Students must pass prerequisites with a "C" or better to enroll in chemistry courses.

IV. Acceptance into the Teacher Education Program and Student Teaching Program

A. Teacher Education Program: Individuals pursuing academic programs that lead to teacher licensure must seek admission to the teacher education program by the end of their sophomore year.

B. Student Teaching Program: In the spring semester of the junior year, all preservice teachers must seek admission to the student teaching program. See index for page numbers for these programs.

Note: In order to be licensed to teach in a secondary school in Montana, a student is required to have a teaching minor in a subject field acceptable for licensure endorsement as well as the teaching major. All degree students should review requirements for graduation as described in this catalog.

Minor in Chemistry

I. Minor Program Requirements

CH 101-102 General Chemistry
CH 205 Quantitative Analysis
CH 301-302 Organic Chemistry
Plus 1 additional upper-division chemistry course

Minor in Chemistry for Secondary Education

I. Minor Program Requirements

CH 101-102 General Chemistry
CH 205 Quantitative Analysis
CH 301-302 Organic Chemistry

II. Other Program Requirements

ED 346 Teaching Science in the Secondary School
MA 121 Differential Calculus
MA 207 Elementary Statistics
PHIL 252 Philosophy and History of Science
Plus 1 additional 4-credit course in biology or physics.

Note: In order to be licensed to teach in a secondary school in Montana, a student is required to have a teaching major in a subject field acceptable for licensure endorsement as well as the teaching minor. All degree students should review requirements for graduation as described in this catalog.

CIVIL ENGINEERING

GARY FISCHER, M.S.
MARY E. KEEFFE, PH.D.
TERENCE J. MULLEN, P.E.
JOHN L. SCHARF, PH.D.
ANTHONY M. SZPILKA, PH.D.
WILLIS WEIGHT, PH.D.

Mission and Goals

Consonant with the mission of the College, this department is "dedicated to providing for its students the means for their full realization of a dual goal of vocation and enlightenment." Society requires competent professionals who can solve contemporary problems by using connections among disciplines, especially the humanities, engineering and technology, and the sciences. The Programs within this Department are designed to blend the unique characteristics of Catholic liberal arts education with preparation for productive and rewarding professional careers. The four professional educational objectives of this department are to produce graduates who have:

1) The specialized knowledge and skills necessary for initiation into their chosen profession,
2) A broad range of skills necessary for effective communication,
3) An appreciation for the interrelationships among the branches of knowledge,
4) The ethical, social, and aesthetic perspectives necessary for values-based judgment and decision-making.

Major in Civil Engineering

The civil engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering & Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

The Civil Engineering Program has adopted the philosophy and goals of the department. The four major areas of study with the Program are: structures, environmental, water resources, and transportation.

I. Major Program Requirements

ENGR 104 Engineering Graphics and CAD Applications
ENGR 201 Introduction to Engineering
ENGR 202 Water Distribution Systems
ENGR 302 Engineering Mechanics I: Statics
ENGR 303 Engineering Mechanics II: Solids
ENGR 305 Electrical Circuits and Electronics
ENGR 307 Fluid Mechanics
ENGR 308 Thermodynamics
ENGR 309 Geotechnical Engineering
ENGR 310 Structures I
ENGR 313 Hydrology
ENGR 401 Hydraulics
ENGR 402 Environmental Engineering Principles
ENGR 403 Structures II: Steel Design
ENGR 405 Water and Wastewater Treatment
ENGR 406 Structures III: Reinforced Concrete Design
ENGR 407 Transportation Engineering
ENGR 411-412 Senior Design Project
ENGR 289 Construction Materials

II. Other Program Requirements

EC 201 or 202 Principles of Economics (EC 202 preferred)
EC 203 Project Management Economics
CH 101-102 General Chemistry I and II
EN 325 Technical Writing
MA 131 Calculus of Single Variable Functions
or MA 121-122 Differential and Integral Calculus
MA 232 Differential Equations and Linear Algebra I
MA 233 Multivariable Calculus
MA 334 Differential Equations and Linear Algebra II
MA 336 Probability and Statistics I
PHIL 207 Business Ethics
PHYS 205-206 Engineering Physics
Students must take the Fundamental of Engineering (FE) exam within nine months prior to receiving the degree.

To earn a Bachelor of Arts degree with a major in civil engineering, a student must earn a grade of "C" or better in all of the courses listed under "Major Program Requirements" and under "Other Program Requirements." A lesser grade in any of these courses must be replaced before the Bachelor of Arts degree with a major in civil engineering

will be granted. In addition, lesser grades in any of these courses preclude taking subsequent courses for which the deficient courses are a prerequisite.

