BIOLOGICAL ENGINEERING

Biological engineers pioneer new technologies and processes in areas such as bioprocessing, precision agriculture, plant biology for space missions, biofuels, packaging, agricultural robotics and remote sensing along with addressing critical soil and water issues. Graduates are educated in the biological and environmental sciences, as well as in engineering. They will address critical problems involving land and water resources, biological systems, sustainable packaging and production agriculture. Individual selection of electives allows the student to focus on academic and career interests.

CONCENTRATIONS

Students in biological engineering take a core set of courses then select a more focused area of the major. Four areas of concentration are available:

Agricultural Production

- Agricultural production engineering is concerned primarily with the design and implementation of agricultural power and machinery, structures and their environments, greenhouses and instrumentation, robotics for agriculture and computer modeling and control.

Biosystems Engineering

- Biosystems engineering provides a framework for integrating fundamental engineering sciences and practice with biological sciences. The curriculum prepares students for advanced studies in biomedical engineering, bioprocess engineering and agricultural engineering and fulfills the requirements for admission to medical, dental and veterinary professional programs at the University of Florida.

Land and Water Resources Engineering

- Land and water resources engineering is concerned with all aspects of water and rural environmental management, including irrigation, water conservation, drainage, water control and structures, soil erosion, waste and wastewater recycling, water quality, ecosystems preservation and environmental quality.

Packaging Engineering

- Packaging engineering is concerned with the life cycle of the package, including design, development, distribution, transport and recycling of materials with a focus on packaging technologies and sustainable packaging solutions for a variety of food and consumer products.

PRE-PROFESSIONAL?

The biological engineering (BE) curriculum can fulfill requirements for admission to professional programs including medical, dental and veterinary medicine, as well as graduate programs such as biomedical, environmental and mechanical engineering.

BIOLOGICAL ENGINEERING

abe.ufl.edu/be

PEOPLE AND FACILITIES

The BE program has been a top-ranked program nationally by U.S. News and World Report. Personal advising, an open-door policy and helpful staff give the ABE department it's student-friendly reputation. Students will have the opportunity to work with award-winning faculty in modern laboratories and classrooms in Frazier Rogers Hall. The department features small class sizes and has a large computer lab for student use. The ASABE and Packaging student clubs provides opportunities for social interaction and industry networking.

CONTACT US

Robin Snyder
Academic Services
352-294-6709
rsnyder@ufl.edu

Dr. Kati Migliaccio
Department Chair
klwhite@ufl.edu

BIOLOGICAL ENGINEERING CURRICULUM

In addition to all required General Education courses, Biological Engineering students must complete:

- Calculus (MAC 2311, 2312, 2313)
- Chemistry (CHM 2045/2046 or CHM 2095/2096 and Labs)
- Physics (PHY2048/2049 and Labs)
- Elementary Differential Equations
- Professional Communication for Engineers

BIOLOGICAL ENGINEERING CORE COURSES

- Introduction to Biological Engineering
- Engineering Mechanics-Statics
- Elements of Thermodynamics and Heat Transfer
- Organic Chemistry
- Mechanics of Materials
- Computer Aided Graphics and Design
- Experimentation and Instrumentation in Civil Engineering
- Heat and Mass Transfer
- Elements of Dynamics
- Biology for Engineers
- Computer Methods in Engineering
- Land and Water Resources Engineering
- Physical and Rheological Properties of Biological Materials
- Professional Issues in Biological Engineering
- Fluid Mechanics
- Power and Machines for Biological Systems
- Biological Engineering Design 1 and 2

ELECTIVES

The program also incorporates 25 approved elective credit hours so students can focus their interest in Biological Engineering, Land and Water Resources Engineering, Packaging Engineering or Agricultural Production Engineering.