DESL235 Heavy Duty Manual Drive Trains (5) *and*	
	❑ DESL245 Heavy Duty Hydraulic Drive Trains (3)	
❑ OT112	Introduction to Microcomputers	3
	Total Credits	**14/17 (33/36)**

Third Semester

❑ DESL200	Diesel Engine Performance	6
❑ DESL210	Diesel Maintenance Practices	5
❑ DESL255	Heavy Duty Brakes and Undercarriage	6
❑ ENG107T	Technical Communication	3
	Total Credits	**20**

Fourth Semester

❑ DESL235	Heavy Duty Manual Drive Trains *and*	5
❑ DESL245	Heavy Duty Hydraulic Drive Trains *or*	3
	❑ MECH130 Heating and Air Conditioning (3) *and*	
	❑ MECH150 Heating and Air Conditioning Lab (2)	
❑ DESL265	Applied Lab Experience	8
❑ HR110T	Career Development and Human Relations	3
	Total Credits	**16/19 (72)**
❑ *Elective*		
❑ MECH205	Small Engines	2

Electronics Technology

Electronics Technology prepares students for a career in the maintenance and repair of electronic equipment in many areas, including radio and television broadcast stations, electronic control systems, computer systems, two-way radio and microwave systems, telephone systems, alarm and surveillance systems, automation and robotics systems, industrial process control, avionics systems, and bio-medical electronics systems. Relevant hands-on experience is provided in well-equipped laboratories, under instructor supervision, on tasks involving computers, communication equipment, programmable logic controllers, industrial instrumentation, and bio-medical instruments. The program focuses on industrial electronics rather than consumer product servicing. Lab class enrollment is kept low to optimize instructor and student interaction to enhance the learning experience.

UM-Helena is a testing center for the Federal Communications Commission (FCC) General Radio/Telephone Operator License authorized by the National Association of Radio and Telecommunications Engineers. Upon completion of the electronics program, students can receive technical certification from the National Association of Radio and Telephone Engineers (NARTE).

An educational background in algebra, trigonometry, physics, and good reading and mechanical abilities are helpful. A set of tools is required for all first year students. See the Electronics Technology Tool Set on page 100.

After a common first year curriculum, the program offers the student three options:

The **General** option prepares students for a broad range of entry-level electronics positions, including instrumentation/control systems, communications, and basic personal computer maintenance. Emphasis is on individual and small group projects in addition to the academically intense curriculum.

The **Bio-Medical** option is designed to prepare students for work on electronic equipment found in medical facilities. The program is academically intense and requires high math and science skills upon entry into the program. Some courses for this option must be obtained through evening or summer classes.

The **Computer Systems** option prepares students for work in the computer and network repair field. This option emphasizes the software applications and operating systems, networking, and computer specific topics. UM-Helena is a CISCO Networking Academy with certified instructors at both the local and regional level.

Faculty Advisors: Emmett Coon and Rob Yaw
Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring (*Spring entry is dependent on sufficient enrollment.)*
Entry Requirements for all programs: Students must be able to begin their math requirements in at least MAT114 Tech Math for Electronics and their English requirements in at least ENG107T Technical Communication. Students who do not meet these requirements must take the required prerequisites at the beginning of their program, although the credits may be used to meet the elective requirements in later semesters.

General

First Semester

	Course Number	Course Title	Credits
❑	ELCR110	DC Fundamentals	3
❑	ELCR111	AC Fundamentals	3
❑	ELCR115	DC Lab / Occupational Related Safety	3
❑	ELCR116	AC Lab	3
❑	MAT114T	Technical Math for Electronics *or* MAT110T *or* *(higher level (w/ rt. angle trig.)*	4
❑	OT112	Introduction to Microcomputers	3
		Total Credits	**19**

Second Semester

❑	ELCR120	Circuit Fundamentals I	3	
❑	ELCR121	Circuit Fundamentals II	3	
❑	ELCR135	Circuits Lab I	3	
❑	ELCR136	Circuits Lab II	3	
❑	ELCR140	Digital and Microprocessor Fundamentals	4	
		Total Credits	**16**	**(35)**

Third Semester

Course Number	Course Title	Credits
❑ ELCR221	Land-Based Communications	5
❑ ELCR226	Radio Frequency Communications	6
❑ ELCR242	PC Troubleshooting - A+	4
❑ ENG101	College Writing (transferable) *or*	3
	❑ ENG107T Technical Communication (3)	
	Total Credits	**18**

Fourth Semester

❑ ELCR231	Instrumentation Systems	5
❑ ELCR236	Robotics and Control Systems	6
❑ ELCR244	Electronic System Service	4
❑ SOC101	Introduction to Sociology (transferable) *or*	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
	❑ HR110T Career Development and Human Relations (3)	
	Total Credits	**18** **(71)**

Bio-Medical

First Semester

❑ ELCR110	DC Fundamentals	3
❑ ELCR111	AC Fundamentals	3
❑ ELCR115	DC Lab / Occupational Related Safety	3
❑ ELCR116	AC Lab	3
❑ MAT114T	Technical Math for Electronics *or higher level (w/ rt. angle trig.)*	4
❑ OT112	Introduction to Microcomputers	3
	Total Credits	**19**

Second Semester

❑ ELCR120	Circuit Fundamentals I	3
❑ ELCR121	Circuit Fundamentals II	3
❑ ELCR135	Circuits Lab I	3
❑ ELCR136	Circuits Lab II	3
❑ ELCR140	Digital and Microprocessor Fundamentals	4
	Total Credits	**16** **(35)**

Third Semester

❑ BIOL101	Biology I with Lab	4
❑ ELCR242	PC Troubleshooting - A+	4
❑ ENG101	College Writing (transferable) *or*	3
	❑ ENG107T Technical Communication (3)	
❑ SOC101	Introduction to Sociology (transferable) *or*	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
	❑ HR110T Career Development and Human Relations (3)	
❑ *Electives*	ELCR126 Network Fundamentals (CISCO I) *or*	3
	❑ ELCR221 Land-Based Communications (5) *or*	
	❑ ELCR236 Robotics and Control Systems (6) *or*	
	❑ ELCR288 Internship (1-3)	
	Total Credits	**17**

Fourth Semester

❑ BIOL207	Anatomy and Physiology I with Lab *or*	4
	❑ BIOL208 Anatomy and Physiology II with Lab (4)	
❑ ELCR231	Instrumentation Systems	5
❑ ELCR244	Electronic System Service	4
❑ PHYS101	Physics w/Lab *or*	4
	❑ CHEM150 General and Inorganic Chemistry (3) *and* CHEM151 Lab (1)	
	Total Credits	**17** **(69)**

Computer Systems

First Semester

Course Number	Course Title	Credits
❑ ELCR110	DC Fundamentals	3
❑ ELCR111	AC Fundamentals	3
❑ ELCR115	DC Lab / Occupational Related Safety	3
❑ ELCR116	AC Lab	3
❑ MAT114T	Technical Math for Electronics *or higher level (w/ rt. angle trig.)*	4
❑ OT112	Introduction to Microcomputers	3
	Total Credits	**19**

Second Semester

❑ ELCR120	Circuit Fundamentals I	3
❑ ELCR121	Circuit Fundamentals II	3
❑ ELCR135	Circuits Lab I	3
❑ ELCR136	Circuits Lab II	3
❑ ELCR140	Digital and Microprocessor Fundamentals	4
	Total Credits	**16** **(35)**

Third Semester

❑ ELCR126	Network Fundamentals (CISCO I)	3
❑ ELCR176	Router Technology (CISCO II)	3
❑ ELCR242	PC Troubleshooting - A+	4
❑ ENG101	College Writing (transferable) *or*	3
	❑ ENG107T Technical Communication (3)	
❑ *Electives*	ELCR221 Land-Based Communications (5) *or*	*5*
	❑ ELCR236 Robotics and Control Systems (6) *or*	
	❑ ELCR288 Internship (1-3)	
	Total Credits	**18**

Fourth Semester

❑ CT218	Microsoft Server Administration	4
❑ ELCR244	Electronic System Service	4
❑ ELCR227	Routing and Switching (CISCO III)	3
❑ SOC101	Introduction to Sociology (transferable) *or*	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
	❑ HR110T Career Development and Human Relations (3)	
❑ *Electives*	ELCR126 Network Fundamentals (CISCO I) *or*	3
	❑ ELCR221 Land-Based Communications (5) *or*	
	❑ ELCR236 Robotics and Control Systems (6) *or*	
	❑ ELCR288 Internship (1-3)	
	Total Credits	**17** **(70)**

Fire And Rescue

Students in this program will graduate with an Associate of Applied Science Degree in Fire and Rescue. The program will provide applied entry-level career training for fire fighters and will enhance on-going training for current protective services professionals in Montana and the western states.

All coursework required in the Fire and Rescue program is offered in Helena and Missoula, with future courses to be held in Kalispell.

Students taking computers, math, writing, and career development on the UM-Missoula College of Technology campus will take the equivalent courses of CRT101 Intro to Computers (2 credits); PSY110S Organizational Psychology (3 credits) *or* PSY100S Intro to Psychology (3 credits); COM115 Technical Writing (3 credits); and MAT110T Industrial Math (3 credits) *or* MAT100 Intermediate Algebra (3 credits).

Fire and Rescue courses concentrate on training in fire behavior, extinguishing agents, apparatus, tactics, rescue, and safety. Students will experience live fire situations in training mock-ups and will be able to enter careers in community-based fire departments, industrial fire brigades, airport fire brigades, and wildland fire agencies.

Official acceptance into the Fire and Rescue program is contingent upon successfully completing two physical requirements. The first requirement is passing a physical exam performed by the student's family physician or medical practitioner. The physical form is available through Admissions and New Student Services.

The physical agility test is the second physical requirement. Students must successfully complete the following physical agility test, within a one and one-half hours' time frame, before being allowed to register for Fire and Rescue classes. The required physical agility test will be offered at fall orientation programs. Fire & Rescue applicants will be notified of specific testing and orientation dates.

The physical agility test includes:

- One-mile-run under 10 minutes
- Fifty sit-ups under two minutes
- Twenty-five push-ups under two minutes
- Lift and drag a 175-pound mannequin 50 feet
- Climb a 24 foot ladder

These meet minimum standards as set forth under the guidelines of the National Fire Protection Association Standards 1500, 1582, and 1901.

Additional Costs:

- Student Uniform - Approximately $300
- Personal Protective Equipment - Approximately $250
- Turnout Rental - $210 per academic year; includes bunker pants, coat, and helmet
- Criminal Background Check - Approximately $50

Requirements for FIRE105 Emergency Medical Technician-Basic (EMT):

- Students are required to have their own blood pressure cuff and stethoscope.
- Students are required to have the Hepatitis B vaccine and current (within six months) test for tuberculosis.

Faculty Advisor: Dave Kneebone
Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall
Special Requirements: Successfully Passing Physical Exam, Agility Test, and Criminal Background Check

First Semester

	Course Number	Course Title	Credits
❑	FIRE101	Introduction to Fire Service	3
❑	FIRE103	Fire Fighter Safety	3
❑	FIRE105	EMT-Basic	4
❑	FIRE107	Personal Physical Fitness I	1
❑	FIRE120	Emergency Services Customer Service	2
❑	FIRE121	Incident Command	1
❑	ENG107T	Technical Communication	3
		Total Credits	**17**

Second Semester

Course Number	Course Title	Credits	
❑ FIRE106	Wildland Fire Fighting	3	
❑ FIRE108	Personal Physical Fitness II	1	
❑ FIRE110	Hazardous Materials	3	
❑ FIRE123	Electronic Communications	1	
❑ FIRE125	Emergency Equipment Maintenance	2	
❑ FIRE130	Fire Apparatus Operation	3	
❑ FIRE140	Fire Fighting Tactics and Strategies	3	
❑ OT112	Introduction to Microcomputers	3	
	Total Credits	**19**	**(36)**

Third Semester

❑ FIRE202	Instructional Methodologies	2	
❑ FIRE234	Fire Protection Systems	3	
❑ FIRE241	Fire Inspection	3	
❑ FIRE242	Rescue	3	
❑ FIRE260	Fire Investigation	3	
❑ FIRE261	Building Construction	1	
❑ MAT110T	Technical Math	3	
	Total Credits	**18**	

Fourth Semester

❑ FIRE210	Aircraft Rescue and Fire Fighting Basic Training (ARFF)	2	
❑ FIRE215	Fire Streams	2	
❑ FIRE225	Fire Officer	2	
❑ FIRE232	Basic Wildland Supervision	2	
❑ FIRE250	Fire Ground Operations	2	
❑ FIRE270	Fire Prevention	3	
❑ FIRE288	Capstone	2	
❑ HR110T	Career Development and Human Relations *or*	3	
	❑ PSYC260 Organizational Psychology		
	Total Credits	**18**	**(72)**

Machine Tool Technology

Machine Tool Technology is designed to prepare students as entry level machinists in many areas, including aerospace, computer industries, job shop, gun smithing, tool and die making, CNC operator, and CNC programmer. Students will study machining processes and procedures using lathes, mills, drill presses, cylindrical grinders, and surface grinders.

The first year students will use a variety of manual machines including Engine Lathes, Horizontal and Vertical Mills, Cylindrical grinder surface grinder, drill presses, and radial arm drill. Students will work from blueprints and follow exact specifications and apply practical shop math to accomplish the required tasks. Much of the lab time will used for shop and project work.

The second-year CNC portion of machine shop is devoted to the programming and operation of the CNC machine. Students will be prepared to enter the work force as entry level programmers and CAD/CAM technicians. Students will program and operate machining centers and turning centers in the lab. Students will learn the Mastercam programming system, which allows students to design parts on the computer and then manufacture them in the lab. Students will work from blueprints and exact specifications that are used in industry. Lab work will include manual and CNC machine use. These machines will be used for manufacturing fixtures, project work, and production projects.

Faculty Advisor: Art Warner

Machine Tool Technology

Length of Program: 2 Semesters
Type of Program: Certificate of Applied Science
Semester of Entry: Fall

First Semester

	Course Number	Course Title	Credits
❑	MAT100T	Introduction to Technical Math	1
❑	MACH110	Machine Shop	3
❑	MACH115	Introduction to Engine Lathes	5
❑	MACH120	Introduction to Mills	5
❑	MACH125	Blueprint Reading for the Machinist	2
❑	HR100T	Human Relations	2
		Total Credits	**18**

Second Semester

❑	ENG104T	Workplace Communication	2	
❑	MACH132	Advanced Lathes	5	
❑	MACH137	Advanced Mills	5	
❑	MACH140	Grinding Applications	2	
❑	MACH245	Metallurgy	1	
❑	MACH250	Shop Practices	2	
❑	OT105	Introduction to Personal Computers	1	
		Total Credits	**18**	**(36)**

Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall

First Semester

	Course Number	Course Title	Credits
❑	MACH110	Machine Shop	3
❑	MACH115	Introduction to Engine Lathes	5
❑	MACH120	Introduction to Mills	5
❑	MACH125	Blueprint Reading for the Machinist	2
❑	MAT110T	Technical Math	3
		Total Credits	**18**

Second Semester

❑	MACH132	Advanced Lathes	5	
❑	MACH137	Advanced Mills	5	
❑	MACH140	Grinding Applications	2	
❑	MACH245	Metallurgy	1	
❑	MACH250	Shop Practices	2	
❑	OT112	Introduction to Microcomputers	3	
		Total Credits	**18**	**(36)**

Third Semester

❑	MACH210	CNC Turning Operations Level 1	3	
❑	MACH212	CNC Turning Programming and Operation Level 2	3	
❑	MACH220	CNC Milling Operations Level 1	3	
❑	MACH222	CNC Milling Programming and Operations Level 2	3	
❑	MACH205	Tooling and Fixtures used in CNC	2	
❑	ENG107T	Technical Communication	3	
		Total Credits	**17**	

Fourth Semester

❑	MACH218	CNC Turning Programming and Operations Level 3	3	
❑	MACH224	CNC Milling Programming and Operations Level 3	3	
❑	MACH241	CAD/CAM for the CNC Turning Center	5	
❑	MACH242	CAD/CAM for the CNC Machining Center	5	
❑	HR110T	Career Development and Human Relations	3	
		Total Credits	**19**	**(72)**

Metals Technology

Metals Technology is designed to prepare students as entry-level technicians in many areas, including automotive machining, tool and die making, mold making, job shop machinist, gun smithing, CNC operator or programmer, lay-out and inspection welding, new construction welder, and fabrication. Students will study machining processes and procedures, properties of metals, blueprint reading, inspection techniques, Computer Aided Design (CAD) and Computer Aided Manufacturing (CAM), and the operation of Computer Numerical Control (CNC). Welding skills (including practical, theoretical, and technical training) are taught using oxyacetylene, manual stick electrode, semiautomatic Mig, Tig (Heliarc), dualshield Mig, and various additional processes. Miller Electric has chosen UM-Helena as one of its regional training centers. Therefore, students will receive training on the latest state-of-the-art equipment in Mig, Tig (Heliarc) and Stick Electrode. Students will work from blueprints, follow exact specifications, and apply practical shop math to accomplish the required tasks. Much of the lab time in both areas will be used for shop project work.

An educational background in mechanical drawing, shop math, welding, and mechanical welding is helpful. Students are required to have a basic set of tools upon entrance to the program. See the tool listings on page 101.

Students may begin their instruction in the two-year Metals Technology program, depending upon the space available, in either the machine tool or the welding area.

Faculty Advisors: Tim Harris, Sam Osborne, and Art Warner

Metals Technology

Students selecting ***machine tool*** first year follow this sequence of courses.

Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall

First Semester

Course Number	Course Title	Credits
❑ MACH110	Machine Shop	3
❑ MACH115	Introduction to Engine Lathes	5
❑ MACH120	Introduction to Mills	5
❑ MACH125	Blueprint Reading for the Machinist	2
❑ MAT110T	Technical Math	3
	Total Credits	**18**

Second Semester

❑ MACH132	Advanced Lathes	5	
❑ MACH137	Advanced Mills	5	
❑ MACH140	Grinding Applications	2	
❑ MACH245	Metallurgy	1	
❑ MACH250	Shop Practices	2	
❑ OT112	Introduction to Microcomputers	3	
	Total Credits	**18**	**(36)**

Third Semester

❑ WELD112	Oxyacetylene Welding/Cutting	2
❑ WELD118	Shielded Metal Arc Welding	3
❑ WELD119	Gas Metal Arc Welding	4
❑ WELD120	Blueprint Reading/AWS Metal/Welding Symbols	3
❑ WELD130	Estimating Job Materials	3
❑ ENG107T	Technical Communication	3
	Total Credits	**18**

Fourth Semester

❑ WELD125	Layout and Pattern Making Fundamentals	3	
❑ WELD140	Specialized Welding	6	
❑ WELD145	Design and Fabrication	4	
❑ WELD150	Shop Practices	2	
❑ HR110T	Career Development and Human Relations	3	
	Total Credits	**18**	**(72)**

Metals Technology

Students selecting ***welding*** first year follow this sequence of courses.

Length of Program: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall

First Semester

	Course Number	Course Title	Credits
❑	WELD112	Oxyacetylene Welding/Cutting	2
❑	WELD118	Shielded Metal Arc Welding	3
❑	WELD119	Gas Metal Arc Welding	4
❑	WELD120	Blueprint Reading/AWS Metal/Welding Symbols	3
❑	WELD130	Estimating Job Materials	3
❑	MAT110T	Technical Math	3
		Total Credits	**18**

Second Semester

❑	WELD125	Layout and Pattern Making Fundamentals	3
❑	WELD140	Specialized Welding	6
❑	WELD145	Design and Fabrication	4
❑	WELD150	Shop Practices	2
❑	OT112	Introduction to Microcomputers	3
		Total Credits	**18 (36)**

Third Semester

❑	MACH110	Machine Shop	3
❑	MACH115	Introduction to Engine Lathes	5
❑	MACH120	Introduction to Mills	5
❑	MACH125	Blueprint Reading for the Machinist	2
❑	ENG107T	Technical Communication	3
		Total Credits	**18**

Fourth Semester

❑	MACH132	Advanced Lathes	5
❑	MACH137	Advanced Mills	5
❑	MACH140	Grinding Applications	2
❑	MACH245	Metallurgy	1
❑	MACH260	Project Management	2
❑	HR110T	Career Development and Human Relations	3
		Total Credits	**18 (72)**

Nursing Programs

The nursing curricula prepare graduates to function as members of the health care team in various health care environments. The curricula focus on preparedness for employment and articulation. The nursing programs consist of both a Certificate of Applied Science in Practical Nursing and a completion program for Licensed Practical Nurses to earn an Associate Degree in nursing. The Certificate of Applied Science in Practical Nursing is a 44-credit program with a pre-nursing semester in the fall and admission-by-application to spring and fall semesters.

Perspective nursing students need to be aware that the nursing programs will be moving to the statewide curriculum in the Fall of 2009, as prescribed by the Montana State Board of Regents. Because of the move to the statewide curriculum, the current curriculum for the certificate practical nursing program will be sunsetted and will entail a Fall, Spring, Summer sequence. This will involve all practical nursing students who are accepted in the Spring 2009 semester.

Thereafter, the statewide curriculum for the certificate practical nursing program will not include a summer semester sequence. The associate degree leading to registered nursing program will not be affected as such, but will simply change over to the statewide curriculum, continuing as a Fall, Spring sequence program.

A student must maintain a "C" or better in each of the courses required and complete each semester prior to progressing to the next semester. After the student is accepted into the nursing program, other requirements include: CPR for the Health Care Provider, Hepatitis B vaccinations, proof of freedom from tuberculosis, illness of vaccination for Varicella (Chicken Pox), general physical examination and a criminal background check.

PRACTICAL NURSING

The practical nurse uses specialized knowledge and skills which meet the health needs of people in a variety of settings under the direction of qualified health professions. The curriculum focuses on preparedness for employment.

Graduates of the program are eligible to apply for the NCLEX-PN licensure examination from the Montana State Board of Nursing. After passing the examination, the graduate becomes a Licensed Practical Nurse, L.P.N.

Admission is by application only. The application process includes a Test of Essential Academic Skills (TEAS) pre-entrance exam. Applications are updated annually; current applications are available through Admissions & New Student Services Office. The application process requires that a student successfully complete the following coursework with a "C" or better:

- BIOL207 Anatomy and Physiology I
- ENG101 College Writing
- MAT130T Introductory Algebra
- NURS100 Introduction to Health Care and Nursing
- PSYC101 Introduction to Psychology

Faculty: Candace Pescosolido, MSN; Karmen Williams, MSN; Sheri Marchand-Smith, MSN; Carol Smith, BSN
Length of Program: Certificate of Applied Science in Practical Nursing: 44 credits, 3 semesters

First Semester ~ (Pre-nursing requirements)

Course Number	Course Title	Credits
❑ BIOL207	Anatomy and Physiology I	4
❑ ENG101	College Writing	3
❑ MAT130T	Introductory Algebra *or*	3
	❑ MA100D Intermediate Algebra (4) *or*	
	❑ MA108 College Algebra (3) (transferable) *or higher* (3-4) (transferable)	
❑ NURS100	Introduction to Health Care and Nursing (pre-nursing course)	2
❑ PSYC101	Introduction to Psychology	3
	Total Credits	**15**

Second Semester

Admission by application only. Please check with Admissions & New Student Services for current application information.

Course Number	Course Title	Credits
❑ BIOL208	Anatomy and Physiology II	4
❑ NURS110	Pharmacology, Calculations and Administration (spring only)	2
❑ NURS111	Pharmacology I Lab (spring only)	2
❑ NURS120	Nursing Skills and Fundamentals (spring only)	2
❑ NURS121	Nursing Skills and Fundamentals Lab (spring only)	1
❑ NURS127	Adult Nursing Across the Lifespan I (clinical; spring only)	4
❑ NUTR112	Nutrition	3
	Total Credits	**18**

Third Semester

❑ NURS112	Pharmacology II (fall only)	1
❑ NURS130	Childbearing Family(clinical; fall only)	3
❑ NURS137	Adult Nursing Across the Lifespan II (clinical; fall only)	4
❑ NURS139	Nursing Trends, Issues, and Preceptorship (clinical; fall only)	3
	Total Credits	**11 (44)**

Associate Degree Leading To Registered Nursing

The Associate degree program prepares graduates to function as members and leaders of the health care teams in various health care environments. The curriculum focuses on preparedness for employment. Some of the course work is transferable. Graduates of the program are eligible to apply for the NCLEX-RN licensure examination from the Montana State Board of Nursing. After passing the examination, the graduate becomes a Registered Nurse, RN.

Entry into the ASRN program is by application-only in the spring for fall semester. Applications are available through Admissions & New Student Services. The application process includes a Test of Essential Academic Skills (TEAS) pre-entrance exam. Applications are updated annually; current applications are available through Admissions & New Student Services. The application process requires that a student have a current, unencumbered Montana State L.P.N. licensure and successfully complete the following coursework with a "C" or better.

- BIOL207 Anatomy and Physiology I with lab
- BIOL208 Anatomy and Physiology II with lab
- ENG101 College Writing
- MA108 College Algebra
- NUTR112 Nutrition
- PSYC101 Introduction to Psychology

Faculty: Candace Pescosolido, MSN; Karmen Williams, MSN; Sheri Marchand-Smith, MSN
Length of Program: Associate Degree Leading to Registered Nursing: 28 credits, 2 Semesters

First Semester

Admission by application only. Please check with Admissions & New Student Services for current application information.

Course Number	Course Title	Credits
❑ CHEM150	General and Inorganic Chemistry	3
❑ CHEM151	General and Inorganic Chemistry lab	1
❑ NURS225	Mental Health Nursing	3
❑ NURS226	Current Trends and Issues in Registered Nursing	2
❑ NURS237	Advanced Adult Nursing Across the Lifespan	5
	Total Credits	**14**

Second Semester

❑ BIOL220	Microbiology	3
❑ BIOL221	Microbiology Lab	1
❑ NURS230	Advanced Childbearing Family (spring only)	4
❑ NURS239	Management, Ethics, Internship	3
❑ SOC101	Introduction to Sociology	3
	Total Credits	**14 (28)**

Office Technology

The Office Technology programs prepare students for careers in a variety of office environments. A core curriculum is offered in office, accounting, and computer skills utilizing advanced office applications and software that are applicable to future employment. The Office Technology program offers two-year degree options in Legal Administrative Specialist, Medical Administrative Specialist, and Office Technology Specialist.

