



THE GRADUATE SCHOOL | MONTANA STATE UNIVERSITY

# Civil Engineering

## DEGREES OFFERED

- M.S. in Civil Engineering
- M.S. in Environmental Engineering
- Ph.D. in Engineering
- Options: Applied Mechanics  
Civil Engineering  
Environmental Engineering



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Graduate education is an opportunity to specialize in your field of interest. As an undergraduate, you develop broad-based technical expertise with an emphasis on engineering science and design. As a graduate student, you will expand your knowledge of your chosen field tremendously. This experience requires dedication, independent thought, and technical integrity; and rewards you with an increased understanding of what you are passionate about and broader career opportunities.

For the M.S. and Ph.D. degrees, major study is offered in various combinations of the subject areas of transportation engineering, geotechnical engineering, fluid mechanics, hydraulic and hydrologic engineering, structural engineering, engineering mechanics, and environmental engineering.

Some M.S. programs are available following a concurrent schedule of undergraduate and graduate classes starting the senior year, allowing a B.S. and M.S. to be obtained in a total of ten semesters (5 years) of study. This program is intended for qualified students interested in a practitioner-oriented career path.

## ADMISSION

A bachelor's degree in a similar engineering field is generally the minimum requirement for admission to the graduate programs in the department, although graduates from other program areas may be accepted. In such cases, additional courses may be required to make up subject area deficiencies. All applicants must meet the requirements of both the department and the Graduate School.

## PROGRAM REQUIREMENTS

### MS Degree

Students may pursue their M.S. degree following either Plan A or Plan B. A Plan A student prepares a thesis that is submitted to the student's graduate committee and defended at the oral comprehensive examination. A Plan B student prepares a professional paper that is submitted to the student's advisor

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## Civil Engineering, *continued*

and presented at a CE 594 seminar. Both Plan A and Plan B students are required to complete 30 credits of study and an additional one (1) credit of graduate seminar. All candidates for the M.S. degree must pass a written comprehensive examination near the completion of their graduate program. Specific M.S. curriculum requirements are highly individualized and are established in consultation with and approved by the student's graduate committee.

### Ph.D. Degree

At the doctorate level the College of Engineering grants a Ph.D. degree in Engineering with specialization in civil engineering, applied mechanics and environmental engineering. A minimum of 60 credits are required beyond the bachelor's degree to receive a PhD. Additional coursework may be required based on a student's background and program needs. For students with a Master's degree, up to 24 graded credits hours may be applied from that program toward a PhD. Students are required to take qualifying exams within 3 semesters after entering the program, followed by a comprehensive exam and dissertation defense toward the end of their program.

Ph.D. students in the Civil Engineering Department often collaborate with faculty in other engineering departments or in the science or natural resources fields. Recent Ph.D. level projects include studies of snow and ice as related to avalanches (engineering mechanics), cold climate performance of constructed wetlands (environmental engineering), three-dimensional modeling of water flow in hydraulic structures (water resources engineering), biofilms in hydraulic systems (environmental engineering), and techniques for groundwater remediation (environmental engineering).

### RESEARCH FACILITIES

The research facilities of the department include well-equipped laboratories to support research across the sub-disciplines of civil engineering. Students also frequently utilize the research facilities of the Center for Biofilm Engineering, the Western Transportation Institute and the Subzero Science and Engineering Laboratory.

### FINANCIAL ASSISTANCE

A number of teaching and research assistantships are available in the department for students who qualify. Specific opportunities are identified at and after application to the program.

### DEPARTMENT HEAD

Dr. Jerry Stephens

### PROFESSORS

- E.E. Adams; *engineering mechanics, continuum and snow mechanics*
- A. Al-Kaisy; *transportation engineering*
- J. E. Cahoon; *hydraulics, river engineering*
- A. K. Camper; *water quality and treatment, environmental engineering*
- A. B. Cunningham; *water resources, environmental engineering*
- J. J. Fedock; *structural engineering geotechnical engineering*
- T. E. Lang; *solid mechanics*
- Z. Lewandowski; *environmental engineering*
- R. L. Mowka; *geotechnical engineering*
- S. W. Perkins; *geotechnical and pavements engineering*
- O. R. Stein; *water quality management, hydrology*
- J. E. Stephens; *structural engineering, sustainable materials*
- R. D. VanLuchene; *structural engineering, computer analysis of structures*

### ASSOCIATE PROFESSORS

- P. M. Knoll; *construction engineering*

### ASSISTANT PROFESSORS

- M. Berry; *structural engineering, sustainable materials*
- A. Larsson; *structural engineering*
- Y. Wang; *transportation engineering, transportation ecology*
- K. Plymesser; *water resource engineering*
- K. Hammonds; *engineering mechanics*
- E. Lauchnor; *environmental engineering*
- A. Phillips; *environmental engineering*
- D. Fick; *structural engineering*
- L. R. McKittrick; *engineering mechanics*
- D. E. Smith; *surveying engineering*