

### WHAT IS 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, one of eight departments in the Samuel Ginn College of Engineering, boasts the only biosystems, forest, bioprocess and ecological engineering curricula in Alabama. Since its beginning in 1919, the department has been providing engineering solutions to advance the economic and environmental well-being of Alabama's citizens, as well as those around the world. With dynamic growth of faculty and students, the department will continue to serve the state well beyond the 21st century.

### NOTABLE

- 163 undergraduate and 31 graduate students enrolled in fall 2017
- 15 full-time faculty members
- Multi-million dollar renovation to Biological Engineering Research Laboratory

### UNDERGRADUATE CURRICULUM

- Bachelor of Biosystems Engineering
- Bachelor of Biosystems Engineering
  - » Bioprocess Engineering
- Bachelor of Biosystems Engineering
  - » Ecological Engineering
- Bachelor of Biosystems Engineering
  - » 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:

- Bioenergy and bioproducts engineering
- Biological waste management
- Food safety engineering
- Precision Agriculture
- Water resources engineering

#### 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:

- Biomaterials value addition
- Bioremediation
- Preparation for health-related professions
- Sustainable conversion to energy, fuels and chemicals

#### 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:

- Natural resource conservation
- Non-point source pollution
- Stream and river restoration
- Watershed modeling

#### 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. Upper-level topics include:

- Forest operations engineering
- GPS, GIS and precision forestry
- Off-highway vehicle engineering
- Structural wood engineering

For information about academic programs and minors, visit [www.eng.auburn.edu/programs](http://www.eng.auburn.edu/programs)

### GRADUATE CURRICULUM

Graduate study in the Department of Biosystems Engineering may lead to the Master of Science (M.S.) or Doctor of Philosophy (Ph.D.) At the graduate level, students can specialize in the following: Bioenergy and Bioproducts Engineering, Ecological Engineering, Metabolic and Biological Engineering, Off-Highway Vehicle Engineering, Precision Agriculture and Forestry, Water Resources and Climate Change or Food and Process Engineering.

### 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 AUSOM.

For information about engineering scholarships, visit [www.eng.auburn.edu/scholarships](http://www.eng.auburn.edu/scholarships)



## RESEARCH, LABORATORIES 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
- 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
- Hydraulics Laboratory
- Metabolic Engineering Laboratory
- National Poultry Technology Center
- Sensors and Controls Laboratory
- Soil and Water Laboratory
- Water Resources Center

## 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:

- American Society of Agricultural and Biological Engineers

For more information, visit

[www.eng.auburn.edu/organizations](http://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 engineer, ecosystem restoration engineer, sales engineers, project managers, engineering managers and research and development engineers.

Alumni work in a wide range of areas, including:

- Ecological engineering
- Biological engineering
- Production and Process engineering
- Off-highway vehicle engineering



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