One-year Certificates of Applied Science are offered in the areas of Medical Assisting and Office Assistant.

Faculty Advisors: Joan Schneider and Tricia Tyhurst

Computer Competency: Students must have a computer competency equal to OT112 (basic Windows, Internet, Word, and Excel) to be determined through placement testing at enrollment. Students who do not meet these requirements will be required to take OT112 at the beginning of their program, and the credits may be used to meet the elective requirements in later semesters.

Office Assistant

A one-year Certificate of Applied Science may be earned by completing the courses required for the first two semesters in any of the three options: Legal Administrative Specialist, Medical Administrative Specialist, or Office Technology Specialist. This certificate includes a total of 35-36 credits.

Medical Assisting

This one-year Certificate of Applied Science is available for Office Technology students or for students who have completed their first semester in the Nursing program. The first semester includes courses completed in either Office Technology or Nursing programs. The second semester includes Office Technology courses with a medical or office emphasis. This certificate includes a total of 30 credits.

Length of Option: 2 Semesters
Type of Program: Certificate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ ENG117T	Effective Business Communications *or*	3
	❑ ENG101 College Writing (3)	
❑ MAT120T	Applied Business Math *or*	3
	❑ MAT130T Introductory Algebra (3)	
❑ OT138	Multimedia Presentations *or*	2
	❑ NURS100 Introduction to Health Care and Nursing (2)	
❑ OT170	Medical Terminology and the Human Body *or*	4
	❑ BIOL207 Anatomy and Physiology I (4)	
❑ SOC101	Introduction to Sociology *or*	3
	❑ PSYC101 Introduction to Psychology (3)	
	Total Credits	**15**

Second Semester

❑ OT112	Introduction to Microcomputers	3
❑ OT114	Keyboarding and Document Processing	3
❑ OT232	Medical Software and Insurance Billing	3

Choose TWO of the following options:

❑ OT144	Professional Office Procedures (spring only)	3
❑ OT145	Records Management (spring only)	3
❑ OT150	Customer Service	3
❑ OT200	Medical Transcription (spring only)	3
❑ OT234	Medical Coding (spring only)	3
	Total Credits	**15** **(30)**

Legal Administrative Specialist

The need for qualified legal office personnel in private law firms, state government, insurance companies, and many other offices continues to increase. The Legal Administrative Specialist program provides advanced-level training to meet this employment need. Community professionals, in addition to field trips to law libraries and judicial courts, enhance this option.

Computer Competency: Students must have a computer competency equal to OT112 (basic Windows, Internet, Word, and Excel) determined through placement testing at enrollment. Students who do not meet these requirements will be required to take OT112 at the beginning of their program, and the credits may be used to meet the elective requirements in later semesters.

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ BUS105	Introduction to Business	3
❑ ENG117T	Effective Business Communications (fall only)	3
❑ MAT120T	Applied Business Math	3
❑ OT114	Keyboarding and Document Processing	3
❑ OT161	Legal Terminology (fall only)	2
❑ *Elective Credits*		4
	Total Credits	**18**

Second Semester

❑ ENG101	College Writing	3
❑ OT122	Word Processing Applications	3
❑ OT144	Professional Office Procedures (spring only)	3
❑ OT145	Records Management (spring only)	3
❑ OT150	Customer Service	3
❑ OT165	Introduction to Legal Research (spring only)	2
	Total Credits	**17** **(35)**

Third Semester

❑ OT115	Keyboarding Applications (fall only)	2
❑ OT123	Advanced Word Processing (fall only)	3
❑ OT134	Data Management Applications	3
❑ OT137	Spreadsheet Applications	3
❑ OT138	Multimedia Presentations	2
❑ OT221	Legal Document Processing	4
	Total Credits	**17**

Fourth Semester

❑ ACCT110	Accounting I	4
❑ OT213	Integrated Office Capstone (spring only)	2
❑ BUS246	Business Law I *or*	3
	❑ BUS247 Business Law II	
❑ OT240	Administrative Office Management (spring only)	3
❑ SOC101	Introduction to Sociology (transferable) or	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) or	
	❑ HR110T Career Development and Human Relations (3)	
❑ *Elective Credits*		3
	Total Credits	**18** **(70)**

Examples of *elective credits* are courses such as Family Law, Employment Law, Economics, Desktop Publishing, Introduction to Paralegal Studies, Medical Terminology, Ten-Key Calculation, and others depending on the student's skills, course prerequisites, and course availability.

Medical Administrative Specialist

This program prepares the student for employment in hospitals, medical offices, insurance companies, nursing homes, and public health agencies, often leading to careers in office management. The position of an administrative medical assistant requires skills in medical knowledge, computer technology, oral and written communications, and an awareness of effective office procedures. Positive interpersonal relations and teamwork are integrated into classroom activities.

Computer Competency: Students must have a computer competency equal to OT112 (basic Windows, Internet, Word, and Excel) determined through placement testing at enrollment. Students who do not meet these requirements will be required to take OT112 at the beginning of their program, and the credits may be used to meet the elective requirements in later semesters.

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ BUS105	Introduction to Business	3
❑ ENG117T	Effective Business Communications (fall only)	3
❑ MAT120T	Applied Business Math	3
❑ OT114	Keyboarding and Document Processing	3
❑ OT170	Medical Terminology and the Human Body	4
❑ *Elective Credits*		2
	Total Credits	**18**

Second Semester

❑ ACCT110	Accounting I	4
❑ ENG101	College Writing	3
❑ OT122	Word Processing Applications	3
❑ OT138	Multimedia Presentations	2
❑ OT144	Professional Office Procedures (spring only)	3
❑ OT145	Records Management (spring only)	3
	Total Credits	**18** **(36)**

Third Semester

❑ OT115	Keyboarding Applications (fall only)	2
❑ OT123	Advanced Word Processing Applications (fall only)	3
❑ OT134	Data Management Applications	3
❑ OT137	Spreadsheet Applications	3
❑ OT150	Customer Service	3
❑ OT232	Medical Software and Insurance Billing	3
	Total Credits	**17**

Fourth Semester

❑ OT200	Medical Transcription (spring only)	3
❑ OT213	Integrated Office Capstone (spring only)	2
❑ OT234	Medical Coding (spring only)	3
❑ OT240	Administrative Office Management (spring only)	3
❑ SOC101	Introduction to Sociology (transferable) or	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) or	
	❑ HR110T Career Development and Human Relations (3)	
❑ *Elective Credits*		3
	Total Credits	**17** **(70)**

Examples of *elective credits* are courses such as Nutrition, Computerized Accounting, Economics, Desktop Publishing, Legal Terminology, Ten-Key Calculation, and others depending on the student's skills, course prerequisites, and course availability.

Office Technology Specialist

The Office Technology Specialist option is designed to prepare students for administrative support positions in government and private office environments. This two-year program emphasizes specialized computer applications that lead to employment positions requiring more advanced computer skills and providing technical support for office functions.

Computer Competency: Students must have a computer competency equal to OT112 (basic Windows, Internet, Word, and Excel) to be determined through placement testing at enrollment. Students who do not meet these requirements must take OT112 at the beginning of their program, and the credits may be used to meet the elective requirements in later semesters.

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall and Spring

First Semester

Course Number	Course Title	Credits
❑ BUS105	Introduction to Business	3
❑ CT102	Introduction to Programming	3
❑ ENG117T	Effective Business Communications (fall only)	3
❑ MAT120T	Applied Business Math	3
❑ OT114	Keyboarding and Document Processing	3
❑ OT150	Customer Service	3
	Total Credits	**18**

Second Semester

❑ CT115	Web Pages	3
❑ ENG101	College Writing	3
❑ OT122	Word Processing Applications	3
❑ OT137	Spreadsheet Applications	3
❑ OT144	Professional Office Procedures (spring only)	3
❑ OT145	Records Management (spring only)	3
	Total Credits	**18** **(36)**

Third Semester

❑ ELCR241	PC Troubleshooting - Basic	3
❑ OT123	Advanced Word Processing Applications (fall only)	3
❑ OT134	Data Management Applications	3
❑ OT138	Multimedia Presentations	2
❑ OT249	Desktop Publishing (fall only)	3
❑ SOC101	Introduction to Sociology (transferable) *or*	3
	❑ PSYC101 Introduction to Psychology (3) (transferable) *or*	
	❑ HR110T Career Development and Human Relations (3)	
	Total Credits	**17**

Fourth Semester

❑ ACCT110	Accounting I	4
❑ CT131	Visual Basic (spring only)	3
❑ OT213	Integrated Office Capstone (spring only)	2
❑ OT240	Administrative Office Management (spring only)	3
❑ CT161	Web Graphics (spring only)	2
❑ *Elective Credits*		3
Total Credits		**17** **(70)**

Examples of *elective credits* are courses such as Economics, Technical Communication, Computerized Accounting, Ten-Key Calculation, and others depending on the student's skills, course prerequisites, and course availability.

Welding Technology

The primary goal in the first year of the Welding Technology program is to give students the skills and instruction they need to enter the welding industry. Hands-on, theoretical, and technical training will be given in job estimation, blueprint reading, and layout and pattern making. In addition, students will receive extensive lab training in a wide variety of welding processes including Oxyacetylene, S.M.A.W. (stick electrode), G.M.A.W. (wire processes), Pulse M.I.G., T.I.G., and Plasma cutting. The focus of the training is to give the students the skills necessary to successfully pass American Welding Society certifications. Our certification process is administered by an independent company approved by the American Welding Society. Students will also receive introductory instruction in design and fabrication thus allowing them to perform repairs and fabricate projects.

The second year of the Welding Technology program is designed to teach students how to use their skills performing advanced fabrication and repair work on actual projects. Students will learn advanced fabrication techniques using a wide variety of equipment including shears, bending breaks, forming rolls, punches, drill presses, and track torches. This may include anything from a simple welding repair to refacing a D-9 Cat blade. Students will also receive training in various methods of pipe welding with an opportunity to take the A.W.S. certification test. Second year students will be given instruction in C.N.C. burn table programming and operation using Auto-Cad and Shop Data Systems software.

UM-Helena has been designated as one of ten regional training centers in the United States by Miller Electric, the industry leader in welding equipment. Students will receive training on state-of-the-art welding equipment from faculty who attend Miller Electric training schools, providing students with a distinct advantage when entering the work force.

Faculty Advisors: Tim Harris and Sam Osborne

Welding

Length of Programs: 2 Semesters
Type of Program: Certificate of Applied Science
Semester of Entry: Fall

First Semester

Course Number	Course Title	Credits
❑ WELD112	Oxyacetylene Welding/Cutting	2
❑ WELD118	Shielded Metal Arc Welding	3
❑ WELD119	Gas Metal Arc Welding	4
❑ WELD120	Blueprint Reading/AWS Metal/Welding Symbols	3
❑ WELD130	Estimating Job Materials	3
❑ HR100T	Human Relations	2
❑ MAT100T	Introduction to Technical Math	1
	Total Credits	**18**

Second Semester

❑ WELD125	Layout and Pattern Making Fundamentals	3
❑ WELD140	Specialized Welding	6
❑ WELD145	Design and Fabrication	4
❑ WELD150	Shop Practices	2
❑ ENG104T	Workplace Communication	2
❑ OT105	Introduction to Personal Computers	1
	Total Credits	**18** **(36)**

Length of Option: 4 Semesters
Type of Program: Associate of Applied Science
Semester of Entry: Fall

First Semester

Course Number	Course Title	Credits
❑ WELD112	Oxyacetylene Welding/Cutting	2
❑ WELD118	Shielded Metal Arc Welding	3
❑ WELD119	Gas Metal Arc Welding	4
❑ WELD120	Blueprint Reading/AWS Metal/Welding Symbols	3
❑ WELD130	Estimating Job Materials	3
❑ MAT110T	Technical Math	3
	Total Credits	**18**

Second Semester

❑	WELD125	Layout and Pattern Making Fundamentals	3	
❑	WELD140	Specialized Welding	6	
❑	WELD145	Design and Fabrication	4	
❑	WELD150	Shop Practices	2	
❑	OT112	Introduction to Microcomputers	3	
		Total Credits	**18**	**(36)**

Third Semester

❑	WELD200	Pipe Welding	3	
❑	WELD220	Advanced Blueprint	2	
❑	WELD241	Metal Fabrication I	6	
❑	WELD225	Structural Fabrication	2	
❑	WELD230	Field Welding and Processes	2	
❑	ENG107T	Technical Communication	3	
		Total Credits	**18**	

Fourth Semester

❑	WELD242	Metal Fabrication II	6	
❑	WELD255	CNC Burn Table Programming and Operation	3	
❑	WELD265	MSHA Safety Training	1	
❑	WELD270	Advanced Shop Practices	5	
❑	HR110T	Career Development and Human Relations	3	
		Total Credits	**18**	**(72)**

Additional Academic Opportunities At UM-Helena

UM-Helena is pleased to offer our students access to academic programs through partnerships with other institutions from across the state.

Offered on UM-Helena's campus:

Degree	Program	Partnering Institution
B.A.S./B.I.T.	Accounting/Business Technology	Montana Tech
A.A.S.	Early Childhood Education	UM-Western

We are also proud to announce that UM-Helena has an articulation agreement with Carroll College, a 4-year private institution in Helena, for its Computer Technology and Accounting/Business Technology Programs. This means that a student who earns an A.A.S. degree in Computer Technology or Accounting/Business Technology at UM-Helena can transfer directly to Carroll College and have his or her first two years applied to a 4-year degree.

Specific program information follows.

* Bachelor of Applied Science – Business UM - Helena

Contact: John Nugent, jnugent@mtech.edu, (406)443-2955, (406) 494-6696
Barbara Yahvah, yahvahb@umh.umt.edu, (406)444-6822

This articulation agreement applies for the following degrees: (1) All AAS degrees; (2) AA in Accounting or Business; (3) AS in Accounting Technology, Business Technology, or Computer Technology. Students should see their advisor to plan their transfer into BAS.

Any specific UM-Helena course will only be transferred in one the following categories: (1) Block Transfer, (2) general Education Core; or (3) Business Concentration. Classes cannot be counted in more than one category. Please see your advisor to maximize the transferability of your classes.

Block Transfer	*UM-HELENA*	*(51 cr.)*	
General Education Core		**(30 cr.)**	
Communications		*6 cr.*	
ENG 101	College Writing (English Composition)	3	UM-H
PTC 3896W	Business and Professional Writing	3+	**TECH**
Humanities		*6 cr.*	
Humanities Elective	(HIST, LITERATURE, LANGUAGE)	3	UM-H
BUS 3636	Business Ethics	3+	**TECH**
Social Sciences		*6 cr.*	
ECON 256 Principles of Macroeconomics		3	UM-H
ECON 255 Principles of Microeconomics		3	UM-H
Mathematics		*6cr.*	
MA 110	Probability & Linear Math	3	UM-H
MA 120 or 220	Calculus or Statistics	3	UM-H
Physical & Life Science		*6-7 cr.*	
Physical & Life Science Elective	(BIOL, CHEM, GEOL, PHYS, SCI)	3	UM-H
Physical & Life Science Elective	w/LAB (BIOL, GEOL, PHYS, SCI w/lab)	4	UM-H

Business Concentration Required:			**(39 cr.)**	
ACCT	210	Principles of Financial Accounting	3	UM-H
ACCT	220	Principles of Managerial Accounting	3	UM-H
BUS	3206	Accounting Information Systems	3+	**TECH**
BUS	4936W	Strategic Management	3+	**TECH**

Business Concentration Electives (choose 9 courses):				
BUS	210	Marketing	3+	UM-H
BUS	246	Business Law I	3+	UM-H
BUS	260	Management	3+	UM-H
BUS	3316W	Marketing	3+	**TECH**
BUS	3426	Business Law II	3+	**TECH**
BUS	3446W	Entrepreneur & Tech Enterprise Dev. I	3+	**TECH**
BUS	3516	Business Finance	3+	**TECH**
BUS	3626	Labor Relations	3+	**TECH**
BUS	3646	Human Resource Management	3+	**TECH**
BUS	3656W	Organizational Behavior	3+	**TECH**
BUS	3666	Operations and Production Management	3+	**TECH**
BUS	3696	Applied Supervisory Management	3+	**TECH**
BUS	4516	International Finance & Trade	3+	**TECH**
BUS	4566	Financial Markets & Institutions	3+	**TECH**

Any courses that are remedial in nature, such as math courses below College Algebra will not be counted in the block transfer credit.

+Meets the upper division requirements for a B.A.S. (minimum 39 credits).

Some courses may have pre-requisites or require specific test scores for enrollment. Pre-requisite courses not listed on this agreement may not count towards a student's transfer into the bachelor's degree program.

Minimum Credits for BAS degree in Business 120

* Bachelor of Science - Business & Information Technology - UM-Helena

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Freshman Year

Fall Semester			
ENG 101	College Writing (English Comp)	3	UM-H
OT 112	Introduction to Microcomputers	3	UM-H
MA 110	Probability & Linear Math	3	UM-H
	Free Elective	3	UM-H
	*Physical & Life Sci.**	3	UM-H
Spring Semester			
BUS 105	Introduction to Business	3	UM-H
	*Humanities Elective	3	UM-H
CT xxxx	Computer Sci Elect ***.	3	UM-H
MA 120	Calculus	3	UM-H
	*Phys & Life Sci. Lab**	3-4	UM-H

Sophomore Year

Fall Semester			
ACCT 210	Princ of Financial Accounting	3	UM-H
CT 131	Visual Basic	3	UM-H
ECON 256	Principles of Macroeconomics (SS)	3	UM-H
I.T 2416	Spreadsheet Applications	3	**TECH**
COMM 131	Intro to Public Speaking	3	UM-H
Spring Semester			
ACCT 220	Princ of Managerial Accounting	3	UM-H
ECON 255	Principles of Microeconomics (SS)	3	UM-H
I.T. 2426	Database Applications	3	**TECH**
MA 220	Statistics	3	UM-H
C.T. xxxx	Computer Sci Elect ***	3	UM-H

Junior Year

Fall Semester			
BUS 246	Business Law I	3+	UM-H
BUS 260	Management	3+	UM-H
BUS 3446	Entrepreneurship	3+	**TECH**
BUS 3516	Business Finance	3+	**TECH**
BUS 3656	Organization Behavior	3+	**TECH**
Spring Semester			
BUS 210	Marketing	3+	UM-H
BUS 3666	Operations & Production Mgmt	3+	**TECH**
BUS 3206	Account Info System	3+	**TECH**
BUS 3426	Business Law II	3+	**TECH**
PTC3896W	Bus & Professional Writing	3+	**TECH**

Senior Year

Fall Semester			
BUS 4326	Marketing Strategies	3+	**TECH**
BUS 3626	Labor Rel. and the Coll. Barg. Proc	3+	**TECH**
BUS 4526	International Business	3+	**TECH**
	Upper Div Elect (3000/4000)	3+	**TECH**
	Upper Div Elect (3000/4000)	3+	**TECH**

Spring Semester

BUS 3636	Business Ethics	3+	**TECH**
BUS 3646	Human Resource Management	3+	**TECH**
BUS 4566	Financial Markets & Institutes	3+	**TECH**
BUS 4936W	Strategic Management	3+	**TECH**
	Upper Div Elect (3000/4000)	3+	**TECH**

*Choose electives so that the General Education Core Requirements are satisfied. Refer to the general education core requirements in previous section.

**Any Biology (BIOL), Chemistry (CHEM), Geology (GEOL), Physics (PHYS), or Science (SCI) course.

***Choose from CT 161, 181, 210, 216, 217, 218, 219, 227, 247, 253, 254, 260, 262, 264, 266, 268, or 270.

+Meets the upper division requirements for a B.S. (minimum 39 credits).

Some courses may have pre-requisites or require specific test scores for enrollment. Pre-requisite courses not listed on this agreement may not count towards a student's transfer into the bachelor's degree program

Minimum Credits for B.S. degree in Business Information Technology 120

Associate of Applied Science in Early Childhood Education

Offered in partnership with The University of Montana—Western

The Associate of Applied Science degree in Early Childhood Education prepares early childhood practitioners to meet the unique needs of children from birth through eight and their families in a variety of early childhood settings including child care homes and centers, Head Starts, pre-schools, etc. The program features a lab with each early childhood course, allowing ample opportunity for learning by doing. Students also have many opportunities to interact with peers and professionals in the field.

This degree is conferred by UM-Western, but all courses can be taken at UM-Helena. Courses designated as UM-Western are subject to their policies as outlined in their Catalog. General education courses are delivered through UM-Helena and are subject to the policies found in this Catalog.

Early childhood courses rotate on a two-year schedule, so it is imperative for interested students to contact an advisor as soon as possible. For more information please contact the School of Outreach at UM-Western at 1-866-799-9140 or Admissions and New Student Services at UM-Helena at 1-800-241-4882.

First Semester (Fall Entry)

UM-Helena Courses:

❑	Social Science	Elective	3 credits
❑	ENG101	College Writing	3 credits
❑	CT101	Introduction to Computer Technology	1 credit
❑	Fine Arts	Elective	3 credits

UM-Western Courses:

❑	ED142/143	Intro to Early Childhood/Lab	2 credits
❑	ED250/251	Child Growth & Development/Lab	4 credits
		Total:	**16 credits**

Second Semester

UM-Helena Courses:

❑	MA100D or higher	Math Elective	3-4 credits
❑	Natural Science	Elective	3-4 credits
❑	Health	Elective	3 credits

UM-Western Courses:

❑	ED144/145	Creating an Environment for Learning/Lab	3 credits
❑	ED240/241	Positive Child Discipline/Lab	3 credits
		Total:	**15-17 credits**

Third Semester

❑		Professional Electives**	9 credits

UM-Western Courses:

❑	ED242/243	Meeting the Needs of the Family/Lab	3 credits
❑	ED320/321	EC Curriculum I/Lab	3 credits
		Total:	**15 credits**

Fourth Semester

❑		Professional Electives**	9 credits

UM-Western Courses:

❑	ED344/345	EC Professional/Lab	3 credits
❑	ED324/325	EC Curriculum II/Lab	3 credits
		Total:	**15 credits**

Program Total: 61-63 credits

**Professional Electives - to be decided upon in conjunction with Program Advisor. The electives Can be courses in Sociology, Psychology, Health and/or Early Childhood Education. Courses can be taken through either UM-Helena or on-line through UM-Western.

Carroll College Transfer Programs

UM-Helena students who complete the following degree options are eligible to apply for acceptance to Carroll College's Bachelors of Science in Computer Science program. Once accepted, the student will begin the third year of Carroll's Computer Science program. Students interested in this opportunity are encouraged to see their advisor to get a copy of the transfer plan and to get assistance with specific course selection. Any deviations from the transfer plan will be reviewed on an individual basis using Carroll's standard procedures.

Eligible degree programs for Carroll / UM – Helena College of Technology transfer plan:

Associate of Applied Science Computer Technology - Network Administration
Associate of Applied Science Computer Technology - Programming
Associate of Applied Science Computer Technology - Webmaster
Associate of Science Network Administration Option
Associate of Science Programming Option
Associate of Science Webmaster Option

ACCT110 Accounting I
Credits: 4 **Prerequisites: none**
Introduction to the basic accounting cycle, accounting transaction analysis, preparation of journal entries, trial balance, worksheets, and financial statements. Accounting for sole proprietorships is emphasized, including special journal accounting procedures.

ACCT120 Accounting II
Credits: 4
Prerequisite: ACCT110 or consent of instructor
Continuation of accounting transactions, financial statements, and analysis of accounts receivable, notes payable, notes receivable, merchandise inventory, property, plant, equipment, and long-term bonds. Accounting for partnerships and corporations is introduced.

ACCT135 Income Tax
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
A fundamental overview of tax schedules and forms as required by the Federal and State Internal Revenue Services.

ACCT140 Payroll Accounting
Credits: 3 *Offered Fall Semester* **Prerequisite: ACCT110**
An introduction to payroll accounting emphasizes the process of accounting for payroll by employers and the rights of employees. Topics covered include the historical perspective of payroll accounting, the payroll accounting process from the legal issues surrounding hiring and maintaining records for employees, calculating gross pay, net pay, and payroll taxes, calculating employees' deductions and benefits, recording payroll transactions, procedures for making payroll tax deposits, and completing employment tax reports.

ACCT205 Computerized Accounting
Credits: 3
Prerequisites: ACCT110 & OT112 or equivalent
This course is an introduction to accounting on microcomputers, which provides a realistic approach to computerized, integrated accounting principles. This course emphasizes set up and maintenance of accounts and transactions used in the general ledger, sales and accounts receivable, purchasing and accounts payable, cash receipts, cash disbursements, job costing, financial statement analysis, payroll setup and processing, budgets, and business analysis.

ACCT210 Principles of Financial Accounting
Credits: 3 *Offered Fall Semester*
Prerequisites: ACCT110 & ACCT120 or consent of instructor
This course emphasizes the understanding of fundamental accounting principles and procedures and will develop the student's accounting problem-solving and critical thinking abilities. Topics covered include the basic structure of analyzing and recording transactions, establishing accounting policy, generally accepted accounting principles, control of cash, receivables and payables, merchandise inventory evaluation methods, recording of property, plant, and equipment transactions, and long-term financing. Sources of equity capital for corporations and financial statements are analyzed.

ACCT220 Principles of Managerial Accounting
Credits: 3 *Offered Spring Semester*
Prerequisites: ACCT110 & ACCT120 or consent of instructor
This course emphasizes the fundamental concepts for planning, control, and decision making. Topics covered include the basic structure of systems design, planning and control through standard costs, cost variance analysis, cost-volume-profit analysis, operating and capital budgets, and using relevant costs in decision making.

ACCT230 Introduction to Statewide Accounting, Budgeting, and Human Resource System (SABHRS)
Credits: 2 *Offered Spring Semester*
Prerequisite: ACCT110 or equivalent
This course gives students an overview of the accounting system utilized by state agencies. Course includes basic governmental accounting terminology and entry-level, practical applications.

ACCT231 Governmental and Not for Profit Accounting
Credits: 3 *Offered Spring Semester*
Prerequisites: ACCT110 & ACCT120 or consent of instructor
Accounting for governmental and nonprofit organizations is explored. Topics covered include objectives and principles of accounting for governmental entities, differences between business and government accounting, modified and accrual accounting, transactions for the general fund, special revenue funds, capital projects funds, debt service funds, permanent funds, proprietary funds (enterprise and internal service), and fiduciary funds. The influence of FASB and GASB on reporting for colleges and universities, governmental entities, and other nonprofit organizations is reviewed.

