

What Can I **Do** With a Major In...

Civil Engineering-Bio-Resources Engineering Option?

The Bio-Resources Option in a Civil Engineering program² applies mathematics, physics, chemistry and biology to natural resources related infrastructure systems in order to arrive at designs that are safe, enduring, cost effective, attractive and sustainable. Students study the basic engineering principles associated with, geotechnical engineering (soil mechanics and soil structure), environmental engineering (from groundwater remediation to hazardous waste disposal), and water resources engineering.

Programs at Montana State University² prepare students for careers dealing with land reclamation, soil and water remediation, hydraulic and hydrologic design, environmental impact and assessment, and natural resource management. The first two years of this option are very similar to the first two years of the standard Civil Engineering curriculum. The third and fourth years allow students to build upon the basic Civil Engineering curriculum with courses that focus on soil, water, and environmental concerns. Civil Engineering majors that select the Bio-Resources option may take upper level professional electives in chosen areas of Civil Engineering, Environmental Engineering, Mathematics, Biology, Ecology, or Land Resources and Environmental Sciences.

Professional employment opportunities for Civil Engineers with the Bio-Resources option exist in consulting engineering, industry and state and federal agencies.

Characteristics associated with success¹ in this major include an interest in mathematics, physics, chemistry, and biology, a keen desire to build or repair natural and man-made systems, and a dedication to working for a better and sustainable quality of life.

Students should¹:

- be interested in the environment
- have a strong interest in applying science based knowledge
- have a strong curiosity about nature and enjoy being outdoors
- be interested in a management position with responsibilities to make important decisions with long-term consequences
- be interested in maintaining compliance with rules and regulations of federal and state agencies
- be a logical thinker and creative problem solver
- enjoy working as part of a team
- have good computer skills

Occupations in this field require ability to¹: communicate well, both orally and in writing; think logically; and collect, organize, analyze, and interpret scientific data.

Related occupations include¹:

- Environmental Monitoring Specialist
- Land Rehabilitation
- Environmental Analyst or Scientist
- Environmental Consultant
- Public Works Director
- Forestry Products Development
- Hydrologist
- Resource-Recovery Engineer
- Environmental Engineer
- Hydraulic Engineer
- Sanitary Engineer

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MSU graduates (Bachelor's degree) were hired in the following selected fields³:

Associate Civil Engineer– WWC Engineering, Inc.
Civil Engineer– Barnard Construction; Gaston Engineering; USDA Forest Service
Civil Engineering Specialist– Montana Department of Transportation
Carpenter– Chris Prior Productions
Carpenter/Management– Yunck Construction
Engineer– Bridger Engineers
Engineer In Training– The Stantec Group; Thomas Graham Civil Design Group; Thomas, Dean and Hoskins
Engineer Intern– WGM Group, Inc.; Allied Engineering Inc; Schmueser Gordon Meyer Engineering
Entry Level Engineer– WWC Engineering, Inc.
EIT Associate– WWC Engineering, Inc.
Farmer– Family Farm
Project Manager– Sletten Construction; Benchmark Associates
Research Intern– Montana State University
Staff Engineer– HKM Engineering

Salary averages of survey respondents: (# of respondents in parentheses)³

2007: MT: \$41,000 (2)	Out of State: \$41,520 (2)
2006: MT: \$38,358 (4)	Out of State: \$43,280 (3)
2005: MT: \$32,528 (5)	Out of State: \$49,000 (3)
2004: MT: \$33,933 (3)	Out of State: Insufficient Data

Graduates from this program entered programs of further education at these institutions:

Montana State University
Colorado State University
University of Wyoming
North Carolina State University

Other Sources of Information:

American Society of Civil Engineers: www.asce.org/asce.cfm
American Society for Engineering Education: www.asee.org
Department of Civil Engineering, Montana State University: www.coe.montana.edu/ce/

For more information contact:



Montana State University
177 Strand Union Building
Bozeman, MT 59717
(406) 994-4353
www.montana.edu/careers

¹University of Oregon. 2007. Created by intoCareers, a unit of the University of Oregon. Montana information Montana Career Information System. Discover: 2008 by ACT, Inc.

²Montana State University Department of Engineering

³Montana State University Career & Internship Services

Number of graduates/number of respondents: 2004: 12/11; 2005: 11/11; 2006: 14/10; 2007: 5/5