Montana Tech

THE UNIVERSITY OF MONTANA

health care

Get Into It!

health care academic guide

Montana Tech's Mission
To meet the changing needs of society by supplying knowledge and education through a strong undergraduate curriculum augmented by research, graduate education and service.

Montana Tech's Vision
To be the leader for undergraduate and graduate education and research in the Pacific Northwest in engineering, science, energy, health, information sciences and technology.

Related Degrees and areas of study

A Commitment to Health Care Education
This booklet is designed to help you understand the comprehensive healthcare opportunities available to you at Montana Tech. Combining our rich heritage in health, science and technology education along with a vision to meet the healthcare educational needs of the 21st century, Montana Tech is committed to your success.

From a one-semester certification program in nursing to a co-curricular curriculum that augments any number of four-year degrees, you might find just what you need at Montana Tech. Beyond the excellent classroom and laboratory experience in all of our academic programs, you will have opportunities to be involved in research and/or clinical education. You will learn the theory and how it is applied to make lives better. You will have the opportunity to interact with industry and employers.

Last year during the annual healthcare career fair, sponsored by the Career Services office, students visited with employers from a wide variety of industry leaders as well as graduate and professional school representatives. Some of the participants included: College of Medicine and Health Science, St. Lucia; St. James Healthcare; Ross University; St. Vincent Healthcare; University of Utah Hospitals and Clinics.

Please take a minute to look through this booklet. If you have any questions about how Montana Tech can help you meet your educational and healthcare interest needs, please contact our admissions office at 1-800-445-8324 or admissions@mtech.edu.

pre-professional health sciences

Choose a course of study that, when combined with your major, prepares you for the professional school of your choice. Declare a pre-professional health career path, and you are eligible for advisors whose areas of specialty parallel your academic goals and specialized coursework geared toward preparing you for graduate school. Most students interested in medicine choose one of the majors listed in this book for their undergraduate degree. However, you can choose any bachelor degree at Montana Tech (see back cover) and self-identify pre-professional health as a career path to receive all of the benefits needed to prepare for professional health school admission.

Specific Courses*

PPH 1006 Preprofessional Health Seminar
Designed as an introduction in preparing students interested in careers in the health sciences for entrance into health school. Course will consist of a series of lectures, presentations by health professionals, reading and discussion of topical health issues, and summary writings.

PPH 1946 Current Topics in Health Care
Designed to provide a background in current health care topics, enhance verbal and written communication skills, and increase verbal reasoning skills. Curriculum includes reading typical health issues followed by in-class discussions and summary writings, and in-depth written report and oral presentation on an instructor-approved health topic and critical evaluation of published and in-class papers.

PPH 2916 Internship
Academic work done in conjunction with an approved work experience related to a professional health career. Exposes students to specific health fields as they solidify their selected area of study.

PPH 3006 Professional Health Entrance Exam Preparation
Designed to improve problem solving and comprehension capabilities. Focuses on material that is common to professional health school and graduate school entrance exams, such as the GRE, MCAT, DAT, VCAT, etc. Topics include: the brain, right brain vs. left brain thinking, problem-solving, using relationship sentences, analysis of trends and patterns, and deductive and hypothetical thinking. Students will take practice exams to guide them in studying for their specific exams.

