



COLLEGE OF  
ENGINEERING, ARCHITECTURE  
AND TECHNOLOGY

# BAE BIOSYSTEMS ENGINEERING



## WHAT IS BIOSYSTEMS ENGINEERING?

Biosystems engineering addresses critical issues related to sustainable food supply, natural resources, energy, and health through integration of life and agricultural sciences with fundamental engineering principles.

## WHY BIOSYSTEMS ENGINEERING AT OSU?

The Department of Biosystems and Agricultural Engineering is dedicated to providing a high quality educational experience within a family-like atmosphere for students that is rooted in working at the interface of science, engineering and technology. You will be challenged to define innovative solutions to real-world problems through hands-on experiences, effectively work independently and in teams, communicate across disciplines, and engage in professional development opportunities.

## HIGHLIGHTS

### Real-World Projects

Each student in the biosystems engineering program will complete the two-semester senior design capstone course. The capstone provides you a team driven, open-ended design experience, and your final projects are evaluated by an external professional advisory panel.

### A strong partnership

Biosystems engineering students are part of both the Ferguson College of Agriculture and the College of Engineering, Architecture and Technology which enables them to benefit from the strengths of both academic colleges. Students receive communication from both colleges and are able to take advantage of the services, scholarships and award recognition programs available in both.

### Nationally Accredited Program

The bachelor of science degree in biosystems engineering is accredited, along with the other engineering programs in the College of Engineering, Architecture and Technology, through the Engineering Accreditation Commission of ABET. The Department of Biosystems and Agricultural Engineering and its faculty are administered through the Ferguson College of Agriculture.

## CAREER INDUSTRIES & FOCUS AREAS

### OPTIONS

- Bioprocessing and Food Processing
- Environment and Natural Resources
- Machine Systems and Agricultural Engineering
- Pre-Medical

### CAREER OPPORTUNITIES

- Design engineer
- Water resources engineer
- Manufacturing engineer
- Field test engineer
- Consultant engineer
- Research/development engineer
- Environmental engineer
- Process engineer
- Project/plant manager
- Medicine, law and regulatory



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BACHELOR OF SCIENCE  
**BIOSYSTEMS ENGINEERING**

# Typical Four-Year Curriculum

## FIRST YEAR

### Fall Semester

BAE	1011	Intro. to Biosystems
MATH	2144	Calculus I
HIST	1103	American Hist
ENGL	1113	Engl Comp I
CHEM	1414	Gen. Chemistry
UNIV	1111	First Yr. Seminar

### Spring Semester

BAE	1022	Exper Methods
MATH	2153	Calculus II
PHYS	2014	Gen. Physics I
ENGR	1332	Engr Design
ENGL	1213	Engl Comp II

## SECOND YEAR

### Fall Semester

BAE	2013	Comp. Methods
MATH	2163	Calculus III
PHYS	2114	Gen Physics
ENSC	2213	Thermodynamics
ENSC	2113	Statics
BIOL	1114	Intro. Biology

### Spring Semester

BAE	3033	Mat'l Sci of Biomat'ls
MATH	2233	Diff Equations
ENSC	3233	Fluid Mech
ENSC	2143	Strength Mat'ls
General Education Courses		

## THIRD YEAR

BAE	3213	Energy & Power
ENSC	2613	Intro Elec Sci
STAT	4073	Engr Statistics
BAE	3013	Heat/Mass Trans
BAE	3023	Inst & Ctrls
ENSC	2123	Dynamics
POLS	1113	American Gov't.
General Education Courses		

## FOURTH YEAR

BAE	4001	Prof Practice
BAE	4012	Engr Design I
IEM	3503	Engr Econ
BAE	4023	Engr Design II
General Education Courses		
General Education Courses		

## ADDITIONAL COURSES

### BASED ON OPTION

#### Machine Systems & Agri Engr - 124 Hours

BAE	4224	Machinery for Prod
BAE	3223	Ag and Off Road
ENSC	2123	Dynamics
ENSC	3313	Mat'ls Science
SOIL	2124	Soil Science
ENSC	3311	Mat'ls Science
Add'l 8 credit hours of electives		

#### Environment & Natural Resources

##### - 125 Hours

BAE	4314	Hydrology
BAE	4324	Water Quality
SOIL	2124	Soil Science
NREM	3013	Applied Ecology
CIVE	3833	Applied Hydraulics
CIVE	2081	Environ. Chem.
BAE	4323	GIS for Wtr Res
Add'l 6 credit hours of electives		

#### Bioprocessing & Food Processing

##### - 122 Hours

BAE	4283	Bioprocess Engr
BAE	4413	Food Engr
MICR	2123	Microbiology
MICR	2132	Microbiology Lab
BIOC	2344	App'ls of Biomolecules
ENSC	3231	Fluid and Hydraulics Lab
Add'l 8 credit hours of electives		

#### Pre-Medical - 125 Hours

CHEM	1515	Chemistry II
CHEM	3053	Organic Chem
CHEM	3153	Organic Chem II
CHEM	3112	Organic Chem Lab
MICR	2123	Intro to Microbiology
BIOL	1604	Animal Biology
MICR	3033	Cell & Molecular Biology
Any 4000 Level BAE class (5 hrs req)		

#### General Degree (No Option)

##### - 120 Credit Hours

BAE	3223	Off Road Machinery
BAE	4224	Machinery for Prod
BAE	4314	Hydrology
BAE	4283	Bioprocessing
BAE	4413	Food Engineering
ENSC	2123	Dynamics
Upper Level BAE		
AST courses		

## TOTAL HOURS: 120-125

Accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.



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This course plan is for general guidance only. An official course plan will be provided upon enrollment.

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