ACCT265 Accounting Portfolio
Credits: 2 *Offered Spring Semester*
Prerequisites: ACCT110, ACCT120, ACCT210, ACCT220 & OT112 or equivalent, or consent of instructor
This capstone class utilizes accounting research, business knowledge, computer techniques, and communication skills in preparing a professional student portfolio.

ACCT287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

ACCT288 Internship
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
Designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. If done properly, it can be a highly rewarding experience and aid the student's transition from school to work.

ANTH101 Introduction to Anthropology
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
A survey of the various subfields of anthropology, including archaeology, physical anthropology, cultural anthropology, and linguistics.

ANTH103 Introduction to Archaeology
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
The study of past human cultures through their material remains, using many different approaches and tools to study and explain how people lived in the distant and not-so-distant past.

ANTH150 Introduction to Latin American Studies
Credits: 3 *Offered Occasionally in Fall Semester*
Prerequisites: none
A contemplation of Latin America from a variety of perspectives and disciplines – as anthropologists, geographers, historians, political scientists, and artists, to name a few – in order to better understand its histories, cultures, landscapes, and communities.

ANTH225 Native American Culture
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
Study of cultural makeup of Native Americans in Montana and subsequently in the United States. Education, historical, legal, and social aspects will be analyzed for their influence on the modern Indian culture.

ARTS101 Art Appreciation
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
An introductory overview to the field of the visual arts. Areas of study include art philosophy, the language of aesthetics, a historical overview, cultural influences, types of art, various media, and art production processes.

ARTS120 Introduction to the Theater
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
Exploration of the expressive powers of theater, with an emphasis on reflection, comparison, and analysis of written and performed dramatic works.

ARTS125 Beginning Acting
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
Students will work on basic acting skills through group as well as individual acting exercises, hands-on script analysis, and scene study with fellow actors.

ARTS140 Art Fundamentals
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
This introductory drawing course covers basic principles of drawing and design in art. Major areas of study are space, form, volume, tone, texture, and line, using various drawing materials and techniques.

ARTS212 Basic Drawing
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
This course explores the principles of design, as well as application of those principles through a wide variety of hands-on projects.

ARTS240 Basic Painting
Credits: 3 *Offered Spring Semester* **Prerequisite: none**
This course explores the principles of basic painting, as well as application of those principles through a wide variety of hands-on projects.

AUTO105 Manual Drive Trains and Axles
Credits: 7 **Co/Prerequisites: MECH101**
This course covers the theory of operation and service procedures related to dry friction clutches, manual transmissions/transaxles, front drive axles, rear drive axles, drivelines, transfer cases, and locking hubs. Students will disassemble, inspect, and reassemble selected power train components.

AUTO110 Engine Repair
Credits: 5 **Co/Prerequisites: MECH101**
This course covers the theory of operation, diagnosis, and service procedures associated with engine repair. Students will learn engine theory and will work on engine head and block assemblies and their related components.

AUTO113 Electrical/Electronic Systems II
Credits: 4
Co/Prerequisites: MECH100, MECH101, & MECH110
This course covers theory of operation, diagnosis, and service procedures related to selected electrical and electronically controlled systems. Systems/subjects include vehicle communication networks, supplemental inflatable restraint systems, antitheft systems, cruise control, remote keyless entry, and power accessories.

AUTO216 Engine Performance I
Credits: 7
Co/Prerequisites: AUTO110, AUTO113, MECH100, MECH101, & MECH110
This course covers theory of operation, diagnosis, and service procedures as they relate to engine performance. Subjects studied will include the effects of engine design on performance; federal emissions legislation; fuel composition and characteristics; distributor, distributorless, and coil on plug-type ignition systems; electronic fuel injection; and emission control systems. Students will learn to use industry-accepted test procedures and test equipment to determine the cause of degraded engine performance, driveability complaints, and/or excessive exhaust emissions.

AUTO221 Brakes and Chassis
Credits: 6
Prerequisites: First two semesters in Automotive Technology curriculum
This course focuses on the function, diagnosis, and service practices of current automotive braking, steering and suspension systems. Students will learn about disc and drum brake hydraulic, mechanical, and electrical systems, to include ABS systems. Students will also study current steering and suspension systems, to include 4 wheel alignment, suspension system, and tire service.

AUTO225 Automatic Transmissions/Transaxles
Credits: 7
Prerequisites: MECH100, MECH101, & MECH110
This course covers the theory of operation, diagnosis, and service procedures related to hydraulically controlled and computerized automatic transmissions and transaxles. Students will disassemble, rebuild, and reassemble selected transmissions/transaxles.

AUTO231 Engine Performance II
Credits: 5
Prerequisites: AUTO110, AUTO216, MECH100, MECH101, & MECH110
This course covers theory of operation, diagnosis, and service procedures related to computerized engine management systems. Systems/subjects covered will include electronic fuel injection, distributorless and coil on plug ignition systems, computer-controlled emission systems, and On Board Diagnostics II. Special emphasis will be given to the development of proper diagnostic skills and the use of state of the art electronic test equipment.

AUTO260 Applied Lab Experience and Light Repair
Credits: 4
Prerequisite: MECH101 and Completion of first year Automotive Program courses
This is a "capstone" experience course for Automotive Technology students in their second year, where they apply their knowledge base acquired in previous courses to additional Lab experiences, thereby developing their critical thinking and physical service skills. It is important to note that this is not a "hobby shop" or "rebuild" course and will focus on "quick turn-around" light repair and problem solving. Emphasis will be placed on vehicle service practices, preventative maintenance, component diagnosis and replacement, electrical/electronic systems diagnosis and repair, heating and A/C service, and "under car" service and repair.

AVIA100 Intro to Aviation Maintenance/Mathematics/Basic Physics
Credits: 2 **Prerequisites: none**
This course introduces students to many facets of aviation maintenance and its future. The course will also cover mathematical concepts such as powers and roots, ratio and proportion, and practical applications of plane geometry and algebra, and basic physics, to include mechanical advantage, conversion between forms of energy, vibrations, the gas laws, heat, and pressure.

AVIA105 Basic Electricity
Credits: 2 **Prerequisites: none**
This course covers the elements of basic electricity and lays the foundation for understanding electrical circuitry concepts, the principles of electrical power generation and distribution, and aircraft electrical systems functions. This course will also describe current flow and analyze circuit operation in both theory and practical applications.

AVIA110 Aircraft Drawings/Weight and Balance
Credits: 2 **Prerequisites: none**
This course introduces aircraft drawings, which enhance the ability to communicate ideas, to understand and explain an operation, and to record what has been done to an aircraft using symbols and different types of drawings such as views, and projections used in aircraft maintenance. The course will also introduce weight and balance, for safety and efficiency of flight, for maintaining the weight of an aircraft and its center of gravity within its specified limits. The course will cover the theory of aircraft weight and balance, weight and balance information, and the procedures for weighing an aircraft, and how to find the aircraft center of gravity and perform adverse-load center of gravity checks.

AVIA115 Materials and Processes/Fluid Lines and Fittings/ Cleaning and Corrosion Control
Credits: 3 **Prerequisites: none**
This course provides students the opportunity to inspect aircraft components for wear, identify aircraft hardware and materials, learn the basic theory of heat-treatment processes, nondestructive inspection procedures, and perform dye-penetrant and magnetic particle inspections. The course will also cover fluid lines and fittings, which must be of the correct size and material. The student is introduced to the selection of materials for both rigid and flexible fluid lines and to the proper installation of various types of aircraft fittings on these lines. The student is also taught the proper installation and inspection of high-pressure fluid lines in an aircraft. This course also covers the importance of recognizing and properly treating an aircraft structure that shows evidence of corrosion. This introduces the student to the selection of cleaning materials, with emphasis on their relationship to the type of material being cleaned. It stresses the identification of the various types of corrosion, the evaluation of corrosion damage, the proper way of removing the corrosion deposits, and treatment of the corroded areas.

AVIA120 Ground Operation and Servicing
Credits: 2 **Prerequisites: none**
This course introduces servicing and ground operations of aircraft and covers the choice and identification of fuels for both reciprocating and turbine engine powered aircraft and the necessary precautions to observe when fueling an aircraft. Since awareness of ground operations and hazards is emphasized in this section, the student is also introduced to "Safety in the Shop and on the Flight Line." This increment also covers the proper procedure for starting reciprocating and turbine engines and the procedures for proper engine run-up, aircraft movement, and tie-down.

AVIA125 Maintenance Publications/Forms and Records/ Mechanic Privileges and Limitations
Credits: 2 **Prerequisites: none**
This course introduces the importance of understanding the regulations governing aviation maintenance and the information furnished by the aircraft, engine, and component manufacturers, and it emphasizes the importance of the legal aspects of aviation maintenance. The student will learn how to properly describe the work done to an aircraft and must be able to make the proper maintenance record entries, and explain these records and forms step-by-step to what is expected of the mechanic by the aircraft owner and what is allowed by the FAA.

AVIA130 Basic Aerodynamics
Credits: 2 **Prerequisites: none**
This course introduces knowledge of basic aerodynamics; this deals with the motion of air and the forces acting on bodies moving relative to the air. In the study of aerodynamics, the student learns about why and how an airplane flies. Although aerodynamics is a complex subject, exploring the fundamental principles which govern flight is the main challenge in understanding what makes an airplane fly and begins with learning the four forces of flight, which are lift, weight, thrust, and drag.

AVIA135 Assembly and Rigging/Airframe Inspection
Credits: 3 **Prerequisites: none**
This course introduces knowledge of the correct assembly and rigging of an aircraft, which is vital to safe and efficient flight. This section explains the relationship between aircraft rigging and the aerodynamics of flight. The course also introduces how to determine the legal airworthiness of an aircraft, its powerplant, and components. The student will learn the inspection aspects from a legal standpoint in which the emphasis is placed on the practical aspects and performance of required inspections.

AVIA140 Sheet Metal
Credits: 3 **Prerequisites: none**
This course introduces knowledge of sheet metal structures, which is one of the most important types of modern aircraft construction. This section gives students a solid lesson in the types and materials for metallic aircraft structures, a discussion that includes the stresses on aircraft structure, and the strength of various metal materials. The student is taught to install conventional, special rivets and fasteners; hand form, layout, and bend sheet metal; and to inspect and repair sheet metal structures.

AVIA145 Composites and Plastics
Credits: 3 **Prerequisites: none**
This course introduces knowledge of nonmetallic composite structures, which is the second most important type of modern aircraft construction. This section gives students a solid lesson in the types of composite materials and their manufacture details, a discussion that includes the foundation for the understanding of "Nonmetallic Aircraft Structures" and "Composite Structure Inspection and Repair."

AVIA150 Wood Structures
Credits: 2 **Prerequisites: none**
This course introduces aircraft wood structures; the student will learn and be able to identify defects and the different kinds of woods suitable for their application, describe the kinds of glues and gluing techniques, and to restore old aircraft that have wood wing spars, ribs, and plywood structures.

AVIA155 Aircraft Covering/Aircraft Finishes
Credits: 2 **Prerequisites: none**
This course introduces the student to the application and maintenance of fabric covered aircraft. They will learn about how a fabric covering is properly attached to aircraft structures. The student will become familiar with the different types of covering materials that are used to cover an aircraft plus the dope fillers, paints, and rejuvenator finishes used on the fabric.

AVIA160 Welding
Credits: 3 **Prerequisites: none**
This course introduces the knowledge of welding, which is important because modern structures are so complex and highly stressed that welding is usually a specialized type of repair done under highly controlled conditions. This section concludes the discussion of Metallic Aircraft Structures with a detailed description of the types, tools, materials, and methods of welding for aircraft construction, maintenance, and repair.

AVIA165 Hydraulic and Pneumatic Power Systems
Credits: 3 **Prerequisites: none**
This course introduces hydraulic and pneumatic power systems, which are used to operate many of the vital systems, such as landing gear retraction, brakes, and powered flight controls. The students will inspect, check, service, troubleshoot, and repair these systems and will learn to work safely with these fluids and their pressurized containers.

AVIA170 Aircraft Landing Gear Systems/Position and Warning Systems
Credits: 2 **Prerequisites: none**
This course introduces landing gear systems, which are subject to greater stresses than any other airframe system; therefore, the student must completely understand these vital components. This section includes lectures and schematic diagrams of these systems, exploded views of the assemblies, and illustrations of the workings of brake control systems, and the required maintenance. The different systems are covered in three areas: anti-skid brakes and their systems, electrical circuits and landing gear actuation, and warning systems for instruments that indicate and measure movement.

AVIA205 Aircraft Electrical Systems
Credits: 2 **Prerequisites: none**
This course introduces electricity and airframe electrical systems. Basic electricity is taught along with typical airframe electrical circuits. The student will learn both general diagram symbols and specific electrical systems along with industry- accepted methods of installation and proper testing equipment used.

AVIA210 Aircraft Fuel Systems/Fire Protection Systems/Ice and Rain Control Systems
Credits: 3 **Prerequisites: none**
This course introduces the complex system of tanks, valves, and pumps of modern aircraft. The student will learn these systems in order to service them efficiently and safely. This section describes the various aircraft fuels and explains the fuel system requirements. This course also introduces fire protection systems, and shows that fire is an ever possible danger in an aircraft, and that the student must be aware of the nature of fire and the appropriate methods and agents for detecting and extinguishing aircraft fires. This section explains how these protection systems work. This course also covers ice and rain control systems.

AVIA215 Cabin Atmosphere Control Systems
Credits: 2 **Prerequisites: none**
This section covers maintaining an aircraft cabin environment with the proper pressure, temperature, humidity, and air movement, which is more than a matter of comfort; it is also a safety factor. This section backs up its discussion of these systems by starting with an explanation of "Human Needs in Flight" and how the atmosphere, the chemistry of oxygen, and the physics of heat, temperature, and pressure relate to this topic.

AVIA220 Aircraft Instrument Systems/Communication and Navigation Systems
Credits: 3 **Prerequisites: none**
This course introduces instrument systems that are needed to provide the flight crew with data relating to the operating of the various flight and powerplant systems. This section describes the instruments and the basic operating principles of the systems that run them. The student will learn the installation and maintenance of these systems. Aircraft depend upon electronic navigation and communication equipment. The student will learn his or her responsibility for determining the condition of the installed equipment and its interface with the aircraft itself. The student will also receive a detailed discussion of communication and navigation systems, as well as basic radio theory, to provide an understanding of how these systems should work.

AVIA225 Development of Aircraft Powerplants
Credits: 2 **Prerequisites: none**
This course will introduce the student to the development of aircraft powerplants from the Wright brothers' first engine, to the modern piston, turbine and turboprop engines that are used on aircraft and helicopters throughout the world today.

AVIA230 Reciprocating Engines and Systems
Credits: 6 **Prerequisites: none**
This course introduces aircraft powerplants that are of the reciprocating (piston) type. This section introduces the student to the different types of reciprocating engines, which include the detailed material that covers the step-by-step, hands-on procedures for reciprocating engine inspection, troubleshooting, repair, and overhaul. The course includes the operation of fuel metering components, induction and exhaust systems, heat dissipation, and starter systems.

AVIA235 Turbine Engines and Systems
Credits: 6 **Prerequisites: none**
This course introduces aircraft powerplants that are of the turbine type. This section introduces the student to the different types of turbine engines, which include the detailed material that covers the step-by-step, hands-on procedures for turbine engine inspection, troubleshooting, and repair. The course includes the operation of fuel metering components, induction and exhaust systems, method of heat dissipation, and starter systems.

AVIA240 Engine Instrument Systems
Credits: 2 **Prerequisites: none**
A knowledge of the conditions in an aircraft engine allows the flight crew to operate it in the most efficient and safest manner. For this reason, modern aircraft powerplants are equipped with sensors to monitor all of the vital parameters. This section covers all required powerplant instrumentation and also discusses the various types of electronic, digital, and computerized instrumentation of today's aircraft.

AVIA245 Engine Electrical Systems/Auxiliary Power Unit
Credits: 2 **Prerequisites: none**
In this section the methods of generating and controlling electrical energy are discussed. It includes a refresher of electrical principles as they apply to powerplant operation and of each control system in detail. There is also a lecture on aircraft electrical system installation, to prepare the student for the practical application of electrical system service and maintenance. The student will also learn about the APU (auxiliary power unit) system that is used to provide electricity and compressed air when the aircraft is on the ground and the main engines are not operating.

AVIA250 Engine Fire Protection Systems
Credits: 2 **Prerequisites: none**
This course introduces how modern aircraft powerplants are protected from fire with effective fire-detection and high-rate-discharge fire-extinguishing systems. These are described in detail so the student understands the practical application necessary in the servicing, inspection, troubleshooting, and repair of these systems.

AVIA255 Propellers and Unducted Fans
Credits: 6 **Prerequisites: none**
This course introduces all aspects of propeller theory, as a foundation for the understanding of propeller maintenance, repair, and inspection. A propeller is an airfoil, rotated by either a reciprocating or turbine engine. The propeller adds energy to the air passing through it by accelerating it rearward to produce a forward thrust. This course also introduces a new development in aircraft propulsion that is known as an ultra-high bypass (UHB) turbofan, or unducted fan (UDF) engine. A special lecture is devoted to the discussion of this engine.

BIOL101 Biology I with Lab
Credits: 4 **Prerequisites: none**
The first course in the biology sequence is an introduction to the basic concepts and principles of general biology with an emphasis on lab experiences, critical thinking, problem solving, and the scientific method. Areas of study include organic chemistry and biochemistry, cellular biology, cell growth, genetics and genetic engineering, reproduction, cell metabolism, ecology, evolution theory, and classification systems in biology.

BIOL107 Basic Anatomy and Physiology with Lab
Credits: 4 *Offered Occasionally* **Prerequisites: none**
This one-semester course covers the basic anatomy and physiology of the human body. Lecture will concentrate on the physiology (function) of several body systems including the nervous, cardiovascular, respiratory, and urinary systems and how they contribute to homeostasis of the body. Lab will mainly concentrate on the anatomy (form) of bones, muscles, brain and spinal cord, and the heart.

BIOL201 Biology II with Lab
Credits: 4 *Offered Spring Semester*
Prerequisites: none; a previous biology course is recommended
Capstone eligible
The second course in the biology sequence emphasizes study of the principles of biology within specific classifications such as kingdoms and species. Areas of study include viruses, bacteria, protests, fungi, plant, invertebrates, vertebrates, and human biology. Lab experience corresponds to lecture material.

BIOL202 Anatomy and Physiology I without Lab
Credits: 3 *Offered Fall Semester*
Prerequisite: A "C-" or higher in BIOL101 or consent of instructor
The student will learn the general principles of cell and tissue biology that apply to all living systems. Structure and function of the integumentary, skeletal, muscular, nervous, sensory, and endocrine systems will be studied. Homeostasis, control, and integration of the human body will be emphasized. This course is designed primarily for Electronic BioMed and OT medical transcription students and does not satisfy the requirements for A.S. science sequence, LPN, or RN programs.

BIOL206 Anatomy and Physiology II without Lab
Credits: 3 *Offered Spring Semester*
Prerequisite: BIOL202 & BIOL207or consent of instructor
The student will learn the structure and function of the digestive, cardiovascular, respiratory, reproductive, and urinary systems of humans. Principles of integration, metabolism, energy, and homeostasis will be emphasized. This course is designed primarily for Electronics BioMed and OT medical transcription students and does not satisfy the requirements for A.S. science sequence, LPN or RN programs.

BIOL207 Anatomy and Physiology I with Lab
Credits: 4
Prerequisite: A "C-" or higher in BIOL101 or consent of instructor
In this first course of a two semester course series, the student will build on the general principles of cell biology learned in BIOL101 Biology I with Lab. Structure and function of the integumentary, skeletal, muscular, and nervous systems will be studied, with emphasis on homeostasis, control, and integration of the human body. Lecture will concentrate on physiology (function) while the lab experience will concentrate on anatomy (form), including histology.

BIOL208 Anatomy and Physiology II with Lab
Credits: 4 *Offered Spring Semester*
Prerequisite: A "C-" or higher in BIOL207 or consent of instructor
In this second course of a two-semester course series, the student will learn the structure and function of the endocrine, digestive, cardiovascular, lymphatic, respiratory, reproductive, and urinary systems of humans. Principles of integration and homeostasis will be emphasized.

BIOL220 Microbiology
Credits: 3 *Offered Spring Semester*
Prerequisites: BIOL101 & BIOL207or consent of instructor
This course provides a general study of microscopic organisms and their forms, metabolism, reproduction, physiology, classification, relationship to each other, and their effects on humans.

BIOL221 Microbiology Lab
Credits: 1 **Co-requisites: BIOL220**
This lab component is designed to reinforce the material covered in BIOL220 by providing students with a practical hands-on opportunity to execute and to observe supplemental exercises in a lab setting.

BUS105 Introduction to Business
Credits: 3 **Prerequisites: none**
This course introduces the nature of business and the trends that change the way business is conducted. Topics covered in this course include the business environment, starting a business, management, ethics, social responsibility, human resources, marketing, and finance.

BUS200 Small Business Entrepreneurship
Credits: 2 **Prerequisite: BUS105**
This course introduces the student to studying the entrepreneurial mindset to discover opportunities for markets and situations in which a small business can be developed successfully. Topics covered include understanding the nature of small business, seeking entrepreneurial opportunities, developing new ventures, marketing and managing a small business, and exploring the social and legal environment of businesses.

BUS205 Business Ethics
Credits: 3 *Offered Spring Semester* **Prerequisite: BUS105**
This course is designed to apply business concepts in studying ethics. The course will help students differentiate between ethical and unethical practices in the business world. Topics covered include basic principles of ethics, social costs, justice and fairness, utilitarianism, free market and rights, ethics in the marketplace, business and external exchanges, and ethics relating to internal constituencies (employee issues).

BUS210 Marketing
Credits: 3 *Offered Fall Semester* **Prerequisite: BUS105**
This course introduces the student to making effective marketing decisions in developing a marketing plan. Topics covered include the marketplace and consumers, marketing plans, market analysis, the marketing mix, and global marketing.

BUS246 Business Law I
Credits: 3 *Offered Fall Semester* **Prerequisite: BUS105**
This course is an overview of business law including the judicial system and procedures. Emphasis will be on ethics and law, tort law, contract law, sales and lease laws, negotiable instruments, bankruptcy laws, and legal ramifications for organizational types.

BUS247 Business Law II
Credits: 3 *Offered Spring Semester* **Prerequisite: BUS105**
This course is an overview of business law including the judicial system and procedures. Emphasis will be on ethics and law, contract law, warranties and product liability, consumer protection laws, personal property, real property, wills, intestacy, and trusts, business organizations and regulation, and the impact of computers and e-commerce on the law.

BUS250 Contemporary Economics
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
Scarcity, as applied to everyday rational decisions, is the central focus of this course. Topics covered include resource utilization, supply and demand, opportunity cost, production possibilities curve, the mixed economy, consumption sector, government sector, unemployment, inflation, utility, cost and profit, monopolies, circular flow of money, and the relationship of current events with economic concepts.

BUS260 Management
Credits: 3 *Offered Spring Semester* **Prerequisite: BUS105**
Students learn efficient and effective use of resources in achieving organizational goals. Topics include the environment of management, the functions of planning, organizing, leading, and controlling, and decision-making for organizational leaders.

BUS261 Human Resource Management
Credits: 3 *Offered Fall Semester* **Prerequisite: BUS105**
This course introduces the student to an overview of the background of human resource management, acquisition of human resources, training and development of employees, compensation of human resources, and labor relations. Topics covered include human resource planning, recruitment, selection and training, equal opportunity and employment laws, job analysis and design, performance management systems, compensation and benefits, and employee/labor relations.

BUS263 Legal Issues in Human Resources
Credits: 3 *Offered Spring Semester* **Prerequisite: BUS105**
This course introduces the student to an overview of legal issues in human resource and employment law. Topics covered include employment relationships, hiring, termination, employment discrimination, employment regulation (wage and hour, safety, workers' compensation), and employee evaluation.

BUS265 Finance
Credits: 3 *Offered Fall Semester*
Prerequisites: BUS105, ACCT110 & MAT120T
This course assists students in making effective financial business decisions. Topics include time value of money, cash flow, financial ratio analysis, long-term financing/equity decisions, and the influence of the economic environment on a business's financial considerations.

BUS270 Business Plan
Credits: 2 *Offered Spring Semester*
Prerequisites: ACCT110, ACCT205, BUS210, BUS260 & OT112 or equivalent, or consent of instructor
This capstone course helps students synthesize the learning process with the production of a Business Plan for launching of a new small business venture. Students utilize communication skills, computer skills, accounting skills, and management problem-solving techniques toward the development of the culminating project.

BUS287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

BUS288 Internship
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
Designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. If done properly, it can be a highly rewarding experience and aid the student's transition from school to work.

CHEM150 General and Inorganic Chemistry
Credits: 3 **Prerequisites: MA100D**
This course is designed to provide students with a working knowledge of the basic principles of chemistry and the physical world at a microscopic scale. Topics include the atomic model of matter, energy, chemical bonds and reactions, the states of matter, acids and bases, and an introduction to organic chemistry. The course integrates lecture and homework assignments to provide students practical examples of applications of course material to "real world" situations.

CHEM151 General and Inorganic Chemistry Lab
Credits: 1 **Prerequisites: MA100D**
This lab component is designed to reinforce the material covered in CHEM150 by providing students with a practical hands-on opportunity to execute and to observe supplemental exercises in a lab setting.

CHEM250 Organic and Biological Chemistry
Credits: 3 *Offered Spring Semester*
Prerequisites: A "C-" or higher in CHEM150 & CHEM151 or consent of instructor
This course is designed to expand on the information presented in Chemistry I, providing students with a working knowledge of the basics of organic and biologic chemistry. Topics include the basic organic functional groups and their reaction properties, and basic biologic molecules such as carbohydrates, lipids, proteins and enzymes and how these molecules form and function in biologic systems. The course integrates lecture, homework assignments, and lab exercises to provide students practical examples of applications of course material to "real world" situations.

CHEM251 Organic and Biological Chemistry Lab
Credits: 1 *Offered Spring Semester*
Prerequisites: A "C-" or higher in CHEM150 & CHEM151 or consent of instructor
This lab component is designed to reinforce the material covered in CHEM250 by providing students with a practical hands-on opportunity to execute and observe supplemental exercises in a lab setting.

