

BIORENEWABLE SYSTEMS, B.S.

Begin Campus: Any Penn State Campus

End Campus: University Park

Program Description

The BioRenewable Systems Major is an applied major that intertwines the study of engineering technology, natural resources, and agriculture with fundamentals of business, entrepreneurship, and management. Administered through the Department of Agricultural and Biological Engineering, the BioRenewable Systems (BRS) program uniquely prepares students to solve 21st century problems and attain careers in both traditional sectors and those relating to the emerging bioeconomy. Students in this program will secure: (1) knowledge of fundamental sciences related to resources, processes, and products in biorenewable systems; (2) communication and managerial skills relevant to careers in product development, technology, sales, marketing and management; and (3) the ability to apply systems analysis skills, positioning them for effective problem solving and leadership in the agricultural and bioproducts industries.

Graduates are typically employed as sales and field representatives, financial and technical consultants, and technical service or quality assurance personnel in renewable bioproducts or related agricultural sectors such as: power and machinery systems, forest products, food production, bioprocessing, environmental systems, wood structures, bioenergy, co-product development, and agrochemicals. Graduates may continue their education in a graduate program with a science, engineering, or business orientation.

The BRS major has two options: Agricultural Systems Management (ASM) and BioProducts (BP).

Agricultural Systems Management Option

This option applies a technological approach to understanding and managing agricultural production systems to meet economical and sustainable needs. Basic study is emphasized in the application of the technical results of engineering research, design, and manufacturing along with the agricultural and business management sciences. Graduates of this option apply their technology and management training to the diverse areas of food and fiber production; bioprocessing; and land, water, and air resources.

BioProducts Option

The scientific nature of biobased resources—their unique design, sustainability, and renewability. Building upon that foundation, students will learn techniques for converting and efficiently utilizing these materials to maximize product life cycles, while simultaneously exploring relevant marketing and management strategies. Technical electives for this option emphasize material sciences, engineering, and/or business. Career tracks are broad, ranging from traditional forest products companies to emerging sectors, including bioenergy co-products.

What is BioRenewable Systems?

The BioRenewable Systems major is an applied major that intertwines the study of engineering technology, natural resources, and agriculture with fundamentals of sustainability, business, operations, and management.

Administered through the Department of Agricultural and Biological Engineering, the Biorenewable systems (BRS) program uniquely prepares students to solve 21st century problems and attain careers relating to the emerging circular bioeconomy.

You Might Like this Program If...

- You want to make a difference in the world by developing more efficient and sustainable technologies and systems.
- You want to engage in testing, development, and improvement of equipment, processes, or green (food and other bio-based) products.
- You want to demonstrate features, advantages, and benefits of new technologies or products and train service personnel.
- You are interested in systems management, business applications, or technical sales, with a focus on biorenewable and agricultural industries.