CIVIL ENGINEERING: ENVIRONMENTAL EMPHASIS

GARY FISCHER, M.S.
MARY E. KEEFFE, PH.D.
TERENCE J. MULLEN, P.E.
JOHN L. SCHARF, PH.D.
ANTHONY M. SZPILKA, PH.D.
WILLIS WEIGHT, P.E.

Department Mission and Goals

Consonant with the mission of the College, this department is "dedicated to providing for its students the means for their full realization of a dual goal of vocation and enlightenment." Society requires competent professionals who can solve contemporary problems by using connections among disciplines, especially the humanities, engineering and technology, and the sciences. The Programs within this Department are designed to blend the unique characteristics of Catholic liberal arts education with preparation for productive and rewarding professional careers. The four professional educational objectives of this department are to produce graduates who have:

1) The specialized knowledge and skills necessary for initiation into their chosen profession,
2) A broad range of skills necessary for effective communication,
3) An appreciation for the interrelationships among the branches of knowledge,
4) The ethical, social, and aesthetic perspectives necessary for values-based judgment and decision-making.

The Environmental Emphasis Option in Civil Engineering is designed to produce graduates who are prepared for professional, technical and scientific, engineering work in environmental clean-up, restoration, protection, and preservation. The environmental option in civil engineering is designed to meet accreditation criteria specified by the Accreditation Board for Engineering and Technology (ABET). As a result, Carroll graduates with a major in Civil Engineering – Environmental Emphasis will be eligible to take the two Professional Engineering licensure exams and thereby earn a Professional Engineer license. The civil engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board of Engineering & Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: 410-347-7700.

The Civil Engineering: Environmental Emphasis Program has adopted the philosophy and goals of the department. The four major areas of study with the Program are: structures, environmental, water resources, and transportation.

I. Major Program Requirements

ENGR 105 & ENGR 106 GIS/Surveying/CAD I and II *
ENGR 205 Construction Materials & Testing
ENGR 302 Engineering Mechanics I: Statics
ENGR 303 Engineering Mechanics II: Solids
ENGR 307 Fluid Mechanics
ENGR 308 Thermodynamics
ENGR 310 Structures I
ENGR 313 Hydrology
ENGR 323 Water Quality *
ENGR 324 Land Use &Restoration*
ENGR 325 Hydrogeology*
ENGR 326 Energy & Environment*
ENGR 327 Air Quality*
ENGR 401 Hydraulics
ENGR 405 Water & Wastewater Treatment
ENGR 407 Transportation Engineering
ENGR 411-412 Senior Design Project
ENGR 423 Public Health & Environment*
ENGR 423 Ground Water Modeling*

II. Other Program Requirements

EC 201 or 202 Principles of Economics (EC 202 preferred)
EC 203 Project Management Economics
CH 101-102 General Chemistry I and II
ENWR 305 Technical Writing
MA 131 Calculus of Single Variable Functions
or MA 121-122 Differential and Integral Calculus
MA 232 Differential Equations and Linear Algebra I
MA 233 Multivariable Calculus
MA 334 Differential Equations and Linear Algebra II
MA 336 Probability and Statistics I
PHIL 207 Business Ethics
PHYS 205-206 Engineering Physics

Students must take the Fundamental of Engineering (FE) exam within nine months prior to receiving the degree.

To earn a Bachelor of Arts degree with a major in civil engineering: environmental emphasis, a student must earn a grade of "C" or better in all of the courses listed under "Major Program Requirements" and under "Other Program Requirements." A lesser grade in any of these courses must be replaced before the Bachelor of Arts degree will be granted. In addition, lesser grades in any of these courses preclude taking subsequent courses for which the deficient courses are a prerequisite.

*Pending Approval.

CLASSICAL STUDIES

REV. DANIEL SHEA, PH.D.

Mission and Goals

The Classical Studies program operates under the aegis of the Department of Languages and Literature. With its particular focus upon the study of the Classical Greek and Latin languages, and ancillary courses offered through other departments, the program is designed to prepare students with a major/minor concentration for advanced study in the Classics and related fields. The program also serves the needs and interests of a range of students from other majors and from the community at large, for whom the study of Greek or Latin satisfies a personal interest or complements their academic pursuits. The knowledge, discipline, critical thinking and problem solving skills developed through the Classical Studies program are widely applicable and adaptable to the exigencies of an ever changing world; they engender habits of mind and heart well appreciated by a broad spectrum of graduate and professional programs and employers, and promote personal satisfaction, life-long learning, and intellectual and spiritual enlightenment.

The Classical Studies program will produce graduates who:

I. Read, understand, and interpret a classical language

II. Demonstrate knowledge and understanding of Greco-Roman culture

III. Connect with other disciplines and expand knowledge

IV. Develop insight into their own language and culture

V. Participate in wider communities of language and culture