COMM131 Introduction to Public Speaking
Credits: 3 **Prerequisites: none**
Development of oral communication skills through an emphasis on audience analysis, organization of ideas, and delivery of spoken messages.

COMM132 Interpersonal Communications
Credits: 1 *Offered Occasionally*
Prerequisites: COMM131 or consent of instructor
Interpersonal Communication, or how we as humans communicate with one another in our personal lives, impacts the function and form of communication in other areas. Through a theoretical study of interpersonal communication, students will gain an understanding of the maintenance and termination of platonic, romantic, and family relationships. In addition, we will explore topics of attraction, initiation, commitment, intimacy, child-parent communication, and destructive behavior.

COMM133 Small Group Communication
Credits: 1 *Offered Occasionally*
Prerequisites: COMM131 or consent of instructor
This course studies group communication processes. Focusing on communication theory, the course will dissect how groups communicate effectively and ineffectively and the impact on day-to-day human relations.

COMM201 Introduction to Public Relations
Credits: 3 *Offered Spring Semester*
Prerequisites: A "C-" or higher in ENG107T or ENG101, or consent of instructor
This course introduces students to theory and to practice of public relations, with practical application of public relations, writing, and delivery strategies. Additionally, students will study the media and produce a communications plan.

CSTR101 Basic Home Construction & Tool Safety
Credits: 3 **Prerequisites: none**
This course introduces the student to the basics of tool and job site safety, floor systems, wall systems, roof systems with some emphasis on exterior finish (if time permits). Students will apply construction skills learned in the classroom in a practical lab setting.

CSTR103 Occupational Related Safety and Tool Usage
Credits: 3 **Prerequisites: none**
Students in attendance will learn the importance that safety has in the construction industry. Students will learn to identify and follow safe work practices as well as inspection of power equipment (portable and stationary), hand tools and also demonstrate the safe and proper use of each tool.

CSTR120 Rough Framing - Floors, Walls, Stairs, Trusses, Rafters
Credits: 5 **Prerequisites: CSTR103**
This course will introduce the student to the different components used for residential floor systems (joists, rim joist hangers, etc.), wall systems (king studs, timmer studs, headers, wall plates, rough sills, etc), roof systems (both truss and rafter), and basic stair building, with an emphasis placed on platform framing.

CSTR125 Construction Concepts & Building Lab
Credits: 3 **Prerequisites: CSTR103**
This course is intended to be implemented in conjunction with lecture and lab settings for classes CSTR103 and CSTR120 in a controlled lab setting to introduce and let the students practice the building procedures learned, along with the safety skills to be used on one of our building sites.

CSTR131 Windows, Doors, and Exterior Finishing
Credits: 3 **Prerequisites: CSTR103**
Students will learn about the installation of windows, exterior doors, locksets, and hardware. Also covered is the installation of exterior corners, soffits, fascia, cornices, and exterior sidings and in conjunction with CSTR171 Construction Concepts & Building Lab II.

CSTR135 Insulation and Energy Building Practices
Credits: 2 **Prerequisites: CSTR103**
This course will introduce students to energy efficient building and insulating techniques and practices. The lab component of this class will enable students to install batt insulation as well as loose fill insulation. The lab part of the insulation class will be done in conjunction with CSTR171 Construction Concepts & Building Lab in which the students will be installing insulation.

CSTR145 Drafting, Blueprint Reading, and House Development
Credits: 3 **Prerequisites: none**
Covers a graphic approach to problems involving residential drawings in orthographic and perspective design. Students will study blueprint symbols and working drawings and develop a residential house plan and develop a list of materials, time line, and cost breakdown from this working blueprint.

CSTR150 Roofing Applications
Credits: 3 **Prerequisites: CSTR103**
This course introduces the student to the materials used and the installation techniques of the various roofs. The student will learn about the different types of asphalt, fiberglass, cedar shakes, shingles, and the different styles of metal roofing -delta rib, standing seam, and metal shakes. We will be learning the different methods of sealing up the valleys. The student will be installing fiberglass shingles on a roof with a cricket for practice not only roofing but making a water-tight valley using the newer weaving pattern design.

CSTR160 Drywall Application and Finishing
Credits: 3 **Prerequisites: CSTR103**
Students will learn about the different thickness and types of drywall and where each thickness and types are used, and then the student will learn proper taping, the different finishing, and texture techniques.

CSTR165 Cabinet Installation, Interior/Finish/Paint
Credits: 2 **Prerequisites: CSTR103**
This course will include installing interior doors and hardware, interior casing, and base installation. Painting, staining, and applications of clear finishes will be used to complete surfaces, and cabinet installation.

CSTR171 Construction Concepts & Building Lab II
Credits: 3 **Prerequisites: CSTR103**
Students will learn about the installation of insulation, vapor barriers, windows, doors (both interior and exterior), siding soffits, fascia, cornices, proper gypsum board installation, interior finish, painting, staining, and clear coat finish of interior trim boards, and installation of cabinets.

CSTR200 Light Equipment and Rigging
Credits: 3 **Prerequisites: none**
Students will be introduced to the basic methods and safety procedures of moving material and equipment on the job site. Students will also learn the basic inspection techniques, knots, and load handling along with the American National Standards Institute hand signals. In addition the student will operate a skid steer, three forklifts each with different capacities, rough terrain forklift (extend-a-boom forklift), and scissor lifts. The student will be given the chance to operate additional equipment if available.

CSTR205 Computer Aided Design
Credits: 2
Prerequisites: Successful completion of first-year construction program courses
With AutoCAD, students will develop a complete set of house plans, with floor, elevations, joist, truss, cabinet, electrical, plumbing, typical wall section, and plot.

CSTR216 Advanced Structural Concepts & Building Lab III
Credits: 4 **Prerequisites: CSTR 103, CSTR125 & CSTR171**
Provides lab/site setting for application of building practices covered in third semester curriculum. Emphasis will be on advanced framing techniques for floor, wall, and roof systems. Building an onsite structure will also provide a setting for practical application of learning outcomes associated with CSTR200 Light Equipment and Rigging and CSTR260 Advanced Framing Systems.

CSTR218 Site Prep, Foundations, & Concrete Installation
Credits: 3
Prerequisites: CSTR103, CSTR125, CSTR171 & CSTR216
This course covers basic site layout, distance measurement, and leveling. Students will be introduced to concrete formulas, foundation and flatwork, as well as handling and placing concrete. The use of manufactured forms will also be covered in this course.

CSTR220 Construction Project Management
Credits: 2 **Prerequisites: CSTR103**
This course introduces topics such as licensing, code jurisdictions, building inspectors, record keeping, time lines, project development, ordering materials, supervision of construction, OSHA, employee rights, safety requirements, subcontractors, construction loans, punch lists, etc.

CSTR225 Decks and Patios
Credits: 2 **Prerequisites: CSTR103**
Emphasis will be on designing and identifying the different types of decks and patios. It will introduce students to traditional and new deck materials, different concrete-stamping methods, and types of placers. Several basic fence styles will also be described. Practical application will be in Building Lab III & IV.

CSTR226 Advanced Structural Concepts & Building Lab IV
Credits: 3 **Prerequisites: CSTR216**
Advanced Structural Concepts & Building Lab IV provides the lab/filed setting for the application of the building practices taught during the 4th semester classes. Primary emphasis will be on implementing the practices taught in CSTR218 Site Prep and Concrete and CSTR225 Decks and Patios. Other time may be spent on-site implementing live work components of some 3rd semester classes. The lab/shop settings as well as off-campus and on-campus projects may be used for guided practice, live work, and/or individual student assessment. Upon successful completion of CSTR226 students should be able to perform the student outcomes applicable to class safety, and in a suitable time frame allowable in the construction industry.

CSTR232 Stationary Machines & Joinery
Credits: 2 **Prerequisites: CSTR103**
Course CSTR232 introduces students to the use of stationary machines commonly used in a shop, lab setting. Emphasis will be on safety and general usages and applicable material processing and practices. The student should be able to name, recognize, and build the different components used in building a cabinet.

CSTR233 Advanced Stationary Machine & Joinery
Credits: 2 **Prerequisites: CSTR103**
This course covers the usage of a multi-pin borer, pocket cutters, European hinge cutter, and drill presses along with advanced dado blade techniques on the table saw. The student will be doing advanced material processing for the different components used in building a cabinet.

CSTR250 Construction Estimating
Credits: 3 **Prerequisites: CSTR103, CSTR125 & CSTR171**
This class introduces the students to the basic concept of construction estimating for both residential and light commercial construction with emphasis on residential. Students will learn how to use a construction calculator to estimate site-development, concrete costs, and all building materials associated with a construction project.

CSTR260 Advanced Framing Systems
Credits: 3 **Prerequisites: CSTR103, CSTR125 & CSTR171**
Students will expand knowledge of floor, wall, and roof systems by studying and applying techniques reflecting new technologies in both residential and light commercial construction.

CSTR270 Special Topics in Construction
Credits: 2 **Prerequisites: CSTR103, CSTR125 & CSTR171**
This class provides classroom and lab settings for the application of building practices including basic electrical, plumbing, masonry, and special topics.

CSTR288 Construction Internship
Credits: 3
Prerequisites: Successful completion of first-year construction program courses
This course enhances classroom learning with a real-life work experience. The host contractor provides on-the-job training. The student intern will gain valuable work experience and interact with professional construction workers and management personnel.

CT101 Introduction to Computer Technology
Credits: 1 **Prerequisites: none**
Introduces the students to computer hardware and software and their uses. It provides basic computer literacy concerning terminology, careers, and social issues related to computer, network, and information technology issues including ethics, crime, and copyright issues.

CT102 Introduction to Programming
Credits: 3 **Prerequisites: none**
This course is an introduction to elementary programming techniques using Pseudo code, and C#. A wide range of programs will be written by the student and run on a computer. Students learn the techniques of looping, functions and sub/routines, arrays, variables and data types, user input/output, file input/output, and appropriate programming practices.

CT115 Web Pages
Credits: 3 **Prerequisites: none**
Students will create complex web pages using a text editor and Dreamweaver MX development tools. Students will learn the basic elements of HyperText Markup Language (HTML), Cascading Style Sheets (CSS), Java Script, and EXtensible HyperText Markup Language (XHTML).

CT121 Perl Scripting for Administration
Credits: 3 *Offered Spring Semester*
Prerequisite: CT102 or consent of instructor
This class will familiarize the student in the use of the Perl scripting language for automating administrative and business operations. Topics include file system management, user administration, directory services, database administration, log files, security, and network monitoring. Students will implement Perl scripts on Windows and Linux platforms.

CT131 Visual Basic
Credits: 3 *Offered Spring Semester* **Prerequisite: CT102**
This course introduces event-driven computer programming using Visual Basic .NET programming language. Topics include input/output operations, syntax, program structure, data types, arithmetical operations, functions, loops, conditional statements, and other related topics. On-screen components such as command buttons, text boxes, and forms are also discussed. Students will write Windows programs to solve general problems.

CT161 Web Page Graphic Design
Credits: 2 *Offered Spring Semester*
Prerequisite: CT115 or consent of instructor
This course studies professional page layout and graphic design techniques for the Web. Students will learn to critique existing Web sites with an eye toward aesthetics and usability. Students will build effective site layouts based on visual design principles that enhance the site aesthetics. Through professional graphics tools, students will create Web graphics and animation. The impact of different design techniques on site accessibility will be discussed. Students will also learn to effectively use cascading style sheets (CCS) to stylize entire web sites.

CT181 Client Side Web Development
Credits: 3 *Offered Spring Semester*
Prerequisites: CT102 & CT115
This course focuses on the concepts of client side web development including AJAX Development covering JavaScript, DOM, XML, and Asynchronous page updates.

CT210 Project Management
Credits: 3 *Offered Spring Semester*
Prerequisite: One year of education or experience in an IT related field or consent of the instructor
This class introduces students to large-scale project management techniques, tools, and methodologies. It also involves a real or simulated case study.

CT216 Introduction to Object-Oriented Programming
Credits: 4 *Offered Fall Semester* **Prerequisite: CT102**
This course offers a thorough introduction to the concepts behind object-oriented software development, including the terminology and methodologies utilizing the Java Programming Language. This course provides the student with the fundamentals of programming with a focus on object-oriented techniques. These skills are needed to work effectively in the area of information technology. The ability to understand the relationship between data and the algorithmic manipulation of data is crucial in IT-related fields.

CT217 Advanced Java
Credits: 4 *Offered Spring Semester* **Prerequisite: CT216**
This course covers some of the more advanced topics of Java 2 Standard Edition and Java 2 Enterprise Edition. Topics covered include Java integration to databases (JDBC), Object Serialization, Exception handling, Advanced GUI development with Swing components, and multi-threaded applications. This course does NOT cover Servlets, JavaServer Pages, or Enterprise JavaBeans as they are covered in CT262.

CT218 Microsoft Server Administration
Credits: 4 *Offered Spring Semester*
Co-requisite: ELCR242
Students will install and use their own Windows 2000 Servers to explore server based operating systems administration techniques. Emphasis will be on security, Active Directory structure, user administration, performance, resource sharing, IIS and network access.

CT219 Unix
Credits: 3 *Offered Fall Semester*
Prerequisites: CT102 & ELCR242
Students are introduced to accessing a multi-user system. They also learn to manage files and directories in a shared environment. Topics include simple user administration, scripts, and network access.

CT227 PHP Web Development
Credits: 3 *Offered Fall Semester*
Prerequisites: CT131 & CT254
This course provides students with skills necessary to use the PHP scripting language to develop dynamic Web-based applications. Topics of study include the fundamentals of the scripting, using PHP with HTML forms, creating functions, and integrating with MySQL databases.

CT243 Web Server Administration and Security
Credits: 3 *Offered Spring Semester*
Prerequisites: CT219 & ELCR242
Explores issues dealing with building and managing a web server. Topics will include web server and network issues, Domain Name System, TCP/IP connectivity, server setup, web site administration, Internet commerce, and security. Students will implement web servers using Apache and IIS.

CT247 Operating Systems
Credits: 3 *Offered Spring Semester*
Prerequisites: CT121 Co-requisites: CT219
This class examines the fundamental concepts of operating systems and how they function. A hands-on approach will be used in acquiring an overall understanding of the basic tasks performed by operating systems. Topics include basic structure; synchronization and communication mechanisms; implementation of processes, process management and scheduling; memory management; I/O device management, secondary storage, and file systems.

CT253 Developing Web Applications
Credits: 3 *Offered Fall Semester*
Prerequisites: CT115, CT131 & CT254
This is an introductory course in ASP.NET server-side development. It is imperative that business and government offer accessibility to their customers and clients through interactive web pages. In this course, students will develop a fully-functioning interactive web site simulating an on-line business or government capability. Students will do their work using Microsoft Visual Studio and the Windows IIS web server.

CT254 Database Design and SQL
Credits: 4 **Prerequisite: Successful CT Placement**
This course focuses on the concepts of relational databases and includes tables, records and typed fields, primary and foreign keys, database normalization, and a through coverage of Structured Query Language, or "SQL." Through a variety of exercises, students will learn how to model a business enterprise using the entity-relationship approach to relational database design. The Oracle database is used for all exercises.

CT260 Systems Analysis and Design
Credits: 3 *Offered Fall Semester* **Prerequisite: CT254**
This course studies the concepts and skills needed to analyze and design information systems. The primary focus in this course is to prepare the student to understand the systems development life cycle. Special emphasis is placed on business functions, process flows, dataflow diagramming, entity relationship diagramming, and database requirements.

CT262 Web Databases
Credits: 4 *Offered Spring Semester*
Prerequisite: CT216 Co-requisite: CT253 & CT254
The focus of this class will be on the development of web-based front-ends to databases. Oracle and open source tools will be used to implement web database applications in multi-tier environments. Students will learn Java Servlets, Java Server Pages (JSP), and Enterprise JavaBeans (EJB).

CT264 PL/SQL Oracle Developer
Credits: 4 *Offered Fall Semester* **Co-requisite: CT254**
This course focuses on PL/SQL, the programming language extension to SQL; and database interface design using the Oracle Development tools. Students learn the proper PL/SQL coding techniques which include sequences, triggers, decision statements, looping, and cursors (recordsets). The course also focuses on interface design in forms and reports using the Oracle Development tools.

CT265 Capstone
Credits: 2 **Prerequisites: Instructor approval**
This course is a self-directed, integrated, and applied learning opportunity that integrates the coursework, knowledge, and skills gained in Computer Technology coursework. Students will be matched with an organization that needs assistance on an Information Technology project. Students will work with the organization and assigned Computer Technology Faculty to complete project. Project demonstration and required documentation will be presented at project completion.

CT266 Network Administration Seminar
Credits: 3 *Offered Spring Semester*
Prerequisites: ELCR227, CT218 & CT219
This seminar class focuses several topics. These include network architecture, security, network administration, documentation, and other networking topics pertinent to today's network administrator. Students work on projects that integrate the accumulation of knowledge from their previous classes and also work on projects that look at new and future topics for network administration.

CT268 Advanced.NET Applications
Credits: 3 *Offered Fall Semester*
Prerequisites: CT254 **Co-requisites: CT253**
This course covers advanced desktop and web application features of the .NET framework. Students will learn Exception Handling, Collections, Multithreading, .NET XML Web Services, .NET Remoting, ADO.NET, and Object Oriented Programming. Students will use Visual Basic.NET or C# language and Microsoft SQL Server for all projects.

CT270 Oracle Enterprise Applications
Credits: 4 O*ffered Spring Semester*
Prerequisite: CT264 or consent of instructor
This course is specific to Oracle's Enterprise Development applications. The topics covered are applicable to other enterprise database platforms such as IBM's DB2. Students will get in-depth hands-on experience creating numerous increasingly complex applications using JDeveloper and BPEL Designer. Java topics related to Oracle Applications will include JDBC database connectivity, mid-tier and Java in the Database as stored procedures, SQLJ, Web Services, and SOA.

CT287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

CT288 Internship
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
Designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. If done properly, it can be a highly rewarding experience and aid the student's transition from school to work.

DESL120 Hydraulics
Credits: 3 **Prerequisites: none**
This is an introductory course that will cover the basic theory and understanding of hydraulic principles as related to many components and systems covered in the advanced courses in the Diesel Technology program. In addition to the basic theory, the function of basic systems and components will be discussed.

DESL125 Hydraulics Lab
Credits: 3 **Prerequisites: none**
This lab will allow students to have a "hands on" approach to learning hydraulics. Using school owned hydraulic mock-ups the students will disassemble, inspect, and reassemble hydraulic pumps, motors, cylinders, electric controlled valves, and manual controlled valves. Students will learn how to identify, create, and trouble shoot hydraulic systems.

DESL135 Diesel Engine Repair
Credits: 6 **Prerequisites: none**
This course is designed to provide students with the knowledge and skills required to understand and repair various engine systems as used in the heavy-duty, diesel powered, on and off road equipment industry. Emphasis will be placed on pre-electronic diesel engines.

DESL200 Diesel Engine Performance
Credits: 6 **Prerequisites: MECH100, MECH110 & DESL135**
This is an advanced level course offered to second-year, Diesel Technology students. This course builds upon the knowledge and skills attained in the first-year courses MECH100 and MECH110 Electrical/Electronics, as well as DESL135 Diesel Engine Repair, to solve Diesel Engine Performance problems. Students will be exposed to maintenance, diagnostic and repair experiences involving a variety of systems on diesel-powered equipment. The Diesel Engine systems included are Starting, Charging, Accessory, Lighting, Instrumentation, as well as Diesel Engine Mechanical Fuel Systems, and Electronic Engine Control.

DESL210 Diesel Maintenance Practices
Credits: 5 **Prerequisites: none**
This is a preventative maintenance course for heavy-duty, diesel powered, on and off road equipment. This course familiarizes the student with routine service, inspection, and adjustment of the following component/systems: engine, power train, hydraulic, pneumatic, electrical, steering, braking, cooling and air intake systems. Lubricants, fuels, and filters will also be included. Students will also be exposed to annual DOT inspection of heavy-duty diesel trucks.

DESL235 Heavy Duty Manual Drive Trains
Credits: 5 **Prerequisites: none**
This course includes the basic fundamentals of manual drive trains including power flow, ratios, gears, bearings and seals, clutches, transmissions, drive lines, differentials, final drives, power takeoffs and specialty drives that are related to heavy duty, diesel powered, on and off road equipment.

DESL245 Heavy Duty Hydraulic Drive Trains
Credits: 3 **Prerequisites: none**
This course covers the fundamentals, operation, diagnosis, and repair of hydrostatic and power shift transmissions, torque converters and torque dividers that are related to heavy-duty, diesel-powered, on and off road equipment.

DESL255 Heavy Duty Brakes and Undercarriage
Credits: 6 **Prerequisites: none**
This course covers the adjustment, maintenance, troubleshooting, and repair of heavy-duty air-actuated brakes, dual air system valves and circuits, heavy-duty ABS systems, and hydraulic-assisted brakes as used with on and off road diesel powered equipment. This course also includes maintenance, adjustment, and repair of suspension systems as used with tandem axle diesel trucks and off-road equipment. Students will be exposed to alignment of solid I-beam front axles and 5th wheels as related to heavy-duty trucks.

DESL265 Applied Lab Experience
Credits: 8
Prerequisites: 2nd year standing or consent of instructor
This course builds upon the knowledge and skill attained in previous courses. It is intended to match students with live, practical lab experiences involving subject matter previously covered in other courses. When provided with diesel powered equipment in need of maintenance, service, inspection, or repair of any component or system that the student has had previous instruction while in the program, the student will interact with the customer/operator, generate the work order, and in a safe, efficient, and organized manner, set about to perform the proper operations needed to place equipment back into operation and complete documentation to close work order. This will be accomplished to meet customer requests, industry standards, and instructor's satisfactory critique of student performance and productivity with available resources.

DESL287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

DESL288 Internship
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course enhances classroom learning with a real life work experience. The host employer provides on-the-job training. The student intern will gain valuable work experience and interact with professional technicians and management personnel.

DESN101 Introduction to Interior Design
Credits: 3 **Prerequisites: none**
Design fundamentals as related to the study and practice of Interior Design. Students will be introduced to the career of interior design, the design process, elements and principles of design, and design concept. Other topics include materials, lighting, human factors, space planning, environmental design and health and safety design issues. Course will include lectures, media presentations, and class discussions.

DESN120 Beginning Space Planning and Design Concepts
Credits: 3 **Prerequisites: DESN101 and ARTS212**
Introduces fundamental concepts and methods for planning, organizing, and arranging spaces in the interior environment. Students will learn how to plan spaces with graphic tools and techniques to communicate space planning and conceptual design through two-dimensional drawings, schematics, and three-dimensional models. Students examine space in terms of human needs and factors, activities, and priorities and apply design processes to making the best functional and aesthetic use of space.

DESN130 Residential Studio
Credits: 3
Prerequisites: A "C-" or better in DESN101 and DESN120
This course emphasizes the problem-solving discipline of the design process and its application to residential design. Students develop concepts to achieve design goals and apply technical skills to their design solutions as they work on a variety of relevant interior design projects. Introduces interior materials and sources that would be selected and specified in residential spaces.

DESN140 Public Studio
Credits: 3
Prerequisites: A "C-" or better in DESN101 and DESN120
This course emphasizes the problem-solving discipline of the design process and its application to public design. Students develop concepts to achieve design goals and apply technical skills to their design solutions as they work on a variety of relevant interior design projects, which could include office, medical, and/or retail environments. This course introduces interior materials and sources that would be selected and specified in public spaces. Students will learn codes, regulations and laws as they relate to public interiors.

DFT150 AutoCAD 2D
Credits: 3 **Prerequisites: none**
An introduction to computer-aided design software using a 2D medium with emphasis on features, limitations, and considerations associated with the commands and characters.

DFT200 AutoCAD 3D
Credits: 3
Prerequisite: A "C-" or higher in DFT150 or consent of instructor
This course introduces the power of 3D in computer-aided design software and its application capabilities in the creation of advanced designs.

DFT210 Technical Drafting I - CAD 2D
Credits: 3
Prerequisite: A "C-" or higher in DFT200 or consent of instructor
Application of technical drafting technology using computer-aided drafting as the medium. Auxiliary views, revolutions, dimensioning, tolerancing, fasteners, design, and working drawing shall be covered, utilizing several working drawings.

DFT225 Architectural Drafting I - CAD
Credits: 3
Prerequisite: A "C-" or higher in DFT200 or consent of instructor
Application of construction architectural drawings using the power of CAD as the medium for drafting. This course utilizes working drawings to focus on scale to drawing parameters, symbol libraries, dimensioning, and drawing enhancement.

ECON255 Microeconomics
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
The course studies the market behavior of individuals, households, and businesses focusing on how individual choice influences and is influenced by economic forces. Areas of study include individual decision-making, pricing, supply and demand functions of firms, market structures, impacts of the government sector, and impacts of distribution of income alternatives.

ECON256 Macroeconomics
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
The course studies the market as a whole focusing on aggregate relationships such as unemployment, inflation, and business cycles. Areas of study include aggregate supply and demand, fiscal policy, money and banking, monetary policy, economic growth, impacts of government budget and deficit financing, and consequences of international trade.

ELCR110 DC Fundamentals
Credits: 3 **Prerequisites: none**
This course introduces the student to basic DC electrical theory. Topics include electrical quantities and units, electrons, conductors, insulators, Ohm's Law, volts-amps, resistance, power, wattage, and voltage divider circuits. Simple DC series, parallel, series/ parallel circuits are studied by simple DC network analysis.

ELCR111 AC Fundamentals
Credits: 3 **Prerequisites: ELCR110**
This course is an analytical study of series, parallel and series-parallel A.C. impedance networks, capacitors, inductors, reactance, resonance frequency and their behavior of an AC circuit. Kirchhoff's Law & network theorems are studied using complex math. Concurrently with an introduction to magnetism, A.C. and D.C. motors, transformers and generators. This course covers single phase & three phase AC circuit theory, and introduces the student to semiconductors and their applications.

ELCR115 DC Lab / Occupational Related Safety
Credits: 3 **Co-requisite: ELCR110**
This course provides practical experience in the basic principles of DC electricity. The relationships between voltage, current, and resistance are observed and measured. The course also includes soldering, assembly, and testing techniques as well as the evaluation of the performance of passive devices in electronic circuits. This course is a parallel course to ELCR110. The lab experiments confirm through tests and measurements, the principles of ELCR110.

