



Engineering
Accreditation
Commission



UNDERGRADUATE PROGRAM

BIOSYSTEMS ENGINEERING

2019
UNDERGRADUATE
ENROLLMENT:

60

APPROX. TOTAL
CREDIT HOURS*:

126

*Dependent on emphasis

Biosystems engineering focuses on sustainable designs for energy, water, and food. Biosystems engineers develop forward-thinking concepts for new systems — ones that minimize ecological impact and maximizes sustainability.

One area of study and research is the production of biorefinery compounds (biofuels, bioactive molecules,

biomaterials) using metabolic pathways found in nature and in green processing technologies. Biosystems engineering also encompasses the design of sustainable communities utilizing low-impact strategies for stormwater retention and treatment — and ecologically-sound food and energy crop production.



BIOSYSTEMS ENGINEERING AT CLEMSON

As a biosystems engineering student at Clemson, you'll learn to apply design and analysis skills to biological systems such as living organisms (microbial cultures, animals, humans), ecosystems (lakes, forests, watersheds) and natural resources (surface water, groundwater, soil, air), and incorporate fundamental biological principles to preserve ecological balance.

clemson.edu/ees

BIOSYSTEMS ENGINEERING

PROGRAM DETAILS:

What do Biosystems Engineers do? They design bioprocesses and systems for biofuels; develop ecological designs to integrate storm water management into the landscape; and integrate sustainability concepts into energy, water and food systems.

LABS AND FACILITIES

Brackett Hall Laboratories – The Undergraduate Field Research Lab has a suite of instruments and data loggers available for watershed monitoring including water level loggers, soil moisture probes, rain gauges, and a weather station. Labs pertaining to water and soil analysis, fermentation and other types of bioprocessing are also available in Brackett Hall.

Aquaculture Ponds – Four replicated freshwater pond systems are used for algae culture, carbon sequestration, and microbial fuel cell research and classwork.

Cherry Crossing Research Facility — University Recycling Services manages a compost site which processes food waste from campus. The Clemson Sustainable Biofuels Pilot Plant is located at Cherry Crossing and offers students a unique opportunity to get hands-on experience in biofuel production using the cooking oil waste generated on campus.

CLUBS AND ORGANIZATIONS

The Biosystems Engineering Club (BE Club) focuses on sustainable engineering issues, both local and global, by providing fun, engaging activities and social events. In the past, the club has participated in Walk for Water, hosted highway clean ups, and organized fundraisers to send members to the pinnacle of our club's year: the Southeastern Regional ASABE Rally, an annual showcase hosted by a select school in the southeast.

GRADUATE AND PROFESSIONAL SCHOOL

BE students have gone on to pursue graduate degrees in biosystems engineering, civil engineering, construction engineering, and environmental engineering at schools such as Colorado School of Mines, Cornell University, Georgia Tech, Johns Hopkins, Stevens Institute of Technology, UC Davis, and Virginia Tech. The program offers the option of a 5-year Bachelor of Science/Master of Science degree. Interested students should consult with a departmental advisor early in their undergraduate studies.

SCHOLARSHIPS

George B. Nutt Award in Biosystems Engineering: Presented to a senior and junior student majoring in biosystems engineering with outstanding achievements and possessing personal attributes necessary for successful accomplishments in this discipline. The award is given in honor of Dr. George B. Nutt, the first Department Chair of Agricultural Engineering at Clemson University who served from 1932 to 1955.



Department of
**ENVIRONMENTAL ENGINEERING
AND EARTH SCIENCES**
College of Engineering Computing
and Applied Sciences

CLEMSON



UNDERGRADUATE RESEARCH

Current Creative Inquiry projects in Biosystems Engineering include:

- Green Energy
- Biofuel Production
- Oyster Reef Restoration

MINORS

Many BE students opt to take the following minor programs offered by the Department of Environmental Engineering & Earth Sciences:

- Environmental Science and Policy
- Geology
- Nuclear Engineering and Radiological Sciences
- Sustainability

INTERNSHIPS AND CO-OPS

Recent BE students have interned and co-oped at:

- CALYX Engineers and Consultants
- Harper General Contractors
- Jacobs Engineering
- Santee Cooper
- Seabrook Island Properties

EMPLOYERS

Recent graduates have landed jobs at:

- Arcadis
- CALYX Engineers and Consultants
- Harper General Contractors
- Sugarleaf Labs
- Tesla

More info at: clemson.edu/cecas/psu