

BIOSYSTEMS ENGINEERING



Biosystems engineers ensure that we have the necessities of life: a safe and plentiful supply of food and fiber, clean water to drink, renewable fuels and alternative energy sources and a safe and healthy environment. Auburn biosystems engineering graduates apply engineering to the challenges and opportunities presented by living ecosystems and the natural environment. Auburn University's Department of Biosystems Engineering boasts the only biosystems, forest, bioprocess, and ecological engineering curricula in Alabama.



NOTABLE

- » 172 undergraduate and 53 graduate students enrolled in fall of 2024.
- » 23 full-time faculty members
- » Multi-million-dollar renovation to Biological Engineering Research Laboratory

UNDERGRADUATE PROGRAMS

Bachelor of Biosystems Engineering

- » Option: Bioprocess Engineering
- » Option: Ecological Engineering
- » Option: Forest Engineering

Biosystems Engineering

The biosystems engineering program offers students a strong foundation in biology, mathematics, physics, chemistry, and engineering to solve problems in the production, processing and distribution of biological materials, as well as the protection and enhancement of the environment.

Areas of study include:

- » Biofuels and Bioproducts engineering
- » Food Safety Engineering
- » Water Resources Engineering
- » Biological Waste Management
- » Robotics, Automation, and Precision Agriculture
- » Smart Livestock Production Precision Technologies
- » Renewable Energy Engineering
- » Smart Technologies for Confined Production Systems

Bioprocess Engineering

The bioprocess engineering option focuses on the technologies used for converting biological materials to value-added products. Courses satisfy most requirements for students interested in health-related professions such as medicine, pharmacy, dentistry, and veterinary medicine.

Areas of study include:

- » Prepare for Health-related Professions
- » Bioremediation
- » Sustainable Conversion to Energy, Fuels and Chemicals
- » Biomaterials Value Addition

UNDERGRADUATE PROGRAMS (CONT.)

Ecological Engineering

The ecological engineering option provides students with the engineering fundamentals needed to solve environmental problems using knowledge of natural ecological and biological principles.

Areas of study include:

- » Watershed Analysis and Modeling
- » Natural Resource Conservation
- » Non-point Source Pollution
- » Stream and Wetland Restoration
- » Coastal Engineering
- » Algal-Bacteria Bioprocesses

Forest Engineering

The forest engineering option provides students with engineering fundamentals and focuses that knowledge on one of our most important resources — our forests. Students complete a summer field practicum after the sophomore year.

Areas of study include:

- » Smart Systems for Forestry
- » Structural Wood Engineering
- » Forest Operations Engineering
- » Off-highway Vehicle Engineering
- » GPS and GIS in Forestry and Biosystems

For information about academic programs and minors, visit www.eng.auburn.edu/programs

GRADUATE PROGRAMS

Graduate study in the Department of Biosystems Engineering may lead to the Master of Science or Doctor of Philosophy. At the graduate level, students can specialize in the following: Bioprocess Engineering, Biofuels and Bioproducts Engineering, Ecological and Water Resources Engineering, Soil and Water Conservation Engineering, Smart Systems for Production Ag and Forestry, Autonomous Agricultural Robots, AI-based Imaging Technology for Plant Phenotyping, Controlled Environment in Agriculture, Precision Animal Management, Ag Systems Modeling and Data Analytics, Climate Smart Ag and Forestry Systems, Sustainable and Circular Ag Systems.

TEAMS AND ORGANIZATIONS

Auburn Engineering students can participate in a variety of activities beyond the classroom, gaining experience with teamwork and project management. Along with various engineering-focused student competition teams, such as the War Eagle Pullers Quarter-Scale Tractor Design Competition, biosystems engineering students are encouraged to participate in campus organizations, such as:

- » Alpha Epsilon Honor Society
- » American Society of Agricultural and Biological Engineers
- » Baja SAE
- » Cupola Engineering Ambassadors
- » Engineering Student Council
- » Engineers Without Borders
- » Formula SAE
- » National Society of Black Engineers
- » Quarter-Scale Tractor Competition Team
- » Society of Hispanic Engineers
- » Society of Women Engineers

For more information, visit www.eng.auburn.edu/organizations

LIFE AFTER GRADUATION

Graduates in biosystems engineering are well equipped to use their expertise in many areas that affect our quality of life and environment. They are sought by industry, government, and public service organizations for their ability to apply engineering fundamentals to biological systems and to the management of land and water resources.

Biosystems engineering careers include design engineers, project engineers, forest engineers, plant engineers, water resources engineers, ecosystem restoration engineers, sales engineers, project managers, environmental compliance engineer, product development engineer, engineering manager, precision technology specialist, and research engineer.

RESEARCH, LABS AND CENTERS

Biosystems engineering provides its students with opportunities for research in many different areas within the field. Broad faculty expertise, combined with the department's quality teaching and state-of-the-art equipment, ensures that students obtain a thorough understanding of biosystems engineering. Research facilities include:

- » Advanced Biological Systems Laboratory
- » Aquaponics/Hydroponics Research and Demonstration Laboratory
- » Bioanalytical Laboratory
- » Biosystems Automation Laboratory
- » Biomaterials Characterization Laboratory
- » Biomaterials Processing and Conversion Laboratory
- » Bioprocess Engineering Laboratory
- » Center for Advanced Science, Innovation, and Commerce
- » Center for Bioenergy and Bioproducts
- » Chemical Analysis Laboratory
- » Computing Laboratory
- » Food Engineering Laboratory
- » National Poultry Technology Center
- » Robotics and Precision Farming Laboratory
- » Soil and Water Laboratory
- » Water Resources Center

SCHOLARSHIPS

The College of Engineering and the Department of Biosystems Engineering provide scholarship opportunities to students at every stage of their academic career. To be eligible for scholarships at Auburn University, all students must apply through the AUSOM system.

For information about engineering scholarships, visit www.eng.auburn.edu/scholarships

CONTACT US

Oladiran Fasina, Department Head
Jon Davis, Undergraduate Program Coordinator
200 Corley Building
Auburn, AL 36849
334.844.3537
www.eng.auburn.edu/bsen

Office of Engineering Student Services
1161 Brown-Kopel Student Achievement Center
Auburn, AL 36849
334.844.4310
engineering@auburn.edu
www.eng.auburn.edu/ess

Follow Auburn Engineering on Social Media