ELCR116 AC Lab
Credits: 3
Prerequisite: ELCR115 **Co-requisite: ELCR111**
The objective of the AC Lab is to reinforce concepts learned in ELCR111 by providing hands-on experience. The course will familiarize students with test equipment, including meters, oscilloscopes and signal generators. The student will demonstrate comprehension of complex circuits by constructing circuits and verifying calculations with actual voltage and current measurements. The student will explore Impedance, AC/DC Waveforms, Phase Angle relationships, Inductance/ Inductive Reactance, Transformers, Capacitance and Capacitive Reactance, RC Time Constants, filter circuits, and RC/RL Wave Shapes. The course provides comprehensive, hands-on instruction in safety, troubleshooting, terminology, and the applications of basic AC circuits.

ELCR120 Circuit Fundamentals I
Credits: 3 **Prerequisite: ELCR111**
This course introduces students to the fundamentals of electronic circuits. It includes a study of schematic diagram symbols, passive devices like diodes and varistors, active devices such as vacuum tubes, transistors and other semi-conductor devices. The active devices are then combined with passive devices to form circuits. Students will construct and analyze basic configurations for transistor circuits and amplifiers.

ELCR121 Circuit Fundamentals II
Credits: 3 **Prerequisite: ELCR120**
This course introduces the student to oscillator circuits, frequency analysis, waveforms, and frequency mixing action. The student will be introduced to schemes used in Broadcast and two-way radio systems: AM, FM, PM and SSB modulation, detector circuits and antenna systems, as well as complex transmission and reception circuit theory.

ELCR126 Network Fundamentals (CISCO I)
Credits: 3 **Prerequisite: OT112 or equivalent**
This class is based on the CISCO curriculum. It is the first course in a four-course series. This class covers: Network terminology, the OSI Network model, standards for network topologies and network wiring, IP addressing, subnet masks, network administration, and network planning. An introduction to the concept of network routers and their role in networking will be discussed. The basic principles are reinforced with hands-on lab work.

ELCR135 Circuits Lab I
Credits: 3 **Prerequisite: ELCR116**
This parallel course is designed to improve student understanding of the concepts taught in ELCR120. Students will have hands-on experience with various semi-conductor devices, amplifiers, power supply, and rectifier circuits. They will be able to analyze and calculate various output voltages, waveforms, and the characteristics of semiconductor and amplifier configurations.

ELCR136 Circuits Lab II
Credits: 3 **Prerequisite: ELCR135**
Companion course to ELCR121, this course gives the student hands-on experience with devices explained in lecture, as well as experience assembling, testing, and tuning various circuits and components. Students will be able to calculate and analyze output voltages, frequencies, and waveforms, and see the results of complex system configuration. Students will assemble and tune an AM/FM radio receiver, using proper construction, and adjustment techniques.

ELCR140 Digital and Microprocessor Fundamentals
Credits: 4
Prerequisites: ELCR110 & ELCR115 or consent of instructor
This course covers the fundamentals of digital techniques used in electronic equipment, such as control systems, communication systems, and computer systems, and includes microprocessor basics, both software and hardware.

ELCR176 Router Technology (CISCO II)
Credits: 3 **Prerequisite: ELCR126**
This course is the second of four courses in the curriculum designed by CISCO for learning network administration. The course will cover routing theory and router configuration.

ELCR221 Land-Based Communications
Credits: 5 **Prerequisites: ELCR120 & ELCR135**
This course is designed to provide an understanding of land-based communications systems, including telephone, cellular telephone, and fiber optics. Primary emphasis is placed on the operation, installation, and maintenance of these types of equipment.

ELCR226 Radio Frequency Communications
Credits: 6 **Prerequisites: ELCR120 & ELCR135**
This course is designed to provide an understanding of radio frequency communications systems, including radio and TV broadcasting, two-way radio, microwave, and satellite. Primary emphasis is placed on the operation, installation, and maintenance of these types of equipment.

ELCR227 Routing & Switching (CISCO III)
Credits: 3 **Prerequisite: ELCR176**
The third course in the CISCO designed curriculum that leads to CCNA certification. The course focuses on variable length subnet masking (VLSM), Rip v2, single area OSPF, EIGRP, command-line interface switch configuration, Ethernet switching, VLANs, spanning-tree protocol, and VLAN trunking protocol. Students will build on and apply information from Networking Fundamentals and Router Technology courses. Material is presented with both lecture and hands-on activities.

ELCR231 Instrumentation Systems
Credits: 5 **Prerequisite: ELCR140**
This course is designed to give the student a working understanding of Instrumentation Systems theory. The course will cover the practical applications of industrial sensors, detectors, circuits, and systems. This course will provide a considerable amount of problem solving and troubleshooting. The course will also cover common instrumentation industry maintenance tasks such as calibrations, installation, and repairs.

ELCR236 Robotics and Control Systems
Credits: 6 **Prerequisite: ELCR231**
This course is designed to follow and complement the instrumentation systems course and to give the student a practical overview of the instrumentation and control industry. This course will cover the practical applications of industrial and research - oriented robotic actuators and other control devices. This course will also cover common types of motors, motor controllers, and power control circuitry as well as the practical concepts involved with hydraulics, pneumatics, valves, and other actuating devices. The course will also cover programmable logic controllers and electronic controllers. This course will eventually tie all of the instrumentation and robotics/control course information and skills together in challenging project assignments of complex instrumentation and control systems.

ELCR241 PC Troubleshooting - Basic
Credits: 3
Prerequisites: CT101 & OT112 or equivalent, or consent of instructor
This course is an in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components, computer maintenance, safety issues, and the introductory networking concepts. Through hands-on activities and labs, students will learn how to assemble and configure a computer, install operating systems and software, troubleshoot hardware, and software problems. Students may participate in a service learning activity for a not for profit organization. This course helps students prepare for CompTIA's A+ certification but does not emphasize that aspect (see ELCR242).

ELCR242 PC Troubleshooting - A+
Credits: 4
Prerequisites: CT101 & OT112 or equivalent, or consent of instructor
This course is an in-depth exposure to computer hardware and operating systems. Students learn the functionality of hardware and software components, computer maintenance, safety issues, and introductory networking concepts. Through hands-on activities and labs, students will learn how to assemble and configure a computer, install operating systems and software, troubleshoot hardware, and software problems. Students may participate in a service learning activity for a not for profit organization. This course helps students prepare for CompTIA's A+ certification.

ELCR244 Electronic System Service
Credits: 4 **Prerequisite: ELCR140**
This course will introduce the student to various types of equipment found in business environments, facsimile equipment, printers, copiers, networking these components and small network systems. Focus will be on understanding the technology with hands-on familiarization and troubleshooting to component level using electronics theory and test equipment. Printers will be looked at to a greater extent than the PC Troubleshooting course can allow.

ELCR276 WAN Technology (CISCO IV)
Credits: 3 **Prerequisite: ELCR227**
The fourth course in the CISCO series leading to the CISCO Certified Networking Associate (CCNA) exam. The curriculum focuses on Network design and advanced network management projects. Topics covered include Wide Area Networking (WAN) setup and design, Point to Point Protocol (PPP), ISDN, and Frame Relay. The class builds upon the previous three classes in the series by introducing WAN and related technologies from both a design and configuration point of view. In addition to the CISCO on-line curriculum, the course covers cable pinouts and introduces Network Address Translation (NAT) concepts and router configurations.

ELCR287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

ELCR288 Internship
Credits: 1-3
Prerequisite: consent of instructor and approval of the Department Chair
Designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. If done properly, it can be a highly rewarding experience and aid the student's transition from school to work.

ENG050 English Fundamentals
Credits: 3 **Prerequisites: none**
A review of fundamental writing skills, this course focuses on sentences and paragraphs. Students will develop short compositions that demonstrate control of the conventions of standard written English, sentence structure, and sequence of ideas. Course is offered Pass/No pass. The student post-tests in COMPASS and must earn an adequate score before taking higher-level English courses.

ENG100T Basic Writing
Credits: 3
Prerequisite: satisfactory placement score and/or completion of ENG050
This course reviews the basics of good writing and places emphasis on mastering the component parts of an essay, as well as the conventions of English grammar, usage, and mechanics.

ENG101 College Writing
Credits: 3
Prerequisite: A "C-" or higher in ENG100T or satisfactory placement score
This course provides experience in written expression of ideas in expository prose with emphasis on the development of ideas, awareness of audience, structure, and clarity.

ENG104T Workplace Communication
Credits: 2 *Offered Spring Semester* **Prerequisites: none**
The course introduces the basic demands for written communication in the workplace and emphasizes the elements of and strategies for effective communication in typical written formats, with particular attention paid to job applications, job inquiry letters, resumes, and interviews.

ENG107T Technical Communication
Credits: 3
Prerequisite: A "C-" or higher in ENG100T or satisfactory placement score
The course provides experience in communication formats typical of technical careers and places emphasis on writing as the craft of the critical thinker, involving analysis of audience, context, and purpose, as well as the ability to locate, synthesize, analyze, organize, and present information effectively.

ENG117T Effective Business Communication
Credits: 3 *Offered Fall Semester*
Prerequisite: A "C-" or higher in ENG100T or satisfactory placement score
Effective Business Communication will offer a survey of business communications and documents used in the typical organization: emails, letters, memos, and business reports. The course will offer advanced English grammar, usage, and mechanics with a focus on sentence-level accuracy. The course will emphasize the delivery of concise, correct, clear, accurate, and courteous written and spoken messages.

ENG122 Advanced English Composition
Credits: 3 **Prerequisite: A "C-" or higher in ENG101**
This course offers continued experience in written expression of ideas in expository prose with an emphasis on critical response, argumentation, and research. Areas of study include research methods, evaluating source materials, and formal documentation, critical review and evaluation, and presenting logical, coherent, and forceful arguments.

ENG201 Approaches to Literature
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
This course offers instruction in critical analysis of imaginative literature, fiction, poetry, and drama with emphasis on articulating strong responses to varied texts.

ENG210 American Literature
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
An introduction to American cultural traditions through readings and discussions of representative texts from the Colonial Period to the present. This course presents the richness of American literature-its thematic and stylistic range and its geographical and ethnic diversity.

ENG211 Introduction to Irish Literature
Credits: 3 *Offered Spring Semester - Even Numbered Years*
Prerequisites: none
Students will survey Irish literature in English ranging from the mythological to the modern. The course will explore how a literature with a long history evolves and how it defines and expresses a cultural identity. Texts will include fiction, poetry, plays, videos, and prose.

ENG221 Comparative Literature
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This course surveys literature in an international framework. Students explore relationships among cultures through analysis of literary texts from diverse societies and eras.

ENG222 Introduction to Creative Writing
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This course is designed to give students experience with generating and developing original works of poetry and short fiction through two methods: analysis and discussion of works by practicing authors, and drafting and polishing their own work through workshops and writing tanks.

ENG223 Creative Nonfiction
Credits: 3 *Offered Occasionally* **Prerequisites: none**
Students will gain confidence and competence in writing through journal writing and then taking those journal entries and creating essays. The journal exercises will be guided exercises, designed to elicit a variety of responses and ideas from the students.

ENG225 Introduction to the Novel
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
The course introduces critical analysis of the novel, with an emphasis on articulating strong responses to varied texts.

ENG227 Introduction to Shakespeare
Credits: 3 *Offered Spring Semester - Odd-Numbered Years*
Prerequisites: none
This course introduces students to the drama of Shakespeare. Students will use critical approaches to read and analyze representative plays from the tragedies, comedies, histories, and romances.

ENG230 - 240 Special Topics Variable
Credits: 3 *Offered Occasionally* **Prerequisites: none**
This is an omnibus course, in which students will analyze and interpret selected literature, usually from a specific genre, period, or of a particular author or defined group of authors, depending upon the specific course offering. Specific course offerings may be experimental, intended as one-time only, or intended as part of a catalog of offerings that may be offered or rotated on a periodic basis.

ENG251 British Literature: Pre-1800
Credits: 3 *Offered Fall Semester - Even-Numbered Years*
Prerequisites: none
In this survey of representative texts from the Anglo Saxon period through the Enlightenment, students will explore a range of approaches to the development of British literature.

ENG252 British Literature: 1800 - Present
Credits: 3 *Offered Fall Semester - Odd-Numbered Years*
Prerequisites: none
In this survey of representative texts from Romanticism to postmodernism, students will explore a range of approaches to the development of British literature and cultural identity.

EVSC120 Introduction to Water Resources
Credits: 3 **Prerequisites: none**
This course provides a basic introduction to the fundamental concepts, techniques, and knowledge required to understand and manage water resources. The course will provide an introduction to a variety of water resource topics including: water resources terminology, the principles of the hydrologic cycle, water balance techniques, hydrology, hydrogeology, basic computational techniques, historic water information, water law, and water rights overview. Through the use of professional sources, the students will develop a working knowledge of the hydrologic, water quality, legal, economic, political and social factors that determine water availability, hazards, use, demand, and allocation.

EVSC130 Introduction to Environmental Science
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
This course is designed to introduce non-science students to important science-related issues in the world around us. The class will examine environmental issues and relate them to current problems in Montana and the United States. Class discussions will emphasize the basic scientific principles needed to evaluate scientific problems, with examples based on areas of state and local concern.

EVSC140 Introduction to Geographic Information Systems (GIS)
Credits: 3 *Offered Fall Semester*
Prerequisite: A "C-" or higher in EVSC130 or consent of instructor
This course teaches the basics of Geographic Information Systems (GIS) and the science and technology behind it. Students will be introduced to the fundamentals and methods of spatial data collection, processing, analysis, and cartography.

EVSC230 Nature and Society
Credits: 3 *Offered Spring Semester*
Prerequisites: ENG101 or ENG107
This course is designed to provide students with an understanding of the relationship between human society and the environment and how it has changed through the growth of modern civilization. The course applies the idea that true environmental studies are a mixture of multiple disciplines and not just a science topic. The course is presented to allow students flexibility to draw and present their own conclusions, similar to a philosophy course in the humanities. Students will read from multiple sources, and class discussions will reflect topics of student interest and their applications to modern society.

EVSC240 Geographic Information Systems (GIS)
Credits: 3
Prerequisites: A "C-"or equivalent in EVSC140 or consent of instructor
Geographic Information Systems (GIS) are used for the creation, storage, representation, research, and analysis of spatial information in a digital environment. This course expands on the fundamentals and principles of GIS and cartography learned in the Introduction to Geographic Information Systems course. Students will learn the processes, procedures, and the critical thinking involved with performing geospatial analysis. The course will entail a hands-on lab that focuses on GIS concepts and techniques utilized for data design, analysis, and map creation. Each student is required to conduct his or her own individual research project, which will consist of model building and design for spatial analysis.

FIRE101 Introduction to Fire Service
Credits: 3 **Prerequisites: none**
This course will introduce the student to the fire service and covers basic information needed to understand the fire protection career field. Basic terms, facts, and pieces of equipment used by the fire service will be shown and used during this course.

FIRE103 Fire Fighter Safety
Credits: 3 **Prerequisites: none**
This course will allow the student to learn the reasons for firefighter deaths and injuries. It is designed to allow the student to develop and use safe working practices in fire fighting. The course covers OSHA and NFPA standards relating to firefighter safety, types of protection equipment, and their use and care.

FIRE105 Emergency Medical Technician - Basic
Credits: 4
Prerequisites: Hepatitis B Vaccines, Tuberculosis test (current or within past 6 months)
This course covers all emergency medical techniques currently considered to be within the responsibilities of the EMT-B providing emergency care with an ambulance service. Course involves classroom, in-hospital observation, and clinical experience. The purpose of the training is to ensure individual competency in each student by the successful completion of each objective.

FIRE106 Wildland Fire Fighting
Credits: 3 **Prerequisites: none**
This course introduces the methods, equipment, and terminology specific to wildland fire fighting. Students will learn the behavior of wildland fires and federal wildland firefighting procedures and references.

FIRE107 Personal Physical Fitness I
Credits: 1 **Prerequisites: none**
Emergency personnel must maintain healthy physical conditioning to handle the physical demands of responding to emergency incidents. Students in this course will learn effective workout habits and improve their own body conditioning.

FIRE108 Personal Physical Fitness II
Credits: 1 **Prerequisites: none**
Emergency personnel must maintain healthy physical conditioning to handle the physical demands of responding to emergency incidents. Students in this course will learn the importance of choosing and maintaining a career long life style that includes good nutrition and physical conditioning.

FIRE110 Hazardous Materials
Credits: 3 **Prerequisites: none**
This course covers a basic introduction to hazardous materials, their definition types, hazards, and characteristics. Students will be introduced to hazardous materials and the first responder's responsibility when responding to a hazardous materials incident.

FIRE120 Emergency Services Customer Service
Credits: 2 **Prerequisites: none**
This course will familiarize the student with the techniques necessary to establish positive relationships with the community, the fire service, and all other groups that are called upon to mitigate the effects of emergency and disaster situations. The student will become familiar with basic emergency policies dealing with equal employment opportunities, discrimination, and harassment and will develop a professional self-image.

FIRE121 Incident Command
Credits: 1 **Prerequisites: none**
A firefighting team needs to know who is in charge and how to effectively respond to the incident commander. This course focuses on the vital importance of incident command and commonly accepted practices.

FIRE123 Electronic Communications
Credits: 1 **Prerequisites: none**
This course covers communication equipment, radio frequencies, and proper communication techniques for emergency situations.

FIRE125 Emergency Equipment Maintenance
Credits: 2 **Prerequisites: none**
This course provides practical experience with the proper maintenance of all types of emergency equipment. The maintenance of firefighting and medical emergency equipment will be taught along with the basic maintenance of emergency vehicles.

FIRE130 Fire Apparatus Operation
Credits: 3 **Prerequisites: none**
This course covers the major types of firefighting apparatus such as pumpers, aerial apparatus, aircraft crash vehicles, and other support vehicles. Students will be taught operation and operator maintenance of these specific vehicles.

FIRE140 Fire Fighting Tactics and Strategies
Credits: 3 **Prerequisites: none**
Basic firefighting tactics and strategy used in all types of fire emergencies are taught in this course. Pre-planning, size-up, and applications of tactics based on the selected strategy are described and simulated for student learning.

FIRE202 Instructional Methodologies
Credits: 2 **Prerequisites: none**
Students will learn the basics of training other fire fighters at the company, battalion, or department level. Various methods of instruction, testing, and delivery will be discussed and practiced along with utilizing sources of instructional materials and the legal restrictions placed upon them.

FIRE210 Aircraft Rescue and Fire Fighting Basic Training (ARFF)
Credits: 2
Prerequisites: Students must be physically able to secure SCBA's, perform physically demanding tasks, and supply their own NFPA approved clothing.
This course is aimed at providing students with the fundamental knowledge and skills necessary to effectively handle an aircraft emergency in accordance to FAR 139. It will contribute to the student's knowledge of basic fire fighting and rescue principles.

FIRE215 Fire Streams
Credits: 2 **Prerequisite: FIRE130**
A fire fighter must be capable of understanding and calculating water hydraulics and fire stream flows in order to perform basic fire suppression duties as a member of a team. This course emphasizes the importance of fire streams.

FIRE225 Fire Officer
Credits: 2 **Prerequisite: FIRE120**
The duties of a fire officer at the company level in the fire service are taught in this course. Students will gain valuable leadership experience while performing the roles and responsibilities of a fire officer.

FIRE232 Basic Wildland Supervision
Credits: 2 **Prerequisite: FIRE106**
Basic supervision of wildland firefighting crews and equipment is covered in this course, as well as intermediate fire behavior. Effective use of personnel and equipment as well as resource typing will be emphasized.

FIRE234 Fire Protection Systems
Credits: 3 **Prerequisites: none**
This course covers fire and smoke behavior with emphasis placed on detection, suppression, and the methods of automatic and manual extinguishments. Detection and sprinkler systems will be discussed.

FIRE241 Fire Inspection
Credits: 3 **Prerequisites: none**
This class focuses on codes, prevention, and inspections. It covers the basic information required to complete a basic fire inspection and serves as an introduction to the codes and regulations that apply to building inspection.

FIRE242 Rescue
Credits: 3 **Prerequisites: FIRE101 & FIRE103**
Basic rescue techniques, tools, and equipment are covered in this class. Students will participate in auto extrication and high-angle rescue techniques.

FIRE250 Fire Ground Operations
Credits: 2
Prerequisites: FIRE101, FIRE103, FIRE130 & FIRE242
Individuals working together as a functional company unit will prepare for and demonstrate to State Certifications. This class monitors the knowledge and physical ability to perform the tasks required by the certification process.

FIRE260 Fire Investigation
Credits: 3
Prerequisite: Knowledge of fire behavior obtained through successful completion of first year Fire and Rescue program courses.
This course covers basic fire cause determination techniques. Students will learn to find the area of origin, how the fire started, and the basics of arson detection and prosecution.

FIRE261 Building Construction
Credits: 1 **Prerequisites: none**
Students will learn basic building construction techniques and types as they relate to fire fighter safety, fire behavior, and building behaviors when subjected to fire. The National Fire Academy Building Construction Series will be given special emphasis.

FIRE270 Fire Prevention
Credits: 3 **Prerequisites: none**
Students are provided fundamental information regarding the history and philosophy of fire prevention. Topics included are the organization and operation of a fire prevention bureau, use of fire codes, identification and correction of fire hazards, the relationship between fixed fire suppression systems, fire loss mitigation, fire inspections, and fire and life safety public education programs.

FIRE288 Capstone
Credits: 2 **Prerequisite: FIRE101**
This capstone course is designed to assist the fire fighting student to synthesize prior knowledge gained in the fire fighting curriculum. It also provides the student information regarding the current status of fire fighting. This course is also designed to meet specific learning needs of students in their final semester of course study. There are independent study projects focusing on learning opportunities not otherwise offered in our college curriculum. Among the choices offered to the student, he or she may design projects within this course to target his or her own learning needs. The student must seek prior approval of an instructor willing to serve as a Faculty Sponsor. The student then initiates a proposal describing specific learning outcomes and an evaluation process for the projects. Final grading in the course also depends on the student successfully preparing a comprehensive report and presenting to the sponsoring organization and/or peers.

FIRE289 Fire Service Internship
Credits: 2
Prerequisites: EMT-B Registry, third-semester standing
The student will report for duty with a combat shift of firefighters in an approved uniform with proper personal protective equipment. The student will be assigned to a firefighter mentor who will demonstrate the duties of a firefighter during real working shifts. The student will participate in all activities that the firefighters would be expected to perform during normal working days including physical training, equipment inspections and maintenance, station cleanup, drills, training, fire inspections, and emergency response. The student will not be allowed to perform any offensive firefighting duties that would require entering a IDLH atmosphere. The student will not be allowed to drive the host fire department's apparatus.

GEN265 A.S. Capstone
Credits: 2 **Prerequisite: consent of instructor**
This capstone is required for an Associate of Science degree. During the final semester of work, students will work on projects that will allow them to utilize their skills in research, presentation, science knowledge, and communication skills.

GEN270 A.A. Capstone
Credits: 2
Prerequisites: consent of instructor and simultaneous enrollment in a capstone-designated course
Capstone credits are required for an Associate of Arts degree and are registered for as GEN270. The credits are obtained by doing extra work under the direction of the instructor of a capstone-designated course in which the student is simultaneously enrolled. The capstone portion must be a self-directed, integrated, and applied learning opportunity that integrates the coursework, knowledge, skills and experiential learning acquired during the coursework leading to the A.A. degree in such a way that the student can demonstrate a broad mastery of academic and professional abilities. As such, students may expect to draw on the social, historical, aesthetical, and ethical perspectives germane to this course through an analysis of a critical issue that may be expressed in some combination of project product and writing. Please refer to Section IV Capstone on page 31 of this Catalog.

GEN275 Mental Health Direct Care Capstone
Credits: 2 **Prerequisites: PSYC101**
This course is the Mental Health Direct Care Capstone. It provides the student with two aspects of mental health direct care. First, it is an overview of the mental health system. Included in this are 1) the different professionals within mental health (psychiatrists, psychologists, case managers, psychotherapists), 2) levels of care (from outpatient to hospitalization), 3) political backdrop of mental health care, 4) governmental programs in mental health care (local, state, federal), 5) training in suicide prevention techniques, 6) training in dealing with violent mentally ill patients, and 7) advocacy programs available for mental health issues. Second, it provides an internship at a mental health care facility where students will gain hands-on experience providing direct mental health care.

GEN287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

GEN288 Internship
Credits: 1-3
Prerequisites: Students must have successfully completed at least two semesters (30 credits) in General Education courses and/or be recommended by a faculty member in order to become eligible for a student intern position.
This course is designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. It is designed to be a highly rewarding workplace experience to give the student exposure to real workplace conditions, with the opportunity to enhance his/her resume and to aid in the student's transition from school to work.

GEOL211 Physical Geology with Lab
Credits: 4 *Offered Spring Semester* **Prerequisites: none**
This course is designed as both a general interest and application-based course for understanding natural processes that affect the earth's surface. Topics include geologic history, mountain building, formation of the continents, earthquakes, weathering and erosion, rock and mineral identification, and physical and chemical aspects. It serves as a entry level geology course for those who wish to pursue geology professionally or as a terminal course for those who wish to have a general knowledge of geologic principles.

HIST150 The History of Montana
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This course offers a comprehensive study of the social, economic, cultural, and political development of Montana, with an emphasis on critical reading, interpretation, research, and written analysis.

HIST170 History of the American West
Credits: 3 *Offered Occasionally* **Prerequisites: none**
A survey of the social, economic, political, and environmental history of the United States west of the Mississippi River from prehistory to the Second World War. This course emphasizes the analysis and interpretation of the events, trends, and personalities that characterized the American West and its impact on U.S. History.

HIST201 U.S. History: Settlement to Reconstruction
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
This class offers a survey of the political, constitutional, and diplomatic history; economic history; and social, intellectual, and cultural history of the United States from the first settlement to the Civil War, and emphasizes a substantive understanding of the events, trends, and personalities of U.S. history, and the development of skills in analysis and communication.

HIST202 U.S. History: Reconstruction to Present
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This class is a survey of the political, constitutional, and diplomatic history; economic history; and social, intellectual, and cultural history of the United States from the Civil War to the present day. Emphasizes a substantive understanding of the events, trends, and personalities of U.S. history, and the developmental of skills in analysis and communication.

HIST205 U.S. History: Post-World War II
Credits: 3 *Offered Fall Semester* **Prerequisites: none**
A comprehensive overview of United States history from 1945 to the beginning of the Reagan Era in 1980, this course includes reading, lecture/discussions, and audiovisual materials that address key issues that faced the United States in the wake of World War II. Topics include the Cold War and nuclear weapons, Nixon, the civil rights movement, the Korean and Vietnam wars, popular culture, the Baby Boom, Television, and the Space Program.

