**AGRICULTURAL & BIOLOGICAL ENGINEERING, BS AND AGRICULTURAL & BIOLOGICAL ENGINEERING, BSAG**

For the dual degree of Bachelor of Science in Agricultural & Biological Engineering and the Bachelor of Science in Agriculture in Agricultural & Biological Engineering

**Department website:** https://abe.illinois.edu/undergraduate/
**Department faculty:** https://abe.illinois.edu/directory/faculty/

**College websites:** Agricultural, Consumer & Environmental Sciences (http://catalog.illinois.edu/schools/aces/academic-units/) & The Grainger College of Engineering (https://grainger.illinois.edu/)

**Dual Degree – Five Year Academic Program**

Students who successfully complete this five-year academic program receive the Bachelor of Science with a major in Agricultural and Biological Engineering from The Grainger College of Engineering as well as the Bachelor of Science in Agriculture with a major in Agricultural and Biological Engineering from the College of ACES.

Students enroll in the College of ACES and then transfer to The Grainger College of Engineering after two years. Students then complete the ABET-accredited degree program in Agricultural and Biological Engineering in The Grainger College of Engineering while taking additional coursework in ACES to complete the requirements for the Bachelor of Science in Agriculture in Agricultural and Biological Engineering degree program in ