**Math/Science Courses:**

**AHMS 144 Medical Terminology**

3 Credits

This course provides allied health students with an introduction to basic health and medical terms. It includes the study of the Greek and Latin root words, prefixes, and suffixes. Emphasis is placed on common anatomical, pathological, and diagnostic words and phrases.

Fall

**ANTY 101 Introduction to Anthropology**

3 Credits

A survey of anthropology which introduces the fundamental concepts, methods and perspectives of the field. The description and analysis of human culture, its growth and change. The nature and functions of social institutions.

Fall

**ANTY 122 Race and Minorities**

Race, ethnicity, and minority are powerful cultural and social constructs in American society. This course will explore from a critical anthropological perspective the concept of race to assess its validity as a biological and socio-cultural category. In the latter portion of the course, we will examine the relationship between race, ethnicity, and minority status among the major ethnic groups of the United States, outlining their political, economic, and cultural struggles for societal equality.

Spring

**ANTY 210 Introduction to Biological Anthropology**

3 Credits

An introduction to human evolutionary biology including processes of evolution, primate studies, hominin paleontology, and human variation.

Fall

**ANTY 220 Culture and Society**

3 Credits

Study of social organization of non-western societies; emphasis on variations in ecology, social structure, economic, political and religious beliefs and practices.

Spring

**ANTY 250 Introduction to Archaeology**

3 Credits

This class will provide students with an understanding of the methods and theoretical approaches archaeologists utilize to understand and explain past human societies. The history of the discipline and its evolution to current methods and theories will be introduced. An emphasis will be placed on known cultural/archaeological sites located within the Blackfeet Traditional homelands.

Fall

**ANTY 270 Introduction to Linguistics**

3 Credits

An introduction to the field of modern linguistics and to the nature of language. Emphasis on the ways different cultures develop symbol systems for representing meaning.

Spring

**ANTY 286 Survey of the Forensic Sciences**

3 Credits

This course is a survey of forensic sciences and related disciplines and their use in criminal investigations. Topics will include crime scene processing, pathology, types of physical and trace evidence, firearms, and the role of forensic scientists in the investigative process and also as an expert witness.

Spring

**ANTY 296 Introduction to Cultural Resource Management**

3 Credits

This class will be an introduction to cultural resource management and the laws that govern it.

Students will become familiar with the cultural resource management system as it protects the archaeological and cultural resources on Federal lands.  Emphasis will be placed on the protection of cultural sites located on the Blackfeet Reservation.

Spring

**ANTY 299 Special Topics in Anthropology**

Variable Credits

As new topics/ findings immerge, based on student and faculty interest courses will be offered under the special topic number. Based on the content, credit hours will be determined.

Fall or Spring

**BIOB 101 Discover Biology**

3 Credits

Corequisite BIOB 102

This course introduces basic biological principles including the basic structure of the cell, interrelationship of structure and function, and the characteristics and classification of the five kingdoms of living things, as well as the basic ecological concepts. This course is designed for non-science majors.

Fall or Spring

**BIOB 102 Discover Biology Lab**

1 Credit

Corequisite BIOB 101

Laboratory exercises will relate the principles of BIOB 101 lectures.

Laboratory experiences will include experimentation, microscope work, observations, and dissection.

Fall or Spring

**BIOB 160 Principles of Living Systems**

3 Credits

Corequisite BIOB 161

This course covers the structure, function, and reproduction of cells; biological macromolecules, biochemical pathways, cell division, and basic principles of genetics; modern biotechnology and major control mechanisms within the body.

Fall

**BIOB 161 Principles of Living Systems Lab**

1 Credit

Corequisite BIOB 160

This course will practice scientific method, while applying the principles of BIOB160 lectures through laboratory exercises.

Fall

**BIOB 170 Principles of Biological Diversity**

3 Credits

Corequisite BIOB 171

Examination of the diversity, evolution, and ecology of life including eukaryotes, bacteria, viruses, Protista, fungi, plants, and animals. Ecological concepts such as natural selection, ecosystems, energy relationships, cycles, population and communities will also be studied.

Spring

**BIOB 171 Principles of Biological Diversity Lab**

1 Credit

Corequisite BIO 170

Laboratory exercises will relate the principles of BIOB 170 lectures. Laboratory experiences will include basic lab safety, experimentation, microscope work, observation, and dissection.

Spring

**BIOB 291 Special Topics in Biology**

Variable Credits

As new topics/ findings immerge, based on student and faculty interest courses will be offered under the special topic number. Based on the content, credit hours will be determined.

Fall or Spring

**BIOH 104 Basic Human Biology**

3 Credits

Corequisite BIOH 105

Explore the fundamental concepts, principles, and processes in the systemic organization of the human body. Describe the structure and function of the human body in the maintenance of a homeostatic condition at the cellular and tissue levels, biochemical processes, physiological systems, genetics, and metabolism.

Fall or Spring

**BIOH 105 Basic Human Biology Lab**

1 Credit

Corequisite BIOH 104

Lab exercises will apply scientific concepts and methods of inquiry to coordinate with the course work for BIOH 104.

Fall or Spring

**BIOH 201 Human Anatomy and Physiology I**

3 Credits

Prerequisite BIOB 104 or BIOB 160

Corequisite BIOH 202

The study of the systematic organization of the human body through anatomical methodology and physiological mechanisms. Emphasis will be on levels of organization, tissue differentiation, and the structure, function and pathologies of the integumentary, skeletal, muscular, and nervous systems.

Fall

**BIOH 202 Human Anatomy and Physiology I Lab**

1 Credit

Corequisite BIOH 201

Lab exercises will identify the physiology of the various organ systems to coordinate with the course work of BIOH 201.

Fall

**BIOH 211 Human Anatomy and Physiology II**

3 Credits

Prerequisite BIOH 201

Corequisite BIOH 212

This is a continuation of Anatomy & Physiology I. The students will study the structural and functional workings of the endocrine system, blood, cardiovascular system, lymphatic system, digestive system, respiratory system, urinary and reproductive system.

Spring

**BIOH 212 Human Anatomy and Physiology II Lab**

1 Credit

Corequisite BIOH 211

Lab exercises will identify the physiology of the various organ systems to coordinate with the course work of BIOH 211.

Spring

**BIOH 256 Principles of Pathophysiology**

3 Credits

Prerequisites [BIOH 201](http://catalog.montana.edu/search/?P=BIOH%20201), [BIOH 211](http://catalog.montana.edu/search/?P=BIOH%20211), CHMY 141

This course introduces the abnormal functioning of human cells, tissues, and organ systems, and the physiological adaptations that occur. Commonly encountered age-related variations are addressed. The influences of environment, genetics, nutrition, and culture are emphasized. Current research that explains the changes that accompany a particular syndrome or disease is considered.

Spring or Summer

**BIOM 250 Microbiology for Health Science**

3 Credits

Prerequisite BIOH 201

Corequisite BIOM 251

The study of microorganisms. Major emphasis is on the structure, function, and behaviors of normal biome vs pathogenic organisms in humans, the etiology of infectious diseases, the immune system response, and the techniques used to identify and control the pathogens.

Spring

**BIOM 251 Microbiology for Health Science Lab**

1 Credit

Corequisite BIO 250

The labs will focus on the methods used in the medical setting to isolate and identify pathogenic microorganisms.  This laboratory class will support the concepts learned in BIOM 250.

Spring

**BIOO 220 Introduction to Botany**

3 Credits

Prerequisite BIOB 101

Corequisite BIOO 221

An introduction to the science of botany that focuses upon the structure and function in plants: cytology, anatomy, morphology, taxonomy, ecology, and physiology of plants.

Fall

**BIOO 221 Introduction to Botany Lab**

1 Credit

Prerequisite 102

Corequisite 220

Laboratory activities will coordinate with lectures and class work in the science of botany that focuses upon the structure and functions in plants: cytology, anatomy, morphology, taxonomy, ecology, and physiology of plants.

Fall

**CHMY 121 Introduction to General Chemistry**

3 Credits

Prerequisite M 098 or greater

Corequisite CHMY 122

This is an introductory course that focuses on general chemistry applications. The focus is on the measurement systems, atomic structures, chemical periodicity, and bonding. Students learn about chemical reactions, acid-base chemistry, electrochemistry, and nuclear chemistry.

Fall or Spring

**CHMY 122 Introduction to General Chemistry Lab**

1 Credit

Corequisite CHMY 121

Lab to accompany CHMY 121. This course covers the topics found in the introduction to general chemistry.

Fall or Spring

**CHMY 123 Introduction to Organic and Biological Chemistry**

3 Credits

Prerequisite CHMY 121

Corequisite CHMY 124

This course is an introduction to organic chemistry and biochemistry. Topics covered include organic nomenclature, chemical bonding, functional groups, organic reactions, major classes of biological molecules, and metabolism.

Spring

**CHMY 124 Introduction to Organic and Biological Chemistry Lab**

1 Credit

Corequisite CHMY 123

Laboratory activities will be coordinated with the topics and lectures of CHMY 123.

Spring

**CHMY 141 College Chemistry I**

3 Credits

Prerequisite M 098 or greater

Corequisite [CHMY 142](https://catalog.msubillings.edu/search/?P=CHMY%20142)

Introduces the student to the fundamental concepts of chemistry, including elements and compounds, the periodic table, atomic structure, chemical equations, stoichiometry, solution concentrations, gas laws, heat and energy, quantum theory, and chemical bonding. Primarily intended for science majors/minors, pre-engineering, and allied health students.

Fall or Spring

**CHMY 142 College Chemistry I Lab**

1 Credit

Corequisite [CHMY 141](https://catalog.msubillings.edu/search/?P=CHMY%20141)

Lab to accompany [CHMY 141](https://catalog.msubillings.edu/search/?P=CHMY%20141). Introduces the tools and techniques of experimental chemistry such as weighing, solution preparation, titration, and standardization.

Fall or Spring

**CHMY 143 College Chemistry II**

3 Credits

Prerequisites [CHMY 141](https://catalog.msubillings.edu/search/?P=CHMY%20141) and [CHMY 142](https://catalog.msubillings.edu/search/?P=CHMY%20142)

Corequisites [CHMY 144](https://catalog.msubillings.edu/search/?P=CHMY%20144)

This course introduces the student to fundamental concepts of chemistry, including molecular geometry, solutions and condensed phases. Students learn about chemical / phase equilibria, kinetics, thermodynamics, and electrochemistry.

Spring

**CHMY 144 College Chemistry II Lab**

1 Credit

Prerequisite [CHMY 142](https://catalog.msubillings.edu/search/?P=CHMY%20142)

Corequisite [CHMY 143](https://catalog.msubillings.edu/search/?P=CHMY%20143)

Lab to accompany [CHMY 143](https://catalog.msubillings.edu/search/?P=CHMY%20143). Introduces qualitative analysis and other topics to complement the lecture material.

Spring

**CHMY 293 Special Topics in Chemistry**

Variable Credits

As new topics/ findings immerge, based on student and faculty interest courses will be offered under the special topic number. Based on the content credit hours will be determined.

Fall or Spring

**EGEN 105 Introduction to Engineering**

3 Credits

Provides students an opportunity to explore the fields of engineering, engineering technology, and computer science. Other topics include engineering design, career opportunities, professionalism, and ethics.

Fall

**ENSC 105 Introduction to Environmental Science**

3 Credits

This course is the study of the physical and biological environment, nonrenewable resources, energy resources and uses and basic ecological principles that lead to a sustainable biosphere. Emphasis will be on the impact humans and nature have on the earth and on related resource management techniques.

Fall

**ENSC 220 Surface Water Hydrology**

3 Credits

Prerequisite ENSC 105 & M121

Surface water hydrology is designed to provide students with an understanding of basic surface water hydrology and hydrological process. This course involves an in-depth analysis of the hydrologic cycle and principles.

Fall

**ENSC 243 Introduction to Soils**

3 Credits

This course introduces the student to soil formation and conservation methods. Topics include: wind and water erosion, control on cropland, range, and forest land. Students will receive the basic information on the soil formation factors and five soil types. Students will conduct basic chemical testing on different soil samples. This course will also have an emphasis on the use of soils by the Blackfeet Nation.

Spring

**ENSC 255 Climate Diversity**

3 Credits

This course provides a basic review of how the climate system works, and how we know about past climate change and the ecological response. The course focuses on how climatic conditions influence the distribution and abundance of organisms on the Earth and how plants, animals and people are responding to changes within that system.

Spring

**ENSC 270 Water Quality Monitoring**

3 Credits

This course provides an understanding and an awareness of the basic principles of water quality.  Course content will include water quality parameters, pollution sources, and water treatment.  This will be related to water regulations, requirements, policies, understanding the basics of water quality plan both locally and regionally, and testing procedures.

Spring

**ENSC 272 Water Resources**

3 Credits

This course provides a basic introduction to the fundamental concepts, techniques, and knowledge required to understand and manage water resources. The course will introduce a variety of water resource topics including: water resource terminology, the principles of the hydrologic cycle, water balance techniques, hydrology, hydrogeology, basic computational techniques, historic water information, water law, and water rights overview.

Spring

**FORS 225 Introduction to Forestry**

3 Credits

This course explores the development of forestry. Topics include basic forest ecology, harvesting, dendrology, environmental requirements and physical properties of the major tree species of the Northern Rocky Mountains.  Emphasis will be on the Montana and Blackfeet Reservation tree species.

Fall

**FORS 250 Geographical Information System and Geographical Positioning System (GIS/GPS)**

4 Credits

This course is an introduction to the Global Positioning System and an introduction to geographical information systems. GPS equipment will be introduced and utilized. Data is entered into the GIS ARC software to process mapping and presentation capabilities.

Fall

**FORS 251 Geographical Information System (GlS) ll & lll**

3 Credits

This course is designed to teach basic cartography and map layout. The use of GlS tools including buffering and other basic geoprocessing methods. This course involves editing and creating geospatial data and spatial analysis with raster data.

Spring

**GEO 101 Introduction to Physical Geology**

3 Credits

Corequisite GEO 102

This course studies general geology that includes the work of wind, flowing water, glacial ice, gravity, earthquakes, volcanoes, and plate tectonics in shaping the earth. Topics such as weathering, rock and mineral identification, geologic time, and hydrology will be covered.

Spring

**GEO 102 Introduction to Physical Geology Lab**

1 Credit

Corequisite GEO 101

Lab experiences will introduce students to local geology, including glacial features, faults, extinct volcanoes, ancient sedimentary rock formations, folded and fractured rock, landslides, stream features, erosion, and mineral deposits.

Spring

**GPHY 141 Geography of World Regions**

3 Credits

This course is an introduction to how the land and peoples of the world are organized into geographical regions. Each region will be examined to identify the different landscapes and people who reside there. Students will recognize differences in their traits, beliefs, ways of life, and economic livelihood.

Spring

**M 065 Pre-Algebra**

3 Credits

This course is a developmental course to prepare students for further mathematics course work. This course can count as an elective toward fulfilling degree requirements. This course covers the concepts (including correct terminology) of fractions, decimals, percent, ratio and proportion, order of operations, and 2 step equation solving.

Fall

**M 066 Math Lab**

1 Credit

This is a faculty mentored math-learning environment. This class assists students who need further guidance in math courses.

Fall or Spring

**M 098 Introductory and Intermediate Algebra**

4 Credits

Prerequisite M 065 or Placement Exam

This course covers basic algebra concepts including terminology; operations on rational numbers; solving and graphing linear equations and inequalities in one and two variables; determining equations of lines; and polynomial and function operations. Students will then explore solutions and graphs of quadratic equations. Using graphing calculators, students will explore solutions to: radical equations, systems of equations, and rational equations.

Fall or Spring

**M 105 Contemporary Mathematics**

 **3 Credits.**

This course is designed to meet the general education mathematics requirement. It surveys some of the important ideas and practical applications in mathematics and uses a variety of mathematical skills and technology to solve real problems. Topics include problem solving, financial math, mathematical modeling (linear and quadratic), and elementary statistics.

Fall

**M 115 Probability and Linear Math**

3 Credits

Prerequisite M 098 or Placement Exam

This course covers graphing, systems of linear equations, geometry, and matrix algebra. This course will include an introduction to set theory and operations, probability, statistics, and mathematics of finance. Applications in the natural sciences, social sciences, business and gaming will be stressed.

Fall or Spring

**M 121 College Algebra**

3 Credits

Prerequisite M 098 or Placement Exam

This course covers an in-depth examination of standard topics of college algebra including linear and quadratic functions, polynomial and rational functions, exponential and logarithmic functions. Solving systems of equations using matrices will also be covered.

Fall or Spring

**M 132 Numbers and Operations for Elementary School Teachers**

3 Credits

Prerequisite M 098 or M 115

The study of number and operations for prospective elementary and middle school teachers. Topics to be covered include whole numbers, decimals, fractions, percent, integers, operations, numeration systems, and problem solving.

Fall

**M 133 Geometry and Measurement for Elementary School Teachers**

3 Credits

Prerequisite M 132

The study of geometry and geometric measurement for prospective elementary and middle school teachers. Topics to be covered include synthetic, transformational, and coordinate geometry, constructions, congruence and similarity, 2-dimensional and 3-dimensional measurement, and problem solving.

Spring

**M 151 Pre-Calculus**

4 Credits

Prerequisite M 121 or Placement Exam

This course is designed to prepare students in mathematics or science fields of study for entry into a calculus sequence. This course will cover analytic and geometric properties of polynomials, rational, exponential, logarithmic, and trigonometry expressions, functions, and graphs. Trigonometric functions, inverses, and trigonometric identities will be studied as well as conic sections, complex numbers, sequences and series, and systems of linear equations.

Spring

**M 171 Calculus I**

4 Credits

Prerequisites M 151 or Placement Exam

This course covers polynomials, rational, exponential, logarithmic, and trigonometric functions and their behavior both analytically and graphically. The fundamental Theorem of Calculus will be studied including limits, derivatives, and approximations with focus on interpretations and applications for the functions studied.

Fall

**M 172 Calculus II**

4 Credits

Prerequisite M 171 or Placement Exam

This course covers techniques of integration, area computations, volume computations, and improper integrals. Applications of integrals in the sciences is explored. We will look at infinite series and various convergence tests, Taylor’s formula, polar coordinates, and parametric curves.

(time permitting)

Spring

**M 234 Higher Mathematics for Elementary School Teachers**

3 Credits

Prerequisite M 132 & M 133

The study of algebra, number theory, probability and statistics for prospective elementary and middle schoolteachers. This course includes proportional reasoning, functions, elementary number theory, statistical modeling and inference, and elementary probability theory.

Fall

**NUTR 221 Basic Human Nutrition**

3 Credits

This course covers the basic concepts of human nutrition, which include carbohydrates, lipids, proteins, vitamins, minerals, absorption, digestion, metabolism, and energy utilization as they relate to health and food consumption at different stages of the life cycle.

Fall

**PHSX 121 Fundamentals of Physics I**

3 Credits

Prerequisite M 115 or Higher

Corequisite PHSX 122

This course covers the concepts of making precise observations of physical phenomena describe

mathematically. Students also use problem-solving abilities and applications of physical

concepts through algebraic manipulations of variables to predict outcomes. Students will also

use laws of motion to explain moving objects and learn the principles of thermodynamics (such

as temperature, heat, laws of thermodynamics, and the kinetic theory of gases).

Fall

**PHSX 122 Fundamentals of Physics I Lab**

1 Credit

Corequisite PHSX 121

Students complete and write up activities related to the course topics taken in conjunction and

coordinated with PHSX 121.

Fall

**PHSX 123 Fundamentals of Physics II**

Course Description:

3 Credits

Prerequisite PHSX 121

Corequisite PHSX 124

This course covers topics apply principles of electrostatic and electric current to make prediction

as well as electromagnetic induction, electromagnetic radiation, wave motion, optics, and

relativity. The use of algebraic manipulations of variables will be utilized. Students will also

learn Quantum and particle physics and relativity.