HR100T Human Relations
Credits: 2 **Prerequisites: none**
Students will survey the human components of successful working environments with an emphasis on awareness of human/workplace needs, self-awareness, and responsibility to relationships in the workplace.

HR101 College Success
Credits: 2 **Prerequisites: none**
Students will learn to use campus resources effectively, learn to use a variety of study strategies for college work, and explore personal learning styles and temperaments. The course is intended to offer a supportive environment to help students begin college feeling confident in their skills and knowledge of what will be expected of them at this level, and to further clarify their own goals for postsecondary education.

HR110T Career Development and Human Relations
Credits: 3 **Prerequisites: none**
This course serves as an introduction to the working environment, emphasizing self-awareness and responsibility to relationships, as well as the written and oral interactions necessary to gain employment: resumes, cover letters, applications, and interviews. Recommended for students in their third or fourth semester.

LANG101 Elementary Spanish
Credits: 4 *Offered Fall Semester* **Prerequisites: none**
This introductory course prepares students for basic communication in Spanish and presents fundamentals of the language holistically through listening, speaking, reading, and writing. The course also explores cultural information.

LANG102 Elementary Spanish II
Credits: 4 *Offered Occasionally* **Prerequisites: LANG101**
This second semester of Spanish is designed to prepare students for basic communication in Spanish. It presents fundamentals of the language holistically through listening, speaking, reading, and writing. Development of conversational skills is an integral part of the course. Cultural information will be presented.

MACH110 Machine Shop
Credits: 3 **Prerequisites: none**
This course includes an emphasis on shop and work area safety. Instruction covers standard shop work, such as measurement, layout, basic hand tools, drills, drill presses, and taps and dies. Use of pedestal grinder will be covered. Work assignments incorporate projects requiring use of the above machines, tooling, and emphasize safety.

MACH115 Introduction to Engine Lathes
Credits: 5 **Prerequisites: none**
This course covers tool bit grinding, facing, turning, boring, parting off, threading, tapering, knurling, trepanning, between center work, and use of faceplates and steady rests. Engine lathe safety will also be covered. Use and care of precision measuring tools will be included.

MACH120 Introduction to Mills
Credits: 5 **Prerequisites: MACH110**
The course covers all types of vertical and horizontal milling machines and use of all related mill accessories. Work assignments incorporate projects requiring use of the above machines and tooling.

MACH125 Blueprint Reading for the Machinist
Credits: 2 **Prerequisites: MACH110**
Blueprint reading covers orthographic projection, line identification, auxiliary and sectional views, dimensioning of drawings, common abbreviations, tolerancing, and sketching techniques.

MACH132 Advanced Lathes
Credits: 5 **Prerequisites: none**
The Advanced Lathe course will use engine lathes to manufacture industrial parts. The use of assorted cutting tools and support tooling, such as form tools, carbide inserts, taper attachments, follower, and steady rest. Close tolerance machining required. Actual customer projects will be incorporated into the course work. Safety concerns for both machines will be reviewed.

MACH137 Advanced Mills
Credits: 5 **Prerequisites: none**
The Advanced Mills course will utilize the horizontal and vertical mills in the lab. The use and care of rotary tables, indexing heads, end mills, slab mills, gear cutters, carbide cutters, criterion, and line boring will be covered. The various work holding methods, location methods, process planning and operations will be discussed. Safety concerns for both machines will be reviewed. Actual customer projects will be incorporated into the course work.

MACH140 Grinding Applications
Credits: 2 **Prerequisites: none**
The course covers setup, use, and safety requirements of grinding machines. Hands-on use of machines will be emphasized.

MACH205 Tooling and Fixtures Used in CNC
Credits: 2 **Prerequisites: Successful completion of first year**
Tooling and fixtures used in CNC are discussed and applied in the lab and classroom. These topics will be discussed so students will be able to select the most useful work holding fixture for the job. Information concerning cutting tools is also important to the understanding of machining processes. The selection of cutting tools and cutting tool information is one of the most multifaceted areas of study. The student will study the selection of tools based on the machining operation and part geometry. The use of formulas and reference materials will be studied in the classroom and lab for use on CNC machines.

MACH210 CNC Turning Operations Level 1
Credits: 3 **Prerequisites: Successful completion of first year**
This course is an introductory course for safe operation of CNC turning centers. This type of machine makes many types of round parts that are used in industry today. This course will introduce students to work holding devices and installation of tools, setting offsets, and establishing the machines part reference zero. In addition students will learn how to set tool and geometry offsets and make minor changes to offsets to manufacture parts.

MACH212 CNC Turning Programming and Operations Level 2
Credits: 3 **Prerequisites: MACH210**
This class introduces students to Word Address programming; this type of code is used to program CNC Turning Centers. The learner will write very simple programs and set-up and run his or her programs on the CNC turning center. Students will use basic "G" codes to create part features such as faces, outside diameters, and holes. Learners will edit and write simple programs to create these common part features. The goal will be to write simple programs and progress to CNC programs that are safe, effective, and efficient.

MACH218 CNC Turning Programming and Operations Level 3
Credits: 3 **Prerequisites: MACH210 & MACH212**
Advanced uses of the CNC Turning Center are discussed and implemented. Complex cycles for turning, facing, threading, tapers, and cutter compensation will be discussed. Advanced "G" and "M" codes will also be covered.

MACH220 CNC Milling Operations Level 1
Credits: 3 **Prerequisites: none**
This course is an introduction to CNC Machining Centers. These machines produce many of the flat, round, square, and other shapes found in manufacturing shops. The student will learn machine wake-up procedures, setting offsets for tools, and setting part reference zero. Also the manipulation of tool offsets to produce quality parts will be taught. Safety practices and machine maintenance will be also covered.

MACH222 CNC Milling Programming and Operations Level 2
Credits: 3 **Prerequisites: None**
This class introduces students to Word address programming (G and M code); this type of code is used to program CNC Machining Centers. Students will write programs, set-up, and run their programs on the CNC Machining Center. Students will use basic "G" codes to create part features such as slots, bores, grooves, and holes. Students will edit and write programs to create these common part features. The goal will be to write programs and progress to CNC programs that are safe, effective, and efficient.

MACH224 CNC Milling Programming and Operations Level 3
Credits: 3 **Prerequisites: none**
Advanced uses of the CNC Machining Center are discussed and implemented. Complex cycles for pockets, boring, threading, cutter compensation, and advance controller features are covered, as well, advanced "G" and "M" codes. Students will learn to use loops, multiple work programming techniques, subprograms, and cycles in programs to shorten and simplify programs. All these programming approaches will be performed on 3 axis and 4 axis machining centers. Students will also learn advanced techniques for making programs run more efficiently.

MACH241 CAD/CAM for the CNC Turning Center
Credits: 5 **Prerequisites: none**
Computer Aided Design and Computer Aided Manufacturing have become the norm wherever CNC Turning Centers are used. Students will use the Mastercam software to create geometry, setup tools, and produce machining operations for the CNC Turning Center. Turned part features such as faces, diameters, steps, slots, contours, holes, etc. will be included. Students will post process their CAD/CAM files to generate the CNC programs to program CNC Turning Centers.

MACH242 CAD/CAM for the CNC Machining Center
Credits: 5 **Prerequisites: none**
Using Mastercam, students will learn to create milling operations for the CNC Machining Center. The student will draw geometry, select tools, speeds and post process machining operations for tapping, pockets, bored holes, and text. The student will then learn to create 2-D and 3-D shapes and create the machining operations necessary to manufacture them. Once the file has been created and post processed, the learner will export "G" code to the machine and run the part.

MACH245 Metallurgy
Credits: 1 **Prerequisites: MACH110**
The student will learn about types of ferrous and nonferrous metals and their applications. Metal numbering systems and the types of heat-treating will also be covered.

MACH250 Shop Practices
Credits: 2
Prerequisites: MACH110, MACH115, MACH120 & MACH125
This is an on-going semester course during normally scheduled shop hours. It is intended to match spring semester students with live, practical shop experiences involving subject matter previously covered in other courses. Emphasis will be on productivity.

MACH260 Project Management
Credits: 2 **Prerequisites: MACH140 & MACH245**
During the final semester of course work, the student will work with an assigned advisor from the machine shop. This two-credit course will be the capstone project and will demonstrate a comprehensive knowledge of topics and concepts covered in the Metals Technology program.

MAT060 Pre-Algebra
Credits: 3 **Prerequisites: none**
A review of basic math skills, this course focuses on addition, subtraction, multiplication, and division of whole numbers; decimals, fractions, and signed numbers; the order of operations; ratios; proportions; and percentages. This course is Pass/Fail.

MAT100T Introduction to Technical Math
Credits: 1 **Prerequisites: none**
Required in certificate programs.
This course reviews basic math skills commonly used in the technical occupations, including fractions, decimals, ratios, and formulas specific to the students' trade areas.

MAT105T Technical Math Extended
Credits: 4
Prerequisites: MAT060 or satisfactory placement score
This course combines MAT110T Technical Math with the development of basic arithmetic skills topics. This course includes fractions, decimals, ratios, proportions, formulas, and word problems. Topics studied are metric and standard American measurement systems, linear equations developing applied skills in practical geometry, solid figures, and basic trigonometry. The course includes 30 hours of lab.

MAT110T Technical Math
Credits: 3
Prerequisites: MAT060 or satisfactory placement score
This course includes fractions, decimals, ratios, proportions, formulas, and word problems. Topics studied are metric and standard American measurement systems, linear equations, developing applied skills in practical geometry, solid figures, and basic trigonometry.

MAT112T Technical Math for Carpentry
Credits: 2 *Offered Fall Semester*
Prerequisites: MAT060 or satisfactory placement score
The course reviews basic math skills commonly used in carpentry. It covers fractions, decimals, ratios, formulas, and geometric concepts as applicable to the carpentry trade.

MAT114T Technical Math for Electronics
Credits: 4 *Offered Fall Semester*
Prerequisites: MAT060 or satisfactory placement score
The course reviews concepts of algebra and trigonometry commonly used in electronics technology.

MAT120T Applied Business Math
Credits: 3
Prerequisites: MAT060 or satisfactory placement score
This is an applied course designed to meet the needs of business students. Topics include working with decimals, ratios and percentages; solving basic algebraic equations and applied business problems; calculating discounts, markups, and payroll deductions, simple and compound interest, annuities, and future and present values.

MAT130T Introductory Algebra
Credits: 3
Prerequisites: MAT060 or satisfactory placement score
This course serves as an introduction to algebra which includes a review of signed numbers, the study of algebraic expressions, linear equations, linear inequalities, exponents, radicals, polynomials, and graphs of linear equations and simple quadratic equations. This is the first in a sequence of courses leading up to College Algebra, MA108 or Math for the Liberal Arts, MA107.

MA100D Intermediate Algebra
(occasionally transferable)
Credits: 4
Prerequisites: A "C-" or higher in MAT130T or satisfactory placement score
The study of linear equations, systems of equations, absolute value inequalities, and graphing; polynomials; rational expressions and equations, radicals, rational exponents, complex numbers; and quadratic equations. This course is the second in a sequence leading up to College Algebra, MA108 or Math for the Liberal Arts, MA107.

MA107 Math for the Liberal Arts
Credits: 3
Prerequisites: A "C-" or higher in MA100D or satisfactory placement score
This course is designed to meet the general education mathematics requirement for the liberal arts major. It surveys some of the important ideas and practical applications in mathematics and uses algebra skills to solve real problems. Topics include problem solving, financial math, mathematical modeling (linear and quadratic), and elementary statistics.

MA108 College Algebra
Credits: 3
Prerequisites: A "C-" or higher in MA100D or satisfactory placement score
This is a study of equations and inequalities including systems; functions and graphs, polynomial, rational, exponential and logarithmic functions and graphs, sequences and series and the binomial theorem.

MA110 Probability and Linear Mathematics
Credits: 3 *Offered Fall Semester*
Prerequisites: A "C-" or higher in MA100D or satisfactory placement score
This course is intended to give an overview of topics in finite mathematics together with their applications. Topics covered include linear equations and functions, systems of linear equations and matrices, sets and counting, probability and statistics, and finance.

MA112 College Trigonometry
Credits: 3 *Offered Spring Semester*
Prerequisites: A "C-" or higher in MA108 or satisfactory placement score
A complete course in trigonometry including trigonometric functions and identities, inverses, polar and Cartesian graphing, Law of Sines and Cosines, vectors, and parametric equations.

MA113 Trigonometry Review
Credits: 1 *Offered Occasionally*
Prerequisites: A "C-" or higher in MA108 or satisfactory placement score
An abbreviated course in trigonometry designed as a refresher course in trigonometry to prepare students for calculus. Topics include radian and degree angle measures, unit circle trigonometry, triangle trigonometry, graphing of the trigonometric function and identities.

MA120 Calculus I
Credits: 4 *Offered Fall Semester*
Prerequisites: A "C-" or higher in MA112 or passing score on placement test
The subject of this course is single variable calculus. Topics include functions, limits, continuity, differentiation, tangents, implicit differentiation integration, Mean Value Theorem, integration, Fundamental Theorem of Calculus, logarithmic, exponential functions, and applications of integration.

MA121 Calculus II
Credits: 4 *Offered Spring Semester*
Prerequisites: A "C-" or higher in MA120 or satisfactory placement score
Topics include work, fluid pressure and force, transcendental functions, applications of integration, techniques of integration, improper integrals, infinite series and convergence test, Power series, Taylor's theorem, polar coordinates, and parametric equations.

MA220 Statistics
Credits: 3
Prerequisites: A "C-" or higher in MA107 or higher or consent of instructor
Capstone eligible
The course gives students a basic introduction to the fundamental concepts and methods of statistics. Topics include: frequency distributions, measures of central tendency, measures of dispersion, fundamentals of probability, binomial distribution, estimation, confidence intervals and hypothesis testing for normal distributions, correlation, and simple linear regression.

MECH100 Electrical / Electronic Systems
Credits: 6 **Co-requisites: MECH101 and MECH110**
This is an introductory electrical course for Automotive and Diesel Technology students, one of the Mechanical Core courses offered to both Automotive and Diesel Technology students. This course is designed to give students the basic electrical/electronic knowledge. The course progresses from electrical/electronic theory, circuits and circuit failure, meters, and components through to starting and charging systems. Emphasis will be placed on developing a knowledge base needed to diagnose and repair general automotive and diesel electrical system malfunctions. This course is taught in conjunction with MECH110 Electrical/Electronic Systems Lab.

MECH101 Shop Safety
Credits:1 **Prerequisites: none**
This course covers safety as it relates to the workplace in general and to the program area.

MECH110 Electrical/Electronic Systems Lab
Credits: 2 **Co-Prerequisites: MECH100 and MECH101**
This course is the Lab component for MECH100 and is required for all new Automotive and Diesel Technology students. It is designed to provide the hands-on activities common to Automotive and Diesel Equipment, Electrical and Electronics Applications.

MECH130 Heating and Air Conditioning
Credits: 3 **Co/Prerequisites: MECH101 and MECH150**
This is one of the Mechanical Core courses offered to both Automotive and Diesel Technology students. This course is designed to provide students with the knowledge required to understand, service, and repair mobile air conditioning systems used in automobiles, trucks, and heavy equipment. The course content includes Heat and Refrigeration Principles, Component Function and Interrelation, System Operation, Service Equipment, Diagnostic Procedures, Environmental Concerns, EPA Requirements, and Retrofitting. This course is taught in conjunction with MECH150 Heating and Air Conditioning Lab.

MECH150 Heating and Air Conditioning Lab
Credits: 2 **Co/Prerequisites: MECH101 and MECH130**
This course is the Lab component for MECH130 and is a core course for Automotive and Diesel Technology students. It is designed to provide the hands-on activities common to Automotive and Diesel equipment Mobile Air Conditioning applications.

MECH205 Small Engines
Credits: 2 **Prerequisites: MECH101**
This course concentrates on small gasoline engines as used in the Outdoor Power Equipment industry (less than 20 horse power). Emphasis will be on the four major theories of small engines-compression, ignition, carburetion, and governing. Students will disassemble, familiarize, inspect, reassemble, and operate a school-owned small engine.

NURS100 Introduction to Health Care and Nursing
Credits: 2; 1 lecture, 1 lab *Offered Fall Semester*
Prerequisites: none
The student is introduced to the basic study of nursing concepts of non-invasive, holistic patient care, consistent with the role of the health care provider. Medical terminology is an important portion of this course. Levels of nursing and the nursing process are defined. The nursing role is introduced, along with the theory and techniques of numerous basic nursing skills, including performance of vital signs, and standard precautions, various work environments, OSHA standards, Center for Disease Control (CDC) guidelines, skills and attitudes, along with teamwork are performed in the lab setting. The concepts of cultural diversity, ethics, healthcare as it relates to law, and various healthcare delivery systems are explored.

NURS110 Pharmacology, Calculations and Administration
Credits: 2 *Offered Spring Semester*
Prerequisite: Acceptance to the Practical Nursing Program
Apothecary, metric, household conversion factors, and the application of these in accurately solving dosage problems enabling safe administration of oral medications and injectable drugs are taught in this course. It offers the theory and practice in the lab setting needed to acquire psychomotor skills for proper medication administration.

NURS111 Pharmacology I Lab
Credits: 2 *Offered Spring Semester*
Prerequisite: Acceptance to the Practical Nursing Program
The course offers the theory and practice in the lab setting, needed to acquire psychomotor skills for proper medication administration.

NURS112 Pharmacology II
Credits: 1 *Offered Fall Semester*
Prerequisite: Successful completion of the first two semesters of the Practical Nursing Program
This lecture course provides a background in the fundamental principles of pharmacology and medication administration as a possible means to meet human needs. Identification of broad medication categories, the prototype approach, is emphasized. Pharmacological actions, uses, nursing implications, and client teaching for medications listed on the course outline are addressed within the context of the nursing process. Intravenous medication administration is emphasized, demonstrated, and required by return demonstration of this nursing skill.

NURS113 Pharmacology for Paramedics
Credits: 3 **Prerequisites: None**
Students are prepared to calculate drug dosages and learn legal aspects of pharmacology, specific terminology, specific drug regulations, classifications and therapeutic implications. Various groups of drugs are studied in detail.

NURS120 Nursing Skills and Fundamentals
Credits: 2 *Offered Spring Semester*
Prerequisite: Successful completion of first semester Practical Nursing courses
The student learns theory and techniques of basic, well-defined nursing skills with an emphasis on the nursing process. The nursing skills required will become the foundation for clinical application of theory in subsequent nursing courses. Each student will demonstrate competence by successfully completing two practical examinations.

NURS121 Nursing Skills and Fundamentals Lab
Credits: 1 *Offered Spring Semester*
Co-requisite: NURS120
The student learns theory and techniques of basic, well-defined nursing skills with an emphasis on the nursing process.

NURS127 Adult Nursing Across the Lifespan I
Credits: 4; 2 lecture, 2 (90 hrs.) clinical *Offered Spring Semester*
Prerequisite: Acceptance to Practical Nursing program
The nursing process provides the framework that enables students to synthesize aspects of communication, ethical/legal issues, cultural diversity, and optimal wellness. Supervised care of the adult client is provided during the clinical experience. Emphasis is placed on the use of the nursing process and communication skills to enable the student to assist in identifying needs, planning, providing, and evaluating care for the adult client experiencing common, recurring health deviations.

NURS130 Childbearing Family
Credits: 3; 2 lecture, 1 (45 hrs.) clinical *Offered Fall Semester*
Prerequisite: Successful completion first two semesters nursing program
The lecture portion of this course emphasizes the basic needs of the pregnant woman as well as those of the child from infancy through adolescence. Emphasis is on the development of nursing competencies in the areas of the nursing process, communication, normal growth and development, cultural diversity, ethical-legal issues, and professional behavior. The clinical portion provides supervised learning experiences providing nursing care to the childbearing family. The student will learn assessment skills, critical thinking skills, and the nursing process as applied to the care of the woman before, during, and after pregnancy. In addition, the student will learn to provide holistic nursing care to the normal pediatric patient, ages newborn through eighteen years of age. The students will learn about reproductive health, fetal development, and care of the family. As a member of the health care team, the student will work closely with licensed staff during the labor and delivery of a normal newborn. Pain management and complications are discussed with the role of the practical nurse clearly defined.

NURS137 Adult Nursing Across the Lifespan II
Credits: 4; 2 lecture, 2 (90 hrs.) clinical *Offered Fall Semester*
Prerequisite: Successful completion first two semesters nursing program
Continued application of nursing theories, principles and skills to meet the human needs of adult clients experiencing more complex recurring actual or potential health deviations comprise this course. The nursing process provides the framework to synthesize the aspects of communication, ethical/legal issues, cultural diversity, and optimal wellness. Supervised care of the adult client is provided during the clinical experience. Assessment, problem solving, and critical thinking/judgment skills enable the student to plan, provide, and evaluate care. The student will apply basic to semi-complex principles of holistic nursing care to the adult patient across the lifespan. Knowledge of semi-complex nursing skills is expected and applied in a variety of health care settings providing care for the adult patient.

NURS139 Nursing Trends, Issues, and Preceptorship
Credits: 3; 2 lecture, 1 (45 hrs.) clinical *Offered Fall Semester*
Prerequisite: Successful completion of preceding semester Practical Nursing courses
This capstone course provides the information regarding the current trends of practical nursing. This course assists the nursing student to bridge the role between student and employee. Leadership and management skills, health care delivery systems, cultural diversity, continuing educational needs, licensure requirements, legal issues, and standards of practices are investigated. Personal and professional identity and entry into the job market are explored. There is a precepted, clinical component to provide the nursing student opportunity to apply theoretical knowledge.

NURS225 Mental Health Nursing
Credits: 3; 2 lecture, 1 (45 hrs.) clinical *Offered Fall Semester*
Prerequisite: Admission to the Associate of Science Registered Nursing Program
The course focuses on the continued development of the nursing process to address psychosocial needs, formulate a plan of care, and interact therapeutically with the psychiatric patient in the health care setting. Supervised psychiatric nursing care is provided by the nursing student, within the context of the care team, to the patient using current treatment modalities. Concepts include the therapeutic relationship, specific mental illnesses, crisis intervention, and specific nursing therapies related to treatment.

NURS226 Current Trends and Issues in Registered Nursing
Credits: 2; 1 lecture, 1 lab*Offered Fall Semester*
Prerequisite: Admission to the Associate of Science Registered Nursing Program
This course focuses on the role of transition from LPN to RN in relation to the concepts and principles of holistic nursing care. Focus is on the continuing development of roles and responsibilities of the RN as defined by the scope of practice standards, nursing theory, and conceptual models.

NURS230 Advanced Childbearing Family
Credits: 4; 3 lecture, 1 (45 hrs.) clinical *Offered Spring Semester*
Prerequisite: Admission to the Associate of Science Registered Nursing Program
This course presents concepts and principles related to the registered nurse providing nursing care for childbearing families and children who are experiencing complex alterations in the functional dimensions of health. Focus is on the use of the nursing process in assessment and application of advanced concepts in the care of the childbearing family, or a child with more complex health care problems from birth through adolescence.

NURS237 Advanced Adult Nursing Across the Lifespan
Credits: 5; 3 lecture, 2 (90 hrs.) clinical *Offered Fall Semester*
Prerequisites: Admission to the Associate of Science Registered Nursing Program, successful completion of NURS226, and current, unencumbered LPN license
This course focuses on the role of the registered professional nurse as care provider, teacher, manager, and advocate in meeting the more complex medical and surgical needs of adults across the lifespan. Utilizing the nursing process the students will advance their learning in advanced physical assessment including comprehensive history, physical and psychological assessment of signs and symptoms, pathologic changes, and psychosocial variations of the patient. Differential nursing diagnosis and treatment of more complex pathological conditions of the adult will also be explored.

NURS239 Management, Ethics, Internship
Credits: 3; 2 lecture, 1 (45 hrs.) clinical
Offered Spring Semester
Co/Prerequisites: NURS230 & NURS237
This course focuses on the principles of professional nursing management, leadership, and ethics. Students develop knowledge and skills in decision making as well as in the management areas of planning, organizing, staffing, directing, and controlling. Emphasis is on the use of leadership knowledge and skills in effecting change. It will integrate knowledge of ethical factors as they relate to health and illness.

NUTR112 Nutrition
Credits: 3 **Prerequisites: none**
The course provides a basic study of nutritional needs through the life span and nursing measures to assist in meeting those needs. The course also covers nutrients and the recommended dietary intake to promote good health and to prevent disease.

OT105 Introduction to Personal Computers
Credits: 1 **Prerequisites: none**
This course is an overview of the uses of the microcomputer in the technical and health fields. Topics will include the microcomputer operating system and overviews of word processing and spreadsheet applications.

OT107 Introduction to Paralegal Studies
Credits: 3 **Prerequisites: none**
Introduction to Paralegal Studies introduces the student to a variety of paralegal careers in private law firms, government agencies, and business. The course provides an overview of the framework of American law, the structure and functions of state and federal court systems, and the steps involved in the litigation process. Students will develop an awareness of the skills and attributes required to perform the job duties of a paralegal, as well as learn about functioning effectively in the legal environment.

OT112 Introduction to Microcomputers
Credits: 3 **Prerequisites: none**
This course provides students with basic computer literacy concerning terminology, careers, and social issues related to computer, network, and information technology including ethics, crime, and copyright issues. Students will explore a computer operating system (Microsoft Windows XP), and Microsoft Office Suite 2007, including Microsoft Word and Excel, Internet, and solutions for real world problems. Through hands-on activities, participants will learn effective uses of a Windows-based computer as a tool to increase productivity and employability.

OT114 Keyboarding and Document Processing
Credits: 3
Prerequisite: OT112 or satisfactory score on placement test
This course is for students who either have successfully completed Introduction to Keyboarding (WKOT100) or have previously mastered basic keyboarding skills at the rate of 20 wpm for one minute with two errors or fewer. Preparation of memos, business letters, simple tabulations, reports, along with continued speed building, and proper keyboarding techniques, are included in this course. Students will learn the basic principles of Microsoft Word 2007 and will use the software to format documents.

OT115 Keyboarding Applications
Credits: 2 *Offered Fall Semester*
Prerequisite: OT114 or consent of instructor
Students work on development and improvement of keyboarding techniques, keyboarding skills, speed, and accuracy. Production of mailable copy for business applications useful in an office situation will be emphasized.

OT122 Word Processing Applications
Credits: 3
Prerequisite: OT112 or satisfactory score on placement test
The student will learn basic principles of word processing. Emphasis is placed on creating, saving, editing, and formatting documents along with some of the special features of the word processing software.

OT123 Advanced Word Processing Applications
Credits: 3 *Offered Fall Semester*
Prerequisite: OT122 or consent of instructor
More advanced word processing applications using math, tables, merging, macros, and sorting features. Also, various graphic functions are featured that allow the student to master advanced word processing documentation.

OT134 Data Management Applications
Credits: 3
Prerequisite: OT112 or satisfactory score on placement test
Course outlines the role of data manipulation in the business environment. Students learn how to create, edit, and manipulate large volumes of data with Microsoft Access. Topics include basic design of reports, tables and forms, sorting, and inquiry. Other topics include relational databases and joins.

OT136 Spreadsheet Applications for Carpentry
Credits: 2
Prerequisite: OT112 or satisfactory score on placement test
Course serves needs of carpentry students learning spreadsheet accounting. Spreadsheets are also valuable tools for personal finance and budgeting of project costs.

OT137 Spreadsheet Applications
Credits: 3
Prerequisite: OT112 or satisfactory score on placement test
Course serves needs of business people learning spreadsheet accounting. Electronic spreadsheets can be used for a variety of accounting applications, including general ledger, payroll, taxation, budgeting, and forecasting. Spreadsheets are also valuable tools for personal finance.

OT138 Multimedia Presentations
Credits: 2
Prerequisite: OT112 or satisfactory score on placement test
PowerPoint is a presentation package that allows the student to produce professional-looking personal computer or laptop presentations. The course includes effective oral presentation techniques using PowerPoint as a tool. Additionally, PowerPoint can create paper printouts, outlines, speaker notes, and audience handouts.

OT144 Professional Office Procedures
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This course is an introduction to the many aspects of a business environment. Topics covered include teamwork and office relationships, telephone and postal procedures, office equipment, use of reference materials, prioritizing and calendaring, meetings and travel arrangements, ergonomics and safety, and office etiquette.

OT145 Records Management
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This class emphasizes the efficient management of both active and inactive records through effective use of records inventory and retention programs, uniform classification systems, electronic records control, image technology, and related records management functions. The course includes application of the twelve ARMA filing and indexing rules for alphabetic, subject, geographic, numeric, and chronological filing.

OT150 Customer Service
Credits: 3 **Prerequisites: none**
Customer service is an integral part of doing business. Developing excellent customer service can help a business earn customers and accomplish its goals. Customers have needs on which they place importance; assessing and understanding these needs leads to satisfied customer relations.

OT161 Legal Terminology
Credits: 2 *Offered Fall Semester* **Prerequisites: none**
Designed to give students background in basic pronunciation, spelling, and definition of terms commonly used in the legal field. This course covers a variety of areas of law in addition to terms dealing with courts, legal systems, and litigation procedures. General Latin terms in common usage are also given.

OT165 Introduction to Legal Research
Credits: 2 *Offered Spring Semester* **Prerequisite: none**
This course introduces the student to the art of legal research. The primary purpose of the course is to enable the student to develop an understanding of the fundamental sources of the law and to be able to locate the law both for lawyers and for themselves. Computerized sources of law will be introduced, including LEXIS, WESTLAW, and the Internet. Units on Montana Code Annotated and the Montana State Law Library will also be included.

OT170 Medical Terminology and the Human Body
Credits: 4 *Offered Fall Semester* **Prerequisites: none**
An introductory course for students in the Office Technology program. Students learn to recognize the meaning of complex medical terms that can be decided by analysis of simpler components using prefixes, suffixes, and word roots. Correct pronunciation and spelling of these medical terms are derived through extensive usage of the medical dictionary, textbook, practice, and exercises. This course will also teach the basic structure and functioning of the systems of the human body including aspects of normal physiology and function, deviations from normal, and maintenance of health.

OT200 Medical Transcription
Credits: 3 *Offered Spring Semester*
Prerequisites: OT114, OT170, or NURS100 or consent of instructor
This course includes machine transcription of medical documents with emphasis on good transcription techniques; competency in medical vocabulary, spelling, punctuation, and formatting; and extensive use of medical reference materials.

OT213 Integrated Office Capstone
Credits: 2 *Offered Spring Semester*
Prerequisites: OT123, OT134 & OT137
During the final semester of coursework, students will gain a working knowledge of specialized project software in order to collaborate, track, and analyze project information. Students will then work in assigned groups on a project that integrates office skills acquired in Office Technology. The project will culminate in a binder including project activities and a presentation to a group of faculty and business members from the community.

OT221 Legal Document Processing
Credits: 4 *Offered Fall Semester*
Prerequisites: OT114, OT122 & OT161
This course includes accurately keying and formatting a variety of legal documents; reviewing various types of filing and office management systems including dockets, calendars, and tickler files; following litigation documents through the court system; identifying legal documents and publications in the law library or on-line; and formatting legal citations. Word Perfect software will be introduced in this course. Videos, field trips, and speakers will be included to enhance and supplement information provided in the text.

OT232 Medical Software and Insurance Billing
Credits: 3
Prerequisites: OT122, & OT170 or consent of instructor
This course familiarizes the student with the capabilities of a popular medical practice software program used in many facilities locally and nationally. Students learn procedures such as patient scheduling, statement billing, insurance claim processing, HIPPA and insurance regulations.

OT234 Medical Coding
Credits: 3 *Offered Spring Semester*
Prerequisites: OT170, NURS100, & BIOL207 or consent of instructor
Medical coding is a fundamental skill requirement for the medical profession. Developing an excellent coding knowledge base will allow for future employment and advancement opportunities throughout the medical community. HIPPA Laws will also be presented and a working knowledge will be developed.

OT235 Family Law
Credits: 2 *Offered Spring Semester - Even-Numbered Years*
Prerequisites: none
An introductory survey of family law in Montana, including marriage and dissolution, parentage and adoption, child custody, support and visitation, child abuse and neglect, juvenile and school law, guardianship, elder abuse law, and domestic violence and stalking. The course will include field trips to family court and state and local agencies administering family law, as well as guest presentations by local professionals involved in family law issues.

OT236 Employment Law
Credits: 2 *Offered Spring Semester - Odd-Numbered Years*
Prerequisites: none
Presents students from a wide range of backgrounds with an introductory understanding of the procedures and substance of employment law in Montana and the resources available for further study. This course is geared for the layperson, legal secretary/paralegal, or helping professional interested in an overview of employment law.

OT240 Administrative Office Management
Credits: 3 *Offered Spring Semester*
Prerequisites: ENG117T, OT115, OT122, OT137 & OT144
This course is designed to teach applied systems thinking to students pursuing both administrative support and information management careers in order to effectively confront the new diverse and multifaceted challenges prevalent in today's business environment. The course covers current office management principles, concepts, and organizational trends, while focusing on technological changes in the workplace and information systems management at all levels. The course includes Internet research, speakers from the professional community, direct office observation, methods of conducting effective meetings, and preparation of a career portfolio.

OT249 Desktop Publishing
Credits: 3 *Offered Fall Semester*
Prerequisite: OT112 or satisfactory score on placement test
This course will give students a basic understanding of designing and producing professional-looking documents for effective visual communications. The production of printed materials using Adobe InDesign CS2 and basic design skills is the focus of this course. Through hands-on projects, participants will create newsletters, brochures, posters, and much more.

OT287 Independent Study
Credits: 1-3
Prerequisites: consent of instructor and approval of the Department Chair
This course is designed to meet specific learning needs of students. Typically, such independent study projects focus on learning opportunities not otherwise offered in our college curriculum. The student then initiates a proposal describing, among other things, the number of hours to be spent on the study project, specific learning outcomes, and how evaluation is to be accomplished. The approved proposal will have signatures of the student, Faculty Sponsor, Department Chair, and the Associate Dean.

OT288 Internship
Credits: 1-3
Prerequisite: consent of instructor and approval of the Department Chair
Designed for the student who takes the initiative to perform work outside of and in addition to the normal school curriculum. If done properly, it can be a highly rewarding experience and aid the student's transition from school to work.

PHIL101 Ethics
Credits: 3 **Prerequisites: none**
This course includes an analysis of basic moral concepts and a survey of the ways in which these concepts operate in contexts. Applications are made to contemporary moral issues one might encounter in the work world or the student's field of study.

PHIL187 Introduction to Consciousness Studies
Credits: 3 *Offered Occasionally* **Prerequisites: none**
Students will learn about the basic issues in consciousness studies. These issues include the "problem" of consciousness, philosophical views, neurological models, and other issues in pertinent fields.

PHYS101 Fundamentals of Physics with Lab
Credits: 4 *Offered Spring Semester*
Prerequisites: A "C-" or higher in MA100D, working knowledge of high school trigonometry, and satisfactory placement score
A basic physics course that studies the physical behavior of matter. Topics include basic mechanics, rotational motion, physical properties of matter, and an introduction to thermodynamics and heat transfer, wave motion, light, and sound. Class work will be supplemented with lab exercises designed to demonstrate the concepts through inquiry-based learning, predication based on theory, and comparison of results to predictions.

PHYS210 Astronomy with Lab
Credits: 4 *Offered Spring Semester* **Prerequisites: none**
An introduction to astronomy for the non-science major. Topics include the tools of astronomy, the solar system, stars and stellar evolution, the Milky Way, extragalactic astronomy, cosmology, and life in the universe.

PSYC101 Introduction to Psychology
Credits: 3 **Prerequisites: none**
An introduction to the scientific study of behavior in humans and other animals, including the biological bases of behavior, learning and memory, cognition, motivation, developmental and social processes, and psychological disorders and their treatment.

PSYC116 Stress Management
Credits 3 **Prerequisites: none**
This course examines the impact of today's stressful world on the physical and mental health of the individual. Techniques for coping with these stressors are explored and practiced in class (e.g., meditation, relaxation, breathing, etc.). Topics include personality and disease, job burnout, optimal performance, family stress, and others.

PSYC214 Introduction to Marriage and Family
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
An introduction to marriage and family processes and challenges in the current social environment, including mate selection, challenges of the marital relationship, conflict management, raising children, and roles of family members, using a cross-cultural perspective.

PSYC220 Social Psychology
Credits: 3 *Offered Fall Semester*
Prerequisites: A "C-" or higher in PSYC101 or consent of instructor
This course serves as an exploration of the scientific study of how people think about one another, influence one another and relate to one another. It emphasizes the situation, the person, and personal reactions to situations, as well as the application of social psychological principles to different societies and cultures.

PSYC223 Abnormal Psychology
Credits: 3 *Offered Fall Semester*
Prerequisite: A "C-" or higher in PSYC101 or consent of instructor
This course will explore psychopathology, the major psychiatric syndromes, the different theoretical perspectives, treatment, and therapy.

PSYC226 Developmental Psychology
Credits: 3 *Offered Spring Semester*
Prerequisite: A "C-" or higher in PSYC101 or consent of instructor
Developmental Psychology is a comprehensive study of development across the lifespan including physical structure, thought, and behavior of a person as a result of both biological and environmental influences. It provides an up-to-date presentation of key topics, issues, and controversies in the field of lifespan development.

PSYC260 Organizational Psychology
Credits 3 **Prerequisites: none**
This course covers the field of study that investigates the impact that individuals, groups, and structure have on behavior within organizations for the purpose of applying such knowledge toward improving an organization's effectiveness and efficiency. The focus is on behavioral consequences of designed learning experiences, leadership, motivation, ethics, managing, job design, and perception within an organization. This is the psychology of management and human relations.

READ070 Fundamentals of Reading
Credits: 3 **Prerequisites: none**
This course is designed to enable college students to develop strategies and skills to meet the demands of college reading. Course is offered Pass/No Pass.

SCI102 Introduction to Scientific Methods
Credits: 3 *Offered Occasionally*
Prerequisites: A "C-" or higher in MAT130T
Introduction to Scientific Methods is an inquiry-based, in-depth exploration of basic scientific principles. Scientific model building and proportional reasoning skills will be developed in the context of properties of matter. This course is designed to provide liberal arts students with direct experience in the scientific process, thus establishing a solid foundation for scientific literacy. This course may also help prepare students for success in science courses for science majors.

SOC101 Introduction to Sociology
Credits: 3 **Prerequisites: none**
The course introduces basic sociological concepts and principles emphasizing human social organization and how groups influence behavior.

SOC230 Social Problems
Credits: 3 **Prerequisites: none**
An introduction to sociological perspectives regarding society's problems, this course examines the causes of major current and historical social problems, as well as the role of social research in identifying and solving problems.

SOC235 Aging and Society
Credits: 3 *Offered Spring Semester* **Prerequisites: none**
This course focuses on the demographic, social, and cultural effects of aging in society. Students will examine how the aging population will affect and be affected by such factors as government, health care, and the economy. Emphasis is placed upon aging in the United States.

WELD100 Welding Fundamentals
Credits: 1 **Prerequisites: none**
The course provides experience in oxyacetylene and arc welding, safety, use of equipment, and quality welds.

WELD112 Oxyacetylene Welding/Cutting
Credits: 2 **Prerequisites: none**
The course covers the proper use and maintenance of welding torches and gauges and includes all position welding of steel plate and flame cutting of steel components using oxyacetylene equipment.

WELD118 Shielded Metal Arc Welding
Credits: 3 **Prerequisites: none**
This course starts with a basic understanding of the stick welding process,including the concepts of basic electricity, filler metals, and applications. A hands-on welding experience is gained through multiple steps and exercises, using multiple welding filler metals and welding positions. An American Welding Society certification can be obtained at the end of the course.

WELD119 Gas Metal Arc Welding
Credits: 4 **Prerequisites: none**
The course starts with a basic understanding of how the MIG welding processes work, with the concepts of basic electricity, filler metals, and applications. A hands-on welding experience is gained in GMAW, GMAW-Dual Shield, GMAW-P. Using these welding processes in multiple steps, exercises, and welding positions, the student will gain a wide variety of welding knowledge. An American Welding Society certification in GMAW-Dual shield core wire can be obtained at the end of the course.

WELD120 Blueprint Reading/AWS Metal/Welding Symbols
Credits: 3 **Prerequisites: none**
This course covers the basics for understanding the reading of blueprints and shop drawings and the use of AWS welding symbols for blueprint reading.

WELD125 Layout and Pattern Making Fundamentals
Credits: 3 **Prerequisites: none**
The course covers fabrication and layout of different types of welding designs, including multi-core elbows, transitions, square to rounds, flanges, and other types of dust and emission control fittings. Students will be required to lay out patterns on paper and transfer patterns to steel plates and tubing. Use of shear, brake, and roll machines will also be required during this phase of welding.

WELD130 Estimating Job Materials
Credits: 3 **Prerequisites: none**
Layout of shop projects, estimating of job materials, pipe and plate layout for structural applications are used in this course.

WELD140 Specialized Welding
Credits: 6
Prerequisites: WELD112, WELD118, WELD119, WELD120 & WELD130
During this phase, the students will utilize skills learned in arc welding to weld stainless steel, titanium, aluminum, magnesium, copper, and casting made of ferrous and nonferrous metals. Use of spool guns and Mig and Tig are also covered.

WELD145 Design and Fabrication
Credits: 4
Prerequisites: WELD112, WELD118, WELD119, WELD120 & WELD130
This course incorporates all skills learned during the first phase of specialized welding.

WELD150 Shop Practices
Credits: 2
Prerequisites: WELD112, WELD118, WELD119, WELD120 & WELD130
This on going semester course during normally scheduled shop hours is intended to match spring semester students with live, practical shop experiences involving subject matter previously covered in other courses. Emphasis will be on productivity.

WELD200 Pipe Welding
Credits: 3
Prerequisites: Completion of Certificate of Applied Science in Welding
This course provides the student with a thorough technical understanding of preparation and fit-up for welding pipe. Students acquire the necessary skills to perform satisfactory welds on different materials of pipe, in all positions and situations, using SMAW, TIG, GMAW-P, and GMAW-RMD welding processes. The student develops the skills necessary to produce quality pipe fitting and welds needed in today's workforce.

WELD220 Advanced Blueprint
Credits: 2
Prerequisites: Completion of Certificate of Applied Science in Welding
This course will instruct students how to draw and read sophisticated blueprints using Auto-Cad format. Instruction will also include taking general arrangements drawings and breaking them down into shop drawings. Students will learn how to properly dimension, detail, and include weld symbols into shop drawings.

WELD225 Structural Fabrication
Credits: 2
Prerequisites: Completion of Certificate of Applied Science in Welding
This course is designed to give students the ability to lay out and fabricate various components used in the structural construction of buildings and infrastructure. Students will lay out, drill, and cut to length columns and beams according to blueprint specifications. Instruction will also be given on how to layout and fabricate base plates, gusset supports, and brackets used to support steel structure. In addition, students will fabricate a stairway and adjoining handrail using proper rise and run standards and dimensions.

WELD230 Field Welding and Processes
Credits: 2
Prerequisites: Completion of Certificate of Applied Science in Welding
This course is designed to introduce the students into a field welder's environment. The students will become knowledgeable in the different weld applications presented in the field and the welding variables that can occur. In this course the students will learn to properly set up and maintain portable welding power sources, suitcase wire feeders, cutting systems, and other field equipment. Students will be taught safety in the field environment.

WELD241 Metal Fabrication I
Credits: 6
Prerequisites: Completion of Certificate of Applied Science in Welding
Metal Fabrication will focus on the planning and execution of projects using the knowledge and skills already acquired during the first year of the Welding program. Students will apply these skills in a shop-like atmosphere working directly with customers, completing repairs, modification, and new construction. With this work the students will prepare blueprints using hand drawing techniques along with Auto/Cad to complete more complicated drawings.

WELD242 Metal Fabrication II
Credits: 6
Prerequisites: Completion of Certificate of Applied Science in Welding
Students will learn to lay out and fabricate various ventilation components found in industrial settings. This course will give students instruction in laying out, cutting and fabricating elbows, square to round, cones, offsets, and laterals. These components will be fabricated using shears, bending breaks, forming rolls, and hydraulic punches. In addition students will weld out and assemble ventilation components according to blueprint specifications.

WELD255 CNC Burn Table Programming and Operation
Credits: 3
Prerequisites: Completion of Certificate of Applied Science in Welding
Introduction to computer numerically controlled machines with an emphasis on programming, setup, and use in plasma-cutting burn tables. Students will use the Shop Data Systems HVAC program to create duct work transitions to be cut on the CNC burn table. Auto/Cad is used to create specialty parts for burn table cutting. As a final step, all parts are programmed through the use of OneCNC programming by the students to prepare the G-codes used by the CNC burn table.

WELD265 MSHA Safety Training
Credits: 1
Prerequisites: Completion of Certificate of Applied Science in Welding
A major part of the welding industry involves working in the mining industry. This course will cover required safety rules governing work performed in the mining industry. Upon satisfactory completion of this course, students will be certified to work at mine and quarry sites. In addition, students will receive certification in C.P.R.

WELD270 Advanced Shop Practices
Credits: 5
Prerequisites: Completion of Certificate of Applied Science in Welding
This course is designed to challenge students on more complex fabrication and repair job assignments. Students will systematically plan out, order material, and perform repair and fabrication work orders. Students will select the proper welding procedures and processes for each job assignment. Although instructors will oversee the job, students will be challenged to take on a leadership role with less supervision. Students will experience working with others in a team-like atmosphere while accomplishing specific goals.

WKBU101 Understanding You and the World of Business
Credits: 1 **Prerequisites: none**
This course is designed to introduce the student to basic skill requirements that many employers look for in their new employees. Topics covered include how to research information and make sense of it, explore basic marketing strategies, apply problem-solving techniques, understand basic writing and math skills, identify some basic economic and statistics theories. Students should use the class as a guide to direct them towards more in-depth classes in the various subject areas presented.

WKOT100 Introduction to Keyboarding
Credits: 1 **Prerequisites: none**
Designed for the student who has had no previous keyboarding experience. Major objectives are to develop touch control of the keyboard using proper keyboarding techniques and to build basic speed and accuracy.

WKOT122 Ten Key Calculation
Credits: 1 **Prerequisites: none**
This hands-on application of ten-key calculation will enable the student to become proficient in operating the computer ten-key pad accurately and efficiently by touch. The step-by-step process provides instruction on the various functions including a combination of menus, icons, and keyboard strokes. Mastery of this course will result in a user who possesses a special skill that can be used in all math courses including accounting, statistics, business math, and finance, as well as preparing the student to operate a computer calculator in the business environment.

Tools

Tools are required by each student entering Automotive, Aviation Maintenance, Carpentry and Construction, Diesel, Electronics, Machine Tool, and Welding Technology programs. Except for students in Carpentry and Construction, students are required to purchase school approved coveralls and red rags for use in the shops and are responsible for the cleaning fee each semester.

Ordering Procedure

Students do not purchase tools through the College. Tool vendors will be available at the College at the beginning of each semester for students who wish to place orders. These tools are sold by the vendors at an educational discount. Tool costs vary depending on the vendor; approximates are average costs. Tools may take several weeks to arrive, and vendors will not deliver without full payment. A commitment sheet in writing from your vendor on the latest possible delivery date is advised before ordering.

Automotive/Diesel Technology Tool Set

$1,500 (Approximately)

1. Tool Chest Roll Cabinet (with lock), 5 drawer minimum
2. 1/2 Drive Breaker bar
3. 1/4 Drive Metric Sockets, Shallow 4mm to 15 mm; 13 pc.
4. 3/8 Metric Sockets, Deep and Shallow 8 mm to 19 mm
5. 1/2 Drive Standard Sockets, Shallow 1/2 to 1-1/8
6. 1/4 Drive Standard Sockets, Deep and Shallow; 3/16 to 9/16 20 pc.
7. 3/8 Standard Sockets, Deep and Shallow 1/4 to 7/8 22 pc.
8. 5/8 and 13/16 Spark Plug Sockets
9. Torx Sockets T8 to T55 11 pc. set
10. 1/2 Drive Ratchet
11. 1/4 Drive Ratchet
12. 3/8 Flex Head Ratchet
13. 3/8 Ratchet
14. 1/2 Drive Extensions 5″, 11″
15. 1/4 Drive Extensions 2″, 4″, 6″
16. 3/8 Drive Extensions 1″, 3″, 6″, 11″
17. 1/4 Drive Screwdriver Style Handle
18. Adapters 3/8″ to 1/4″; 3/8″ to 1/2″; 1/2″ to 3/8″
19. Universals 1/4″, 3/8″
20. Standard Wrenches 3/8″ to 1″
21. Metric Wrenches 10 mm to 19 mm
22. Standard Flare Nut Wrenches 1/4″ to 13/16″
23. Standard Allen Wrenches
24. Metric Allen Wrenches
25. 12″ Adjustable Wrench
26. 8 pc. Screwdriver Set
27. Ratchet Type Screwdriver
28. 6″ Needle Nose pliers
29. 8″ Needle Nose pliers
30. 7″ Side Cutters
31. 7″ Conventional Pliers [common]
32. Stiff Bladed Putty Knife
33. 10″ Slip Joint Pliers [waterpump]
34. Battery Service Pliers
35. Side Post Battery Wrench and Wire Brush
36. Top Post Battery Brush
37. Reversible Snap Ring Pliers
38. 10″ Vise Grip Type Pliers
39. Wire Stripper Cutters 10-20 ga. wire
40. 10 pc. Punch and Chisel set
41. 16 oz. Ball Peen Hammer
42. 16 oz. Dead Blow Soft Face Hammer
43. Hacksaw
44. Wire Brush
45. Flashlight
46. 12′ Tape Measure
47. Circuit Tester
48. Radiator Hose Removal Tool
49. 4 pc. Seal Pick Set
50. 16″ Rolling Head [Heel] Bar
51. Inspection Mirror
52. Magnetic Retrieval Tool
53. Carbon Gasket Scraper
54. Ignition Gauge Set [Short Blade .010 through .035]
55. Feeler Gauge Set .0015 through .025
56. Wire Gap Gauge .044 through .080
57. Spark Plug Gap Gauge [Taper]
58. Safety Goggles
59. Blow Gun
60. Fluorescent Tube Trouble Light with Accessory Plug, 25 ft. cord, minimum
61. 6″ Steel Rule with Fractional Scales

Aviation Maintenance Technology Tool Set

$400 (Approximately)

*The following are the **minimum** number of tools required for aviation maintenance students to complete **the first and second semester** shop and course work. These tools are not provided by the school.*

1. Safety Glasses
2. Respirator
3. Inspection Mirror
4. 3/8 drive 6pt socket set with ratchet and extensions
5. Box end-open end wrench set 5/16″ to 1″ including 11/32″
6. Wire strippers
7. Multimeter
8. 6″ steel rule
9. Drawing Tools
   a. Compass
   b. French Curve Set
   c. 12″ ruler
   d. ¼″ Graph paper
   e. Mechanical Pencils .5 & .7mm lead
   f. Sharpie Markers
10. Tool box or tool bag
11. Padlock
12. Hearing Protection
13. Flashlight
14. Screw Driver Set
15. Pliers set (needle nose, straight jaw, and channel lock)
16. Soldering iron (gas powered if desired)
17. Wire crimpers
18. Automatic Center Punch

***Third and Fourth Semester tool list will be provided in the first year, approximately an additional $600 minimum.*

Tools

Carpentry and Construction Technology Tool Set

Interior Design students not required to purchase tool set.
$700 (Approximately)

1. Steel Tape, 1″ x 25′
2. Steel Tape, 100′
3. Chalk Line Reel, 100′
4. Rafter Square
5. Speed Square
6. Sliding T Bevel
7. Torpedo Level
8. 4′ Level
9. Screwdriver Set (both Phillips and Straight)
10. Nail Claw, 10″
11. Ripping Bar
12. Utility Knife
13. Nail Sets, 1/32″, 1/16″, 3/32″
14. Wood Chisel Sets, 1/4″, 1/2″, 3/4″
15. Adjustable Wrench, 8″
16. Nail Apron
17. Framing Hammer, 22 oz
18. Drill Set 1/16″ to 1/2″ (Optional)
19. Approved Safety Glasses
20. Approved Hard Hat and Liner
21. Wonder Bar
22. Tin Snips (Optional)
23. Side-cutting Pliers
24. Approved Respirator

