WHAT IS BIOSYSTEMS ENGINEERING?
The study of biosystems engineering merges engineering and agricultural science to improve our quality of life while maintaining the environment and preserving our natural resources.

WHY BIOSYSTEMS ENGINEERING AT OSU?
The focus of Biosystems Engineering is to enhance the production and profitability of agricultural and biological products. Biosystems engineers work at the interface of biology and technology to address problems and opportunities related to food, water, energy and the environment – all of which are critical to the future.

HIGHLIGHTS
- Students nearing completion of their undergraduate work participate in a design course spanning two semesters. The outcome of this course is a finished design that is presented in a professional manner to their corporate sponsor.
- The bachelor of science degree in biosystems engineering is accredited, along with the other engineering programs in the College of Engineering, Architecture and Technology (CEAT), through the Engineering Accreditation Commission of ABET.
- The biosystems engineering degree program is jointly administered by the College of Agricultural Sciences and Natural Resources (CASNR) and the College of Engineering, Architecture and Technology (CEAT). This relationship means biosystems engineering students benefit from the strengths of both academic colleges. Students receive communication from both academic colleges and are able to take advantage of the services, scholarships and award recognition programs available in both.

CAREER INDUSTRIES & FOCUS AREAS

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

CAREER OPPORTUNITIES
- Combustion engineer
- Consultant engineer
- Design and application engineer
- Development engineer
- Environmental agency engineer
- Field test engineer
- Food processing consultant
- Machine systems design engineer
- Manufacturing engineer
- Pipeline integrity engineer
- Processing plant manager
- Water resources engineer

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# Typical Four-Year Curriculum

## First Year

**Fall Semester**
- BAE 1012 Intro Biosystems
- MATH 2144 Calculus I
- BIOL 1114 Intro Biology
- HIST 1103 American Hist
- ENGL 1113 Engl Comp I

**Spring Semester**
- BAE 1022 Exper Methods
- MATH 2153 Calculus II
- CHEM 1414 Gen Chemistry
- PHYS 2014 Gen Physics
- ENGR 1332 Engr Design
- ENGL 1213 Engl Comp I

## Second Year

**Fall Semester**
- BAE 2013 Modeling
- MATH 2163 Calculus III
- PHYS 2114 Gen Physics
- ENSC 2213 Thermodynamics
- ENSC 2113 Statics

**Spring Semester**
- BAE 3033 Mat'l Sci of Biomat'ls
- MATH 2233 Diff Equations
- ENSC 3233 Fluid Mech
- ENSC 2143 Strength Mat'ls
- POLS 1113 American Gov't

## Third Year

**BAE 3213** Energy & Power
**ENSC 2613** Intro Elec Sci
**STAT 4073** Heat/Mass Trans
**BAE 3023** Inst & Ctrl

**Fourth Year**

- BAE 4001 Prof Practice
- BAE 4012 Engr Design I
- IEM 3503 Engr Econ
- BAE 4023 Engr Design II

## Additional Courses Based on Option

### Machine Systems & Agri Engr - 124 Hours

- BAE 4224 Machinery for Prod
- BAE 3223 Off Road Machinery
- ENSC 2123 Thermodynamics
- ENSC 3313 Mat'ls Science
- SOIL 2124 Soil Science
- Add'l 6 credit hours of electives

### Environment & Natural Resources - 123 Hours

- BAE 4313 Hydrology
- BAE 4324 Water Quality
- SOIL 2124 Soil Science
- GEOL 1114 Physical Geology
- NREM 3013 Applied Ecology
- CIVE 3833 Applied Hydraulics

## Bioprocessing & Food Processing - 124 Hours

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

## Pre-Medical - 125 Hours

- CHEM 1515 instead of CHEM 1414
- 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) - 121 Credit Hours

- BAE 3223 Off Road Machinery
- BAE 4224 Machinery for Prod
- BAE 4314 Hydrology
- BAE 4283 Bioprocessing
- BAE 4413 Food Engineering
- ENSC 2123 Statics

**Total Hours: 121-125**


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

**Contact** | ceat.recruitment@okstate.edu | (405)-744-5279