

BIOLOGICAL SYSTEMS ENGINEERING

Biological systems engineering (BSE), an accredited engineering program in the College of Agricultural and Life Sciences, applies engineering principles to natural systems and machinery design that impact production of food, water, energy, and more. Uniquely positioned at the intersection of engineering and sustainability with multiple flexible study options to match a wide range of interests, students can follow defined tracks in natural resources and environmental engineering, food or bioprocess engineering, machinery systems engineering, or customize their classes using the general option.

Students benefit from a low student to faculty ratio and individualized advising that fosters teamwork. They have access to all resources for UW–Madison students in the College of Engineering, plus those available to students in the College of Agricultural and Life Sciences. Admission is not competitive, meaning all students who meet the criteria are admitted. The program provides a broad education in physical sciences and engineering, but also teaching skills in fabrication, electronics, design, product development, and management.

The BSE program, like all undergraduate engineering programs on the UW–Madison campus, is accredited by ABET (<http://www.abet.org>) (Accreditation Board for Engineering and Technology) and prepares students for licensure as a professional engineer. Students who graduate from the program are well prepared for research and engineering careers in industry or government, or to continue their studies in graduate school.

LEARN THROUGH HANDS-ON, REAL-WORLD EXPERIENCES

BSE offers hands-on courses and experiences. First-year and senior-level design courses challenge students to develop solutions, build and test prototypes, and analyze results. Students integrate practical work experience through co-operative education (co-op) programs where students earn full-time salaries while working for a firm or through for-credit internships (paid or unpaid).

BUILD COMMUNITY AND NETWORKS

The program fosters community building through advising, coursework, and outside activities. Students can join the UW–Madison student chapter of the professional American Society of Agricultural and Biological Engineers (ASABE) to meet professionals, tour companies, explore career paths, and participate in national design competitions. Additionally, the department hosts student events, such as our fall mixer or Thanksgiving meal, to allow students to get to know each other and the faculty.

CUSTOMIZE A PATH OF STUDY

All majors take core engineering courses, then specialize in areas including machinery systems, natural resources and engineering, food engineering, or bioprocessing. Students can also develop their own customized focus areas. Many students also complete certificates in sustainability or renewable energy.

MAKE A STRONG START

An introductory engineering design course allows students to make personal connections with peers and learn fabrication skills on various industry machines in the BSE shop. In all courses, instructors offer homework help sessions to support students and encourage the formation of study groups.

GAIN A GLOBAL PERSPECTIVE

Students can choose from study abroad options, including courses taught in English, offered through the College of Agricultural and Life Sciences, the College of Engineering, or campus-wide opportunities. Recent students have traveled to China, France, Costa Rica, Africa, and more. Programs occur over full semesters or during summer and winter breaks. International internships, many with summer options, offer additional opportunities to gain global experience.

DEGREES/MAJORS/CERTIFICATES

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- Biological Systems Engineering, BS (<https://guide.wisc.edu/undergraduate/agricultural-life-sciences/biological-systems-engineering/biological-systems-engineering-bs/>)