

# PRE-ENGINEERING

With an ever-growing population and an ever-changing world, engineers will always be needed. Bridges, roads, tunnels, houses, and other building structures need to be built and maintained. In our Pre-Engineering program, you will spend time at Wayne State building a solid foundation in physics, math, and chemistry, and then transfer to a professional engineering to complete your engineering degree. Or you can remain at WSC for all four years and obtain an undergraduate degree, then move on to graduate work in engineering.

## fast facts

### Recommended majors:

Mathematics/Applied Mathematics (B.S.)  
Life Sciences/Biology (B.A. or B.S.)  
Chemistry/Chemical Sciences (B.A. or B.S.)  
Computer Science (B.A. or B.S.)

**Departments:** Physical Sciences and Mathematics, Life Sciences, Computer Technology and Information Systems

**Schools:** Science, Health, and Criminal Justice; Business and Technology

**Suggested minors:** Biology, Chemistry, Computer Science, Earth Science, Environmental Studies, Manufacturing Management, Mathematics, Physics, Web and Mobile App Design

## focus on results

### Skills Learned

- Methods to solve problems in math and science
- Proficiency in solving complex math problems
- Chemical processes and materials
- Chemical experiment and design
- University physics and experimentation
- Research, observation, and analysis of data
- Critical thinking and problem-solving
- Ability to work independently
- Time management

### Possible Careers

- Chemical engineer
- Civil engineer
- Electrical engineer
- Mechanical engineer
- Architectural engineer
- Industrial engineer
- Aerospace engineer
- Product design engineer
- Plant engineer
- Biomedical engineer

### Types of Employers

- Engineering firms
- Tech companies
- Government / federal agencies
- Manufacturing companies
- Product development companies
- Aerospace companies
- Aviation companies
- Processing companies
- Biomedical companies
- Research labs
- Construction companies

## outside the classroom

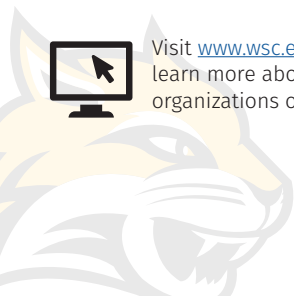
### Activities / Opportunities

- Nebraska S-STEM Program
- Peer mentoring and tutoring
- Service-Learning
- Study Abroad

### Clubs / Organizations

- Association for Computing Machinery
- Biology Club

Visit [www.wsc.edu/clubs](http://www.wsc.edu/clubs) to learn more about clubs and organizations on campus.



The following information is provided to guide you in the pre-professional program described on this sheet. Every effort is made to ensure this information is current, but please be aware that some content may have changed. To develop a plan for choosing a major and registering for courses, please consult the current academic catalog and your advisor.

## Suggested majors for Pre-Engineering

The following majors are recommended for students obtaining a bachelor's degree at Wayne State College before pursuing advanced studies in engineering. Additional electives may be recommended. Participation in the Pre-Engineering program at WSC does not guarantee acceptance to an engineering program.

**Mathematics/Applied Mathematics (B.S.)** — The Applied Mathematics program focuses on not just equations, but on how to apply these equations to tackle engineering challenges across various engineering fields.

**Life Sciences/Biology (B.A. or B.S.)** — Our Biology program offers plenty of time in the lab and lays the groundwork needed for students pursuing advanced studies in biomedical, environmental, or biotechnology engineering programs.

**Chemistry/Chemical Sciences (B.A. or B.S.)** — Many branches of engineering, such as chemical, environmental, biomedical, or materials engineering, are heavily based on chemistry.

**Computer Science (B.A. or B.S.)** — Core skills in programming, hardware, software design, and operating systems can ensure a smooth transition into advanced computer engineering concepts.

## Sample courses

Students may be advised to take the following courses while pursuing one of the recommended majors. Please consult with your advisor to draft a final plan of study, and be sure to check with your intended medical school to make sure you're meeting all prerequisite course requirements.

CHE 106 General Chemistry I .....	4
CHE 107 General Chemistry II .....	4
CSC 150 Programming Fundamentals I.....	3
PHY 115 Professionalism in Science and Engineering .....	2
PHY 214 Applied Statics.....	3
PHY 215 Applied Dynamics .....	3
PHY 301 University Physics I and PHY 321 Physics Lab I .....	5
PHY 302 University Physics II and PHY 322 Physics Lab II.....	5
MAT 240 Calculus II.....	5
MAT 250 Differential Equations .....	3

## department faculty



Visit [www.wsc.edu/physical-sciences-mathematics-department](http://www.wsc.edu/physical-sciences-mathematics-department) to learn more about the Department Physical Sciences and Mathematics.

Visit [www.wsc.edu/life-sciences-department](http://www.wsc.edu/life-sciences-department) to learn more about the Department of Life Sciences.

Visit [www.wsc.edu/computer-technology-information-systems-department](http://www.wsc.edu/computer-technology-information-systems-department) to learn more about the Department of Computer Technology and Information Systems.

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