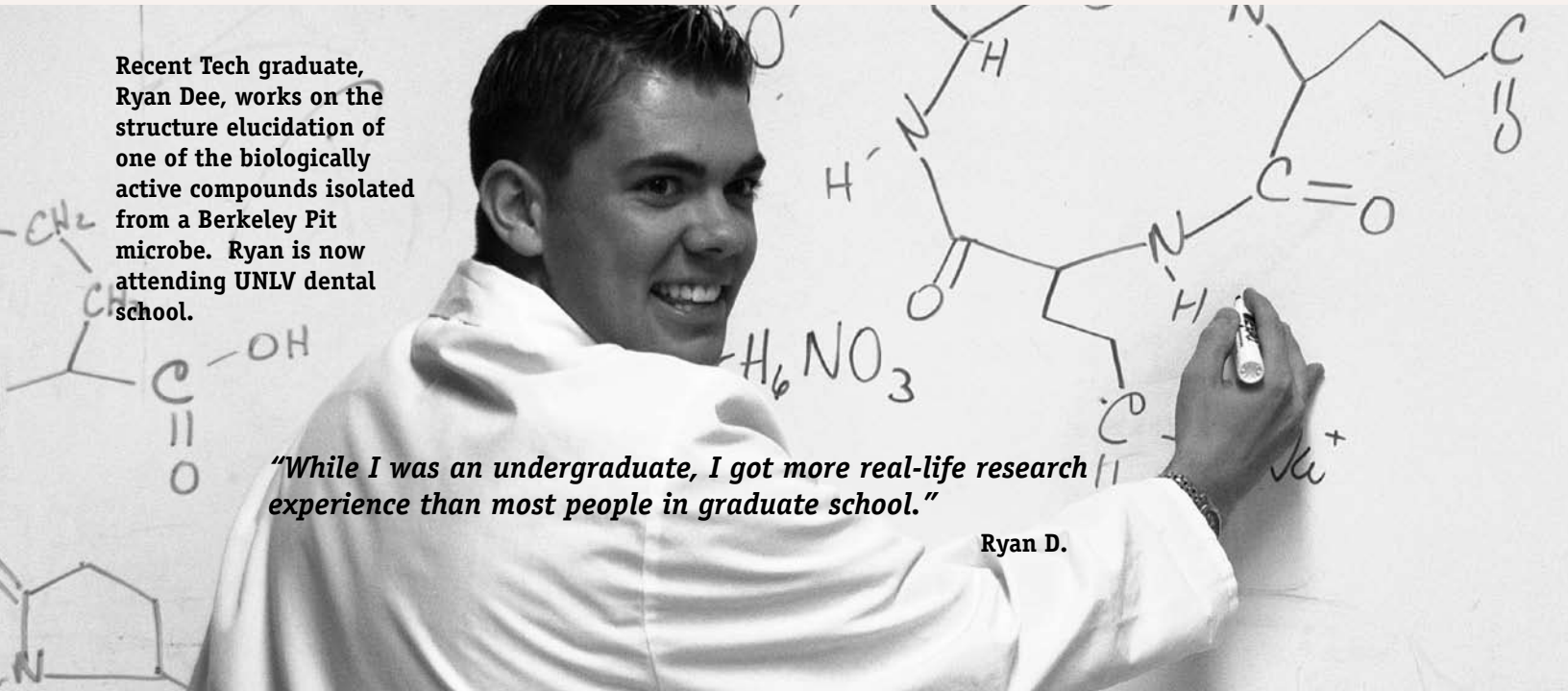
*Additional internship and current topics courses are available to help prepare you for admission into the professional health school of your choice.

Advisors

Pre-medicine, dentistry, pre-pharmacy, chiropractic, optometry, and others
Dr Doug Cameron
dcameron@mtech.edu
406-496-4247

Pre-physical therapy
Dr John Amtmann
jamtmann@mtech.edu
406-496-4346

Pre-veterinary science
Dr Rick Douglass
rdouglass@mtech.edu
406-496-4450



Recent Tech graduate, Ryan Dee, works on the structure elucidation of one of the biologically active compounds isolated from a Berkeley Pit microbe. Ryan is now attending UNLV dental school.

"While I was an undergraduate, I got more real-life research experience than most people in graduate school."

Ryan D.

biological sciences

"Students in this program learn by "doing" science, not just by observing. We want our students to become actively involved in research activities and hands-on learning experiences."

Dr. Rick Douglass

Pursue a Biological Sciences degree to enter careers in the expansive biological fields or continue on to graduate studies in many areas including medical and veterinary schools. Become directly involved in research activities and opportunities through independent study or by assisting faculty in their research projects. Learn biological sciences in an environment that encourages close student-faculty interaction and take advantage of hands-on educational opportunities enhanced by Tech's proximity to national parks, wilderness areas, wildlife management areas and world class trout streams.