Spring

**PHSX 124 Fundamentals of Physics II Lab**

1 Credit

Corequisite PHSX 123

Students complete and write up activities related to the course topics taken in conjunction and

coordinated with PHSX 123.Students apply their knowledge through content learned

Spring

**PHSX 215 Fundamentals of Physics w/Calculus I**

3 Credits

Prerequisite M 115 or Higher

Corequisite PHSX 216

This course covers the concepts of mechanics, fluids, waves and sound. Students also use problem solving abilities and applications of physical concepts.

Fall

**PHSX 216 Fundamentals of Physics Lab w/Calculus I**

1 Credit

Corequisite PHSX 215

Students complete and write up activities related to the course topics taken in conjunction and coordinated with PHSX 215.

Fall

**PHSX 217 Fundamentals of Physics w/Calculus II**

3 Credits

Prerequisite PHSX 215

Corequisite PHSX 216

This course overs topics in thermodynamics (such as temperature, heat, laws of thermodynamics, and the kinetic theory of gases) and modern physics (such as relativity; models of the atom; quantum mechanics; and atomic, molecular, solid state, nuclear, and particle physics).

Spring

**PHSX 218 Fundamentals of Physics Lab w/Calculus II**

1 Credit

Corequisite PHSX 217

Lab to accompany PHSX 217. Student’s apply their knowledge through heat, electricity, magnetism and light labs.

Spring

**SCI 150 Scientific Wonders of Glacier National Park**

3 Credits

Students will explore the vast unique features that Glacier National Park has to offer. Students will have an outdoor experience to view the resources located in Glacier National Park. They will be introduced to the history and cultural ties the Blackfeet people have to the landscape.

Fall

**SCI 151 CITI Program Human Subjects Research (HSR) Certification**

3 Credits

This course offers students certifications in several research areas by the use of comprehensive courses which provide expanded training covering not only major topical areas but also many concepts that are specific to types of research, roles in the protection of human subjects, and advanced modules on informed consent topics, vulnerable populations, stem cell research, phase I research, data and safety monitoring, big data research, mobile apps research, and disaster and conflict research.

Fall or Spring

**SCI 212 Physical & Life Science**

4 Credits

This course focuses on the history of natural science. The study of the solar system, geological, chemical and biological factors of the Universe. Emphasis will be the integration of the Blackfeet ways of knowing.

Spring

**SCI 213 Earth & Sky**

4 Credits

The course will provide both reductionist and holistic approaches. Space Science/Astronomy is the study of everything in outer space based on the planet solar system. Special emphasis will be an integration from the Blackfeet Ways of Knowing, Wonders of Glacier National Park, and Blackfeet Sky Stories.

Fall

**SCI 251 rETHICS**

4 Credits

The purpose of this training is to culturally adapt a research training that prepares researchers to conduct ethical research with American Indian and Alaska Native communities. Research Ethics Training for Health in Indigenous Communities – is grounded on Indigenous knowledge and values and discusses concerns as identified by American Indian and Alaska Natives related to conducting ethical research with their communities.

Fall or Spring

**SCI 290 Special Topics in Science**

Variable Credits

The student and the instructor will jointly agree upon topics and format of study, with emphasis placed upon allied health, environmental science, or nutrition/food preparation topics.

Fall or Spring

**SCI 295 Introduction to Scientific Research and Writing**

3 Credits

This course presents students with knowledge to develop and apply basic concepts within the context of scientific inquiry. The students present scientific research through a formal paper, poster, and power-point that describes and analyzes scientific data or experimental ideas.

Spring

**STAT 216 Introduction to Statistics**

4 Credits

Prerequisite M 115 or M 121

This course is designed to provide the student with an introduction to the concepts of statistics and probability. Concepts covered include the following: organization and description of data, measure of location and central tendencies, frequency and variance, counting and probability, expected value, and the binomial distribution. Other topics include normal distributions, confidence intervals, sample sizes, hypothesis testing, regression and correlation.

Fall or Spring

**WILD 134 Wildlife and People**

3 Credits

This course is designed to provide students with a wide variety of tools on how to apply ecological knowledge to balance the needs of animals with those of people. Topics include history, philosophy, inventory, planning, management, and Blackfeet uses of wildlife.

Spring