Power Tools

25. 7 1/4″ Arbor Power Skill Saw
26. 3/8″ Variable Speed Drill (Optional)
27. Carbide Blade (7 1/2″ Saw Blade)
28. 50′ Extension Cord
29. Cordless Drill/Driver Kit (Optional)
30. Contractor's Calculator

Diesel Technology Tool Set

See Automotive/Diesel List (Page 99)

Electronics Technology Tool Set

$330 (Approximately)

1. Small Tool Box
2. Nut Driver Set
3. Screwdriver Set
4. Diagonal Pliers
5. Long Nose Pliers
6. Wire Strippers
7. Soldering Iron
8. Electronics Trainer
9. Antistatic Wrist Strap
10. Drive Guardian - CD ROM & Floppy Drive Cleaner

Machine Tool Technology Tool Set

$750 (Approximately)*

1. Allen Wrenches, Standard and Metric
2. Dead Blow Hammer – 1 pound
3. Center Punch Set
4. Transfer Punches
5. Combination Square – 4 piece
6. Edge & Center Finder – Double End
7. Carbide Scribe
8. 6″ Rigid Scale, 32nd and 64th on one side, 100th on the other side
9. 6″ Flex Scale
10. Center Gauge
11. Thread Wire Set
12. Pitch Gauges, Standard and Metric
13. File Set with Handles
14. File Brush
15. H.S.S. Drill Set – 1/16″, 1/2″, by 1/6″
16. 1″ Indicator Dial
17. 2″ Indicator Dial
18. Mighty Mag Base (Magnetic)
19. 1″ - 6″ Micrometers
20. 2″ - 12″ Inside Micrometers
21. Test Dial Indicator
22. Centerdrill's #1 - #5, Right Hand H.S.S.
23. Dial Indicator Magnetic Base with Stand
24. Standard Set Combo Wrenches 3/8″ – 1″
25. 16′ Measuring Tape
26. Screwdriver Set
27. Acme Screw Pitch Gauge
28. One set of 1, 2, 3 Blocks
29. One set of Parallels
30. Acme Thread Gauge
31. Starrett 3-piece Snap Gauges
32. 1/4″ Die Grinder
33. Pocket Flash Light
34. Deburring Tool

Second Semester

35. Carbide Holders, Right Hand & Threading
36. Carbide Bits, 1 Threading, 1 Turning, and 1 Grooving

Optional

37. 12″ Dial Calipers
38. 0″ - 6″ Micrometers
39. 0″ - 6″ Depth Micrometers

**First year cost only. Contact instructor following the first year for listing of second year tools. (Approximately an additional $500).*

Welding Technology Tool Set

$350 (Approximately)

TOOLS:

1. Welding Hood – Standard with 9-11 shade or Auto*
2. Cutting Goggles - #5 Shade*
3. Chipping Hammer*
4. Friction Light (striker)*
5. Tip Cleaner*
6. Wire Brush (stainless steel)*
7. 8″ slip joint pliers*
8. MIG Pliers*
9. Cleaning Picks*
10. Small flashlight*
11. 10″ crescent wrench*
12. 25′ tape measure
13. Soap stone holder with soap stone
14. Scribe with magnet on end
15. Silver marking pencil
16. Center Punch
17. Combination/Tri-square 12″
18. Construction Calculator

*indicates tools needed immediately

SAFETY EQUIPMENT (Required everyday at the start of class):

1. Carhart pant/bibs/or coveralls
2. Welding shirt/jacket
3. Leather boots (steel toe)
4. Welding cap
5. Leather gloves
6. Safety glasses

Montana University System

Commissioner of Higher Education
Sheila M. Stearns, Ed.D.
46 N. Last Chance Gulch
Helena, MT 59601

Board of Regents of Higher Education
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Richard Storey, Chancellor

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UM-Helena College Of Technology

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Pam Carlson, Career Training Institute
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Ray Peck, Retired State Legislator

Administrator Profiles

Dr. Daniel J. Bingham, Dean/CEO
Ph.D., The University of Texas; M.Ed., B.S., Northern Arizona University
Seventeen years technical instruction and administrative leadership
At The University of Montana - Helena College of Technology since July 2005

Brandi N. Foster, Associate Dean/Academic Affairs
M.A., Iowa State University; B.A. The University of Montana; Administrative Fellow, Harvard University
Ten years administrative experience; Nine years classroom experience
At The University of Montana - Helena College of Technology since August 2003

Kevin C. Brockbank, Assistant Associate Dean/Academic Affairs
M.Ed., University of Montana, B.A., University of Montana
Eleven years classroom experience; Twelve years of higher education and industry experience
At The University of Montana - Helena College of Technology since January 1996

Russell K. Fillner, Assistant Dean/Fiscal and Plant
B.S., Montana State University, Certified Public Accountant,
Nineteen years accounting experience; Three years administrative experience
At The University of Montana - Helena College of Technology since August 2004

Faculty Profiles

Ceartin, Mike
Construction Technology
Years Work Experience - 30
Years Teaching Experience - 5
Years at UM-Helena - 5

Coon, Emmett
Electronics Technology
A.S., Northern Montana College
A+, CCNA, CCAI
U.S. Air Force - 4
Army National Guard - 16
Years Work Experience - 11
Years Teaching Experience - 12
Years at UM-Helena - 12

Cronin, Mike
General Education
M.A., The University of Montana
B.A., Carroll College
Years Work Experience - 27
Years Teaching Experience - 18
Years at UM-Helena - 8

Harris, Tim
Metals - Welding Technology
U.S. Navy - 4
Journeyman Welding Certification
Years Work Experience - 30
Years Teaching Experience - 7
Years at UM-Helena - 7

Holt, Michelle
General Education
M.A., University of Montana
B.A., Montana State
Years Work Experience - 6
Years Teaching Experience - 27
Years at UM-Helena - 3

Jones, Dave
Automotive Technology
M.A., MSU - Northern
B.T., Northern Montana College
ASE Master Certified Technician
Years Work Experience - 6
Years Teaching Experience - 14
Years at UM-Helena - 14

Kelly, Harold
Construction Technology
B.S., Western Montana College
Years Work Experience - 20
Years Teaching Experience - 13
Years at UM-Helena – 10

Kneebone, David
Fire and Rescue
B.S.^{2}, Montana Tech
Years Work Experience - 41
Years Teaching Experience - 34
Years at UM-Helena – 4

Kruger, Karl
Aviation Maintenance Technology
A.A.S., Communications Technology
Airframe & Powerplant License with Inspection Authorization
Private Pilot License
U.S. Army – 4
Army National Guard – 12
Years Work Experience – 20
Years Teaching Experience – 1
Years at UM-Helena – 1

Marchand-Smith Sheri
Nursing Program
M.S.N., Lewis University
B.S.N., Lewis University
Years Work Experience – 25
Years Teaching Experience – 5
Years at UM-Helena – 1

Munn, Nathan
General Education
M.D., University of Washington
B.A., Seattle Pacific University
Years Work Experience - 16
Years Teaching Experience - 4
Years at UM-Helena - 2

Osborne, Sam
Metals - Welding Technology
A.A.S., UM-Helena
Years Work Experience - 10
Years Teaching Experience - 2
Years at UM-Helena – 2

Pescosolido, Candace
Nursing Program
M.S.N., Saint Joseph's College
B.S.N., University of Hawaii
Years Work Experience - 12
Years Teaching Experience - 8
Years at UM-Helena – 8

Plagerman, Ron
Construction Technology
Years Work Experience – 20
Years Teaching Experience – 1
Years at UM-Helena – 1

Rinehart, Ralph
Diesel Technology
Western Technical College
Northern Montana College
Eastern Montana College
ASE H/D Electronic Diesel Engine Diagnosis Certified
ASE H/D Truck Master Certified
Years Work Experience - 8
Years Teaching Experience - 32
Years at UM-Helena - 29

Schlauch, Steven
Automotive and Diesel Technology
B.S., M.S., Northern Montana College
ASE H/D Truck Master Certified
ASE Electronic Diesel Engine Specialist Certified
ASE Certified - A1, A4, A5, A6, A7
Mobile Air Conditioning Society Certification
Years Work Experience - 4
Years Teaching Experience - 26
Years at UM-Helena - 26

Schneider, Joan
Office Technology
B.S., M.S., University of Wisconsin-Eau Claire
Years Work Experience - 17
Years Teaching Experience - 19
Years at UM-Helena - 11

Shchuchinov, Viktor
General Education
Ph.D., Central Research Institute of Machine Building Russian Space Agency
M.S., Moscow Institute of Physics and Technology State University
Years Work Experience - 31
Years Teaching Experience - 18
Years at UM-Helena - 11

Shropshire, Robin
General Education
B.A., Geology, University of Montana
M.S., Hydrogeology, University of Waterloo
Years Work Experience - 12
Years Teaching Experience - 6
Years at UM-Helena – 5

Smith, Carol
Nursing Program
B.S.N., Montana State University
Years Work Experience – 26
Years Teaching Experience – 2
Years at UM-Helena - 1

Sonnenberg, George, CPA
Accounting and Business Technology
Master of Tax, Baylor University
B.B.A., Texas State University
Years Work Experience - 15
Years Teaching Experience - 1
Years at UM-Helena - 1

Steinwand, Bryon
Computer Technology
B.S., Montana State University
Years Work Experience - 10
Years Teaching Experience - 6
Years at UM-Helena - 6

Tyhurst, Patricia, CPC, CPCH,
Office Technology
B.A., Education, Carroll College
Years Work Experience - 7
Years Teaching Experience - 7
Years at UM-Helena - 6

Warner, Arthur
Metals - Machine Tool Technology
A.A.S., Helena College of Technology
Years Work Experience - 14
Years Teaching Experience - 19
Years at UM-Helena - 19

Williams, Karmen
Nursing Program
M.S.N., Nursing Education, Walden University
B.S.N., University of Wyoming
Years Work Experience - 33
Years Teaching Experience - 8
Years at UM-Helena - 8

Yahvah, Barbara
Accounting and Business Technology
M.B.A., University of Montana
B.A., Carroll College
Years Work Experience - 11
Years Teaching Experience - 16
Years at UM-Helena - 15

Yaw, Rob
Electronics Technology
B.S., Montana State University
F.C.C. First Class Radiotelephone Operator License
F.C.C. General Radiotelephone Operator License
N.A.R.T.E., Certified First Class Engineer
Years Work Experience - 13
Years at UM-Helena – 14

Staff Profiles

Bacino, Janice
Librarian
Donaldson Campus
Years at UM-Helena - 6

Block, Jeff
Information Technology Manager
Donaldson Campus
Years at UM-Helena - 8

Bright, Tina
Accounting Technician
Business Office
Donaldson Campus
Years at UM-Helena - 22

Britt, Joe
Food Service Supervisor
Food Court
Donaldson Campus
Years at UM-Helena - 4

Brown, Michael
Director of Admissions, Marketing, and Recruiting
Welcome Center
Donaldson Campus
Years at UM-Helena - 2

Burk, Jami
Admissions Evaluator
Welcome Center
Donaldson Campus
Years at UM-Helena – 3

de Charmoy, Victoria
Bookstore
Donaldson Campus
Years at UM-Helena - 2

Dellwo, Sarah
Registrar
Administrative Offices
Donaldson Campus
Years at UM-Helena - 4

Engelking, Doug
Parts Manager
Airport Campus
Years at UM-Helena - 19

George, Mary Ann
Library Assistant
Donaldson Campus
Years at UM-Helena - 3

George, Tamara
Student Services
ACCESS Center
Donaldson Campus
Years at UM-Helena - 4

Gifreda, Laura
Cashier
Donaldson Campus
Years at UM-Helena - 2

Grabowski, Nancy
Accounting Manager
Business Office
Donaldson Campus
Years at UM-Helena - 2

Hansmann, Debby
Accounting Technician
Business Office
Donaldson Campus
Years at UM-Helena - 17

Hunger, Suzanne
Director of Retention/Student Advising
Student Services
ACCESS Center
Donaldson Campus
Years at UM-Helena - 2

Ireland, Heather
Assistant to the Associate Dean
Airport Campus
Years at UM-Helena - 1

Johnson, Joanne
Bookstore Manager
Donaldson Campus
Years at UM-Helena - 17

Kaiser, Shelly
Information Technology Support Specialist
Donaldson Campus
Years at UM-Helena - 10

Killham, Ray
Maintenance
Donaldson Campus
Years at UM-Helena - 13

Kirley, Susan
Personnel Specialist
Business Office
Donaldson Campus
Years at UM-Helena - 2

Knapstad, Roger
Maintenance
Donaldson Campus
Years at UM-Helena - 7

Lannert, Mary
Director of Community Education
Donaldson Campus
Years at UM-Helena - 2

Staff Profiles

Nason, Nick
Maintenance
Donaldson Campus
Years at UM-Helena - 8

Paaso, Trudi
Financial Aid Specialist
Welcome Center
Donaldson Campus
Years at UM-Helena – 5

Ritter, Carrie
Admissions Representative/Recruiter
Welcome Center
Donaldson Campus
Years at UM-Helena – new

Schelske, Ron
Maintenance
Donaldson Campus
Years at UM-Helena - 19

Smith, Kevin
Financial Aid Specialist
Welcome Center
Donaldson Campus
Years at UM-Helena - 3

Snyder, Richard
Maintenance
Airport Campus
Years at UM-Helena - 7

Stevens, Sherri
Registration & Records Clerk
Donaldson Campus
Years at UM-Helena – 3

Strainer, Winnie
Assistant to the Dean/CEO
Administrative Offices
Donaldson Campus
Years at UM-Helena - new

Thompson, Alan
Career Services
Welcome Center
Donaldson Campus
Years at UM-Helena – 2

Watson, Marci
Admissions and Marketing Assistant
Welcome Center
Donaldson Campus
Years at UM-Helena - new

Yarberry, Cindy
Director of Learning Center and Disability Services
Student Services
ACCESS Center
Donaldson Campus
Years at UM-Helena – 3

Notice Concerning Materials Described In This Catalog

The University of Montana - Helena College of Technology's budget is funded through appropriations from the Montana State Legislature and student tuition. It should be understood, therefore, that not all programs described in this catalog may be available because of funding variations. Representations are neither made nor implied that courses or programs available in any given semester will be continued or maintained in subsequent semesters.

While the College will make every effort to provide described courses and programs, the final decision as to their availability rests with the Board of Regents and will be determined by available funds and by the needs of the school.

All provisions within this catalog are subject to change without notice.

Pursuant to Title VI and VII of the Civil Rights Act, Title IX of the Education Amendments, Section 504 of the Rehabilitation Act, Executive Order 11246, the Vietnam Veteran's Readjustment Act, and the Montana State Human Rights Act, The University of Montana - Helena College of Technology announces that it does not discriminate in admission, access to, or conduct of its education programs and activities, nor in its employment policies, on the basis of: race, sex, color, national origin, religion, age, marital or parental status, physical handicap, or mental handicap.

As required by Title IX and Section 504, The University of Montana - Helena College of Technology shall afford any student, employee, or applicant for admission or employment, the right to file a grievance on grounds of discrimination.

Correspondence should be directed to Susan Kirley, Personnel Specialist, 1115 N. Roberts Street, Helena, MT 59601. Telephone (406) 444-6800, or VOICE/TTY (406) 444-6897.

Please see our website, www.umhelena.edu, for updates to this catalog made after May 1, 2008.

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Cindy Yarberry
Director of Learning Center/Disability Services
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Financial Aid Office
(406) 444-6883

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Financial Aid Specialist
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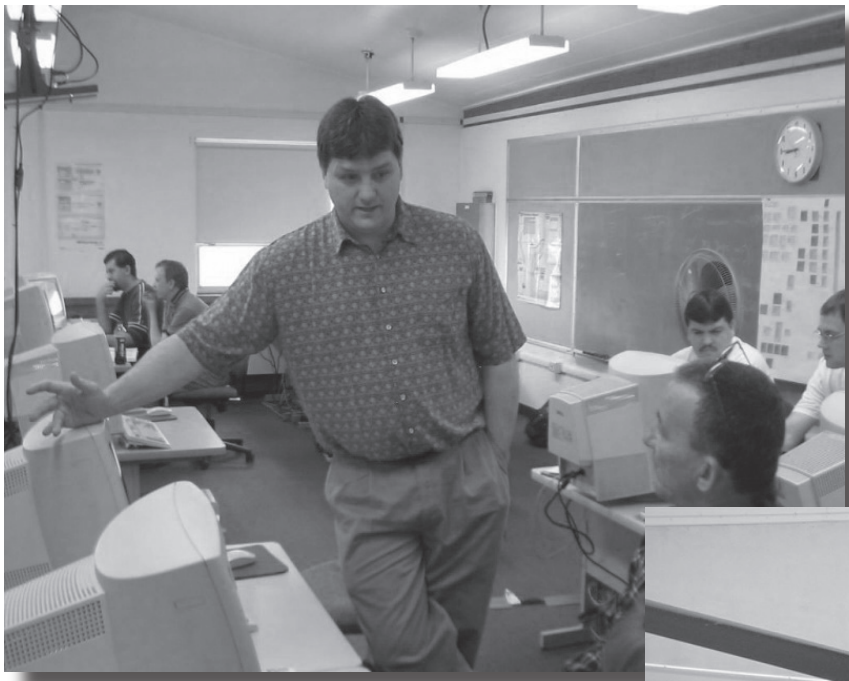
Kevin Smith
Financial Aid Specialist
smithk@umh.umt.edu

POWER ON
POWER OFF
SPINDLE LOAD
EMERGENCY STOP
HANDLE
CYCLE START

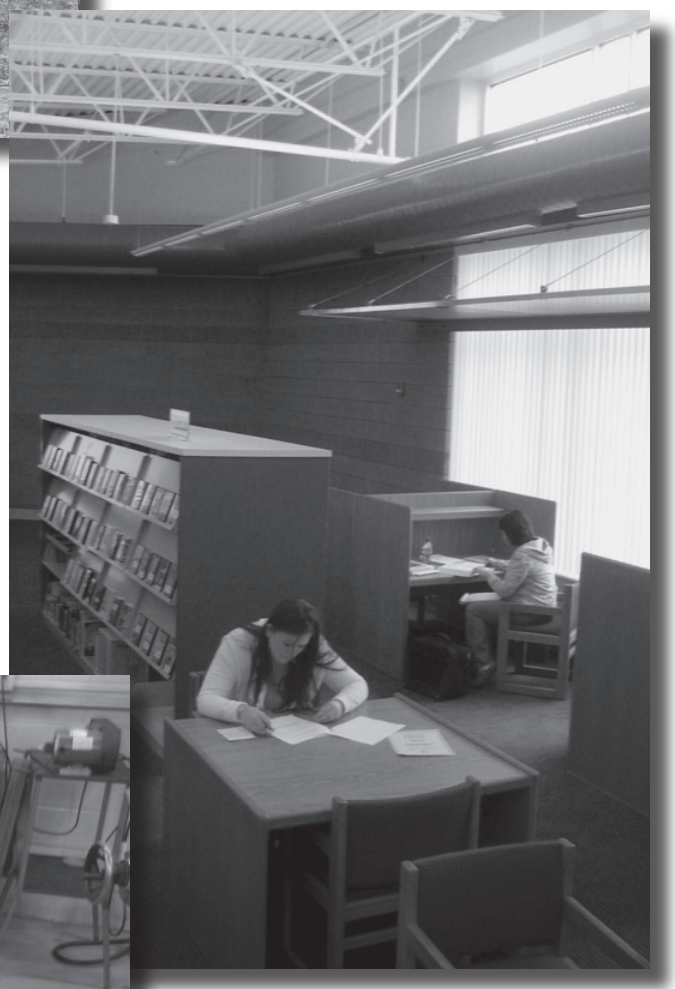
Tutor

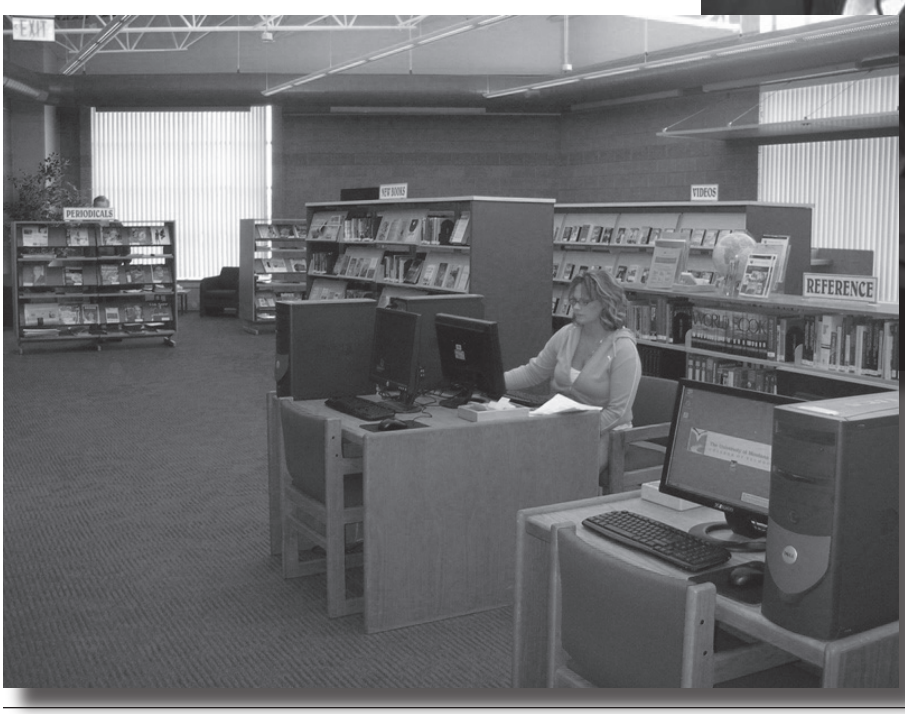


Miller

UM-Helena at a Glance

CRANE SERVICE 406-449-5553




EXIT
PERIODICALS
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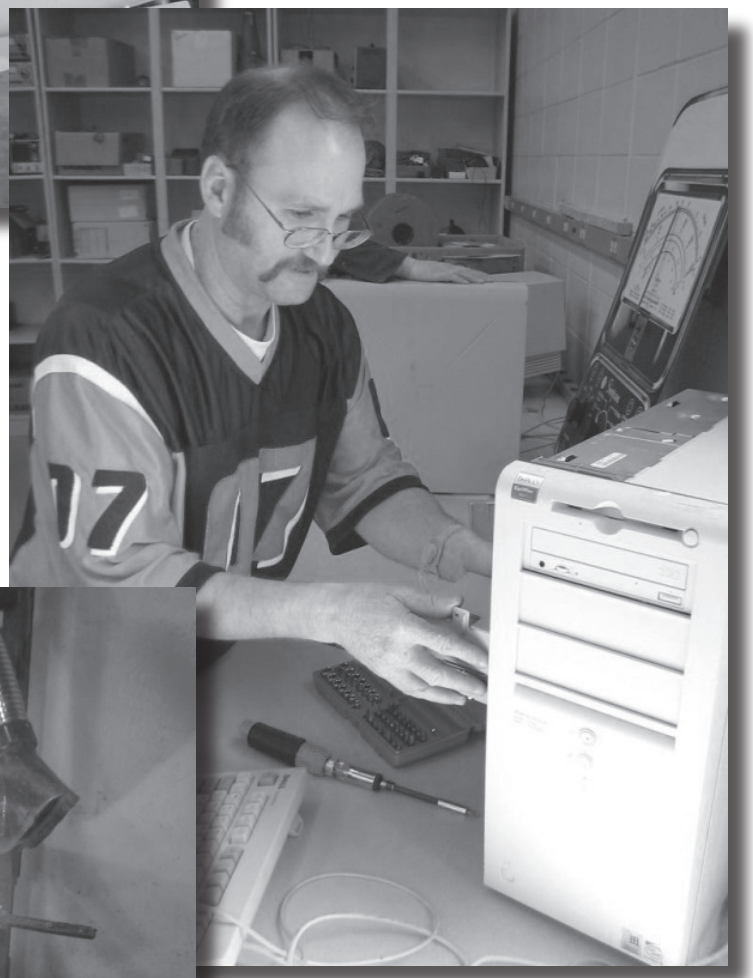
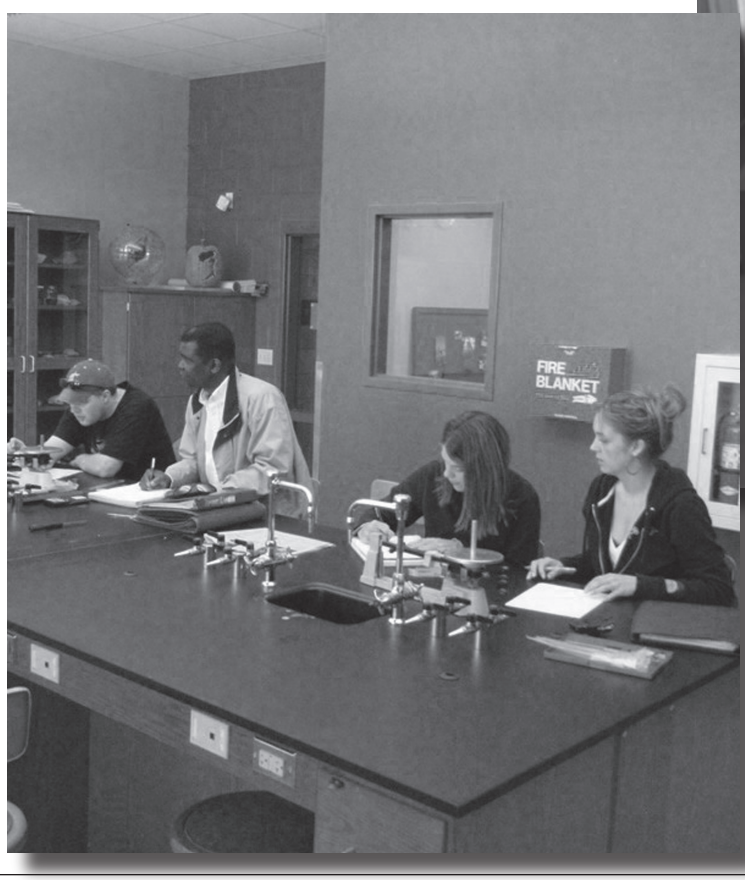
UM-Helena at a Glance

UM-Helena at a Glance




FIRE
BLANKET

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INTERNATIONAL
HONOR
SOCIETY
BETA OMICRON OMEGA

JOHN DEERE