Special features

- All undergraduate students are required to complete a thesis during their senior year. This can help with acceptance into graduate school whether you are interested in practicing medicine or research.
- Hanta-virus expert Dr. Rick Douglass recently received federal support to continue his internationally recognized disease research.
- Secondary Education Certification is available for students interested in receiving their teaching credentials along with their Biology degree.
- Opportunities to participate in week-long field and winter ecology classes are conducted in Yellowstone National Park and wildlife management areas.

Placement

The 5-year average placement rate for Biological Sciences is 98% with an average starting salary of $26,900 for students choosing to work instead of attending graduate school.

Hanta-virus researcher and Department Head, Dr. Rick Douglass, is committed to experiential learning for students in Biology.

chemistry

Learn the fundamentals of the *central science* studying in the Professional Track; specialize in the Biochemistry, Environmental Chemistry or Geology/Geochemistry options; or tailor your electives and program to match your career objectives. Participate in faculty directed research in a highly personalized environment that brings the classroom information to life.

Faculty members are experienced in the classroom and the research laboratory and engage students in both settings. Faculty members and their students are actively involved in both fundamental and applied research that extends beyond the classical areas of chemistry; analytical, biochemical, inorganic, organic and physical, into exciting interdisciplinary areas, such as, computational chemistry, biotechnology, biogeochemistry, and material science.

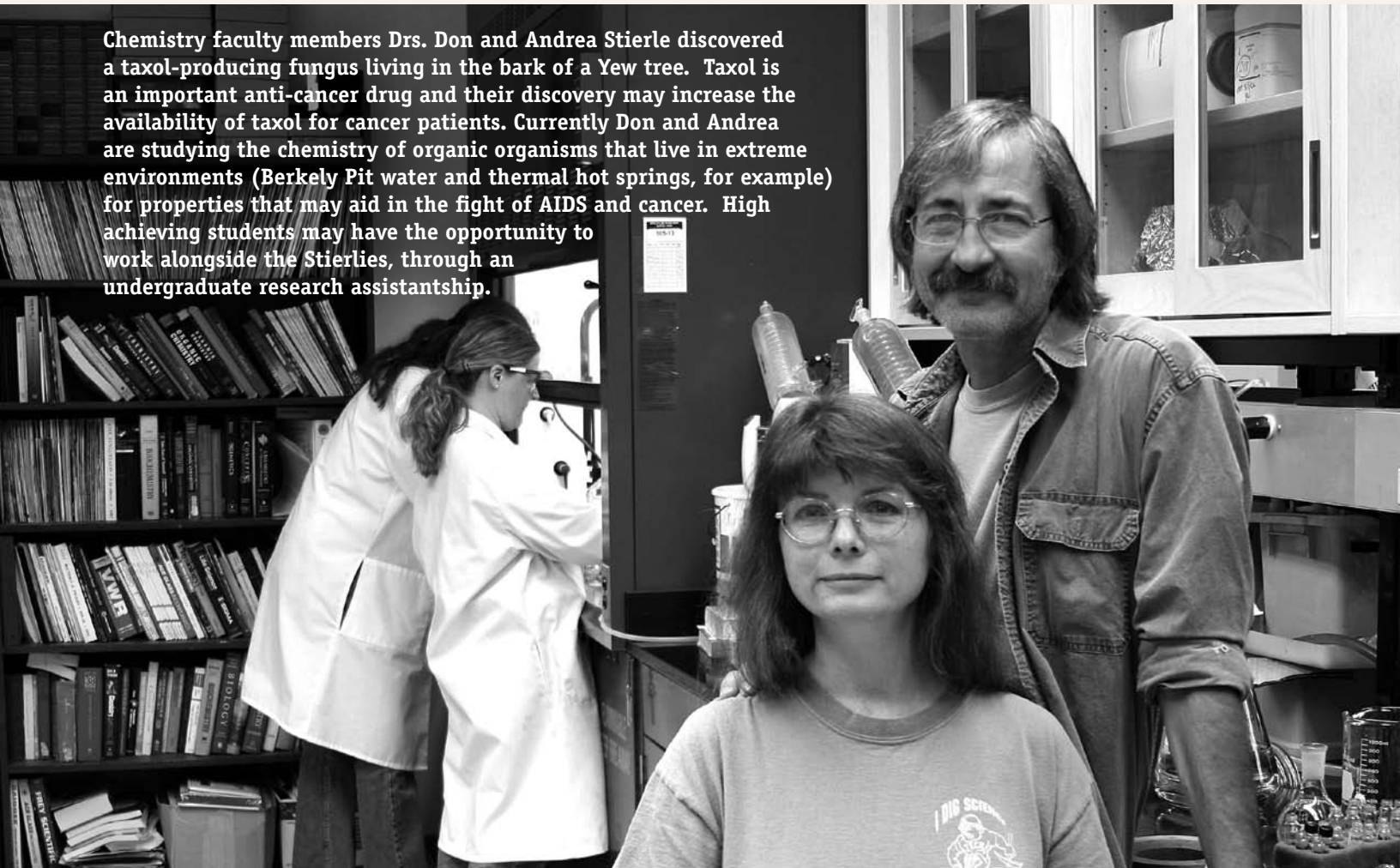
The new Biochemistry option is designed for students interested in pursuing careers in research and/or professional practice in biomedicine or health care. Career paths from this option include human and veterinary medicine, dentistry, pharmacy, optometry, medical technology, chiropractic and naturopathic medicine, etc.

Special Features:

- The Chemistry degree is certified by the American Chemistry Society
- The Montana Tech Chemistry Club is active in outreach to regional schools putting on a number of Chemistry Magic Shows each year. The Club is also involved in several social and academic outings during the school year.
- Most of the Chemistry faculty members are actively involved with federal/state/private funded research. Undergraduate students are active participants in this exciting and important work.
- The bio-chemistry option is available for students interested in a medical career. This was designed to meet the admissions requirements of most medical schools.
- Students involved with research present their work at local and regional scientific meetings. Several students have had their work published in scientific journals.
- Chemistry faculty members, Dr. Don Stierle and Dr. Andrea Stierle, have been recognized for their research on micro-organisms that can be used in the fight against AIDS and cancer. Recently, they were featured in *Discover Magazine*.

Placement

The five-year placement rate for Chemistry is 100% with an average starting salary of $36,250 for students choosing to work instead of attending graduate school.



Chemistry faculty members Drs. Don and Andrea Stierle discovered a taxol-producing fungus living in the bark of a Yew tree. Taxol is an important anti-cancer drug and their discovery may increase the availability of taxol for cancer patients. Currently Don and Andrea are studying the chemistry of organic organisms that live in extreme environments (Berkely Pit water and thermal hot springs, for example) for properties that may aid in the fight of AIDS and cancer. High achieving students may have the opportunity to work alongside the Stierlies, through an undergraduate research assistantship.

general science

CoreyAnne R., volleyball player and Whitefish, MT high school graduate.

Develop a broad educational background in science through Montana Tech's General Science degree. Explore a wide range of science courses in mathematics, physics, chemistry and biology in preparation for careers in many modern science fields or graduate school. Access the professors, labs and experiences in several of Montana Tech's outstanding scientific and technical programs. Tailor your education to prepare for graduate school in a variety of disciplines including medicine and research. Or combine a solid foundation in science with teacher education certification to fill the nationwide demand for high school science teachers.

To complete the General Science degree, students must choose two minors from the following: Biology, Chemistry, Computer Science, Geosciences, Mathematics, Physics and/or Professional and Technical Communication. Students interested in healthcare generally choose Chemistry and Biology for their minors.

Special Features

- General Science was specifically designed for the student interested in medicine and/or education.
- An interdisciplinary curriculum allows you maximum flexibility in studying the areas most directly related to your academic goals and personal interests.

Placement rates are unavailable since this is a new degree program at Montana Tech.

"General Science allows me to explore several areas of science that interest me. I am getting my minors in Geosciences and Biology. I tried a couple of other majors first but I prefer the broad-based approach offered in General Science. Right now I plan to get my Master's in Wildlife Biology, but I know that if I change my mind, my General Science degree will give me the opportunity to be successful in any graduate degree program."

occupational safety & health

Prepare yourself to enter exciting careers as a safety and health professional or as a health and fitness professional with a degree in Occupational Safety and Health (OSH). Study and understand the human body and its relationship with the environment. Enjoy a career in an appealing setting in which you work closely with people and divide time between office and field activities. Manage health and safety risks in a work environment through the development of safe work policies or pursue graduate work in industrial hygiene, safety, or health-related areas such as physical therapy, occupational therapy, sports medicine, or cardiac rehabilitation. The Applied Health Science Option is designed for the health-oriented student who wishes to work with people and who is concerned about their health and physical well-being. The Applied Health Science graduate will be trained to appraise an individual's lifestyle, health habits, and fitness level and will know how to complete and make recommendations from a personal fitness assessment.

Special Features

- The quality of the program has been recognized by the National Institute for Occupational Safety and Health (NIOSH) through annual training grants for equipment and scholarships
- A Master's degree in Industrial Hygiene is available at Montana Tech.

Placement

The five-year average placement rate for OSH is 100% with an average starting salary of $50,228 for students choosing to work instead of attending graduate school.

The OSH degree's focus on the interaction between the human body and its environment leads some students into the medical and pharmaceutical fields.

Dr. John Amtmann helps volleyball coach Marilyn Tobin and Dr. Bill Spath monitor athlete Gretchen C.'s cardiovascular recovery.

health care informatics

Dr. Yaseen Hayajueh lectures on the integration of telecommunications with information systems technology.

Combine skills in Information Technology, Health Care, and Communications to be at the interface of information and technology in a health care setting. Health Care Informaticists are in high demand throughout the Health Care industry with outstanding job opportunities and salary potential. Montana Tech's degree is the first undergraduate degree in Health Care Informatics in the United States.

Health care informatics is the multidisciplinary scientific endeavor of analyzing, formalizing and modeling how health care providers collect and manage data, process data into information and knowledge, make knowledge-based decisions and inferences for patient care, and use this empirical and experiential knowledge in order to broaden the scope and enhance the quality of their professional practice. Health care informatics encompasses the full range of activities that focus on the methods and technologies of information handling in health care. Health care informatics includes the development, support and evaluation of applications, tools, processes and structures which assist the practice of health providers with the management of data in direct care of patients.

Special Features

- The US Congress has made an initial grant of $400,000 to establish the National Center for Health Care Informatics in Butte, MT.
- Montana Tech has partnered with St. James Healthcare, The National Center for Health Care Informatics, IBM, and the Federal Government to insure a practical, real-world, cutting-edge approach to the curriculum in the HCI program.
- The National Center for Health Care Informatics (NCHCI) has designed, built and integrated an audio/visual (AV) and Access Grid Node (AGN) Communications System into a new 24-seat computer lab marking it "a classroom of the future." Within this laboratory, HCI students will have access to some of the latest health care software systems, will be able to research and test both two-way and multi-way, interactive video communication technologies, and will be at the cutting-edge of Internet II applications as they apply to the health care industry.

Placement

Career opportunities for Health Care Informatics are excellent. Since this is only the third year of offering this degree, no placement statistics are available.

college of technology

Montana Tech offers several two-year (associate of applied science) degrees directly related to medical office processes and procedures, outlined below, as well as several two-year clinical degrees detailed on page 11. As a student in any of the degrees listed below, you will develop the basic skills needed in an office setting and be able to complete your studies within two-years. Upon completion you may enter the workforce, or choose to continue your education with a bachelor's of applied science degree in Business.

Business Technology - Medical Office Specialist

Become familiar with the administrative needs of a medical office. Learn general office procedures as well as skills specific to the medical setting. Learn terminology and procedures specific to preparing medical and insurance forms, process accounts, make appointments and transcribe medical records and correspondence.

Medical Assistant

Perform routine administrative and clinical tasks in a physician's office. Assist with medical examinations and treatments and work as part of the team in a medical office environment. Work under supervision to take medical histories, obtain vital signs, give medications, draw blood, perform diagnostic tests and office laboratory procedures, sterilize instruments and maintain equipment. Develop abilities with computers, interpersonal communication, specialized forms and human resource management.

Accounting Technology – Health Services

Specialize in the accounting and bookkeeping demands of today's medical industry. Enter the workforce with a solid business office/accounting technology background and a specialization in medical terminology, software and coding and billing.

nursing

Enter the exciting world of healthcare in a program that offers two degrees in professional nursing—a **Bachelor of Science in Nursing (BSN)** completion degree and an **Associate of Science in Nursing (ASN)** degree. Students pursuing the BSN degree must first earn the ASN degree and pass the National Council of State Boards of Nursing's *National Council Licensure Examination for Registered Nurses (NCLEX-RN)* in order to continue into the BSN curriculum. Students must meet minimum program requirements and complete a formal program application to be accepted into the professional nursing program.

Montana Tech Nursing Department Philosophy

We believe:

- Nursing and nursing education are essential for the promotion, maintenance and restoration of health, along with the prevention of illness.
- Individuals who wish to enter nursing should be free to choose from a number of educational alternatives.
- Nursing and nursing education will become more complex as health care evolves. This continually changing health care environment mandates the role, function and educational preparation of the nurse.
- The profession of nursing is best served through highly educated members who continually strive to broaden their knowledge and expertise to meet the increasing demands of the health care environment.
- In a holistic approach to nursing education, including sensitivity to the physical, psychological, spiritual and sociocultural needs of the individual, family and community.
- In a continually evolving curriculum that reflects best practice.

Nursing Assistant (NA)

Montana Tech offers a Nurse Assistant Certificate Program. Students are accepted each Fall and Spring semester and complete the program in one semester. Space is limited and qualified students are accepted on a first-come/first-serve basis.

Graduates of the NA Program are eligible to apply for certification through the Montana Department of Public Health & Human Services after completing the Certified Nurse Assistant graduation requirements.

Placement

The five-year average placement rate for RN's is 98% with an average starting salary of $39,660.

medical technology

Surgical Technology

Work closely with surgeons, anesthesiologists, and registered nurses in delivering patient care preoperatively, intra-operatively, and postoperatively. Learn to function as a scrub technologist with responsibilities that include: preparing the operating room, instruments, equipment and supplies as well as positioning and preparing a safe environment for the patient during surgery.

The Surgical Technology Program is a collaborative program between The University of Montana-Missoula College of Technology and Montana Tech. You will complete your coursework in Butte and graduate with an associate of applied science degree from The University of Montana-Missoula College of Technology

Admissions into Montana Tech or University of Montana does not guarantee acceptance into the Surgical Technology Program. Work closely with the local advisor at Montana Tech, Laurie Noel for assistance through the pre-requisite coursework. You can contact Laurie directly at 406-496-3760 or lnoel@mtech.edu.

Radiologic Technology

Use x-ray equipment to produce images of the tissue, organs, bones and vessels of the human body. Become a medical professional who performs diagnostic imaging examinations and administers radiation therapy treatments.

Upon completion of the associate of applied science degree and registration as a Radiologic Technologist, continued into the one-year certificate in Diagnostic Medical Sonography. Enter a career that is one of the fastest growing professions in the country.

Admissions into Montana Tech does not guarantee acceptance into the Radiologic Technology Program. Work closely with the local advisor at Montana Tech, Laurie Noel, for assistance through the pre-requisite coursework. You can contact Laurie directly at 406-496-3760 or lnoel@mtech.edu.

Chemical Dependency Counseling

Explore your opportunities in CDC by contacting Professor Jack Crowley at 496-4462 or JCrowley@mtech.edu. Montana Tech partners with off-site colleges to offer CDC certification opportunities while you complete your Liberal Studies Degree. The viability of guaranteed program offerings is being explored due to the large demand for this type of certification in Southwest Montana. Details are available through the program coordinator, Jack Crowley.

Academic Programs

ENGINEERING (Bachelor of Science):

- Electrical Engineering
- Environmental Engineering
- General Engineering:
  - Civil Engineering Option
  - Mechanical Engineering Option
  - Welding Engineering Option
- Geological Engineering:
  - Geotechnical Option
  - Hydrogeology Option
  - Mining Option
  - Petroleum Option
- Geophysical Engineering
- Metallurgical & Materials Engineering
- Mining Engineering
- Petroleum Engineering
- Software Engineering

NON-ENGINEERING (Bachelor of Science):

- Biological Sciences
- Business & Information Technology
- Chemistry
- Computer Science
- General Science*
- Healthcare Informatics
- Network Technology
- Liberal Studies
- Mathematical Sciences*
- Nursing (ASN, BSN)
- Occupational Safety & Health
- Professional & Technical Communication

OTHER ACADEMIC OPTIONS:

- Elementary and Secondary Education (with UM Western)
- Helena Business Program (UM Helena)
- Pre-professional Health
- Chemical Dependancy Counseling

*Secondary education certification available.

COLLEGE OF TECHNOLOGY (Associate of Applied Science):

- Accounting Technology
  - Accounting Option
  - Human Resource Option
  - Health Services Option
- Business Technology
  - Administrative Computer Specialist
  - Medical Office Specialist
- Network Technology
- Nursing Assistant Certificate
- Medical Assistant
- Radiologic Technology
- Surgical Technology+
- Drafting Technology
- Historic Preservation Technology
- Civil Engineering Technology
- Construction Technology - Carpentry
- Automotive Technology
- Metals Fabrication Technology

+Offered in conjunction with UM COT.

unexpectedly affordable

The Princeton Review lists Montana Tech as one of the 81 **best value** colleges in the nation. The most recent edition of The Best 357 Colleges ranks Montana Tech as the 4th **best value** in public education in the nation. Nearly $1 million dollars in new student scholarships are awarded to new students each year. Tech students graduate with less debt than students from any other four-year Montana college or university. The low cost of living and affordable housing in Butte are beneficial to Tech students. Excellent job placement and high starting salaries make it easier to pay back student loans.

impressively personal

A 16:1 student to faculty ratio and an average class size of 19 facilitate the relationships that lead to student success. Students learn from professors, most with current industry experience, not teaching assistants. Free tutoring and other educational services are provided by the Tech Learning Center TLC (the acronym is not coincidental). **Students get the help they deserve.**

exceptionally driven

Students participate and excel in international academic competitions. The Career Services department excels in placing hard working success oriented students in internships as well as permanent positions.. The average placement rate of Montana Tech graduates over the last decade exceeds 96%. Engineering graduates consistently enjoy 100% placement with average starting salaries approaching $50,000 and frequent signing bonuses! Hard work is rewarded. New student scholarships are awarded on previous academic success primarily GPA, class-rank, and extra-curricular activities with consideration of ACT or SAT.

refreshingly real

Tech is located in beautiful southwestern Montana with abundant opportunities for outdoor recreation. Campus life is fun with activities ranging from sports to live bands to casino night in the residence halls. Life here is laid back and personal where you will be on a first-name basis with your professors. Classes are challenging, not cut-throat, with an emphasis on collaboration. Barron's Best Buys for colleges recognizes Montana Tech stating "you would be hard pressed to find a place as low-key and personal in this realm of academe."

quality focused

Faculty maintain industry experience and are on the cutting edge in science research. Industry advisory boards work closely with faculty to develop current and challenging curricula. The Princeton Review recognized Montana Tech as "one of the best small science and engineering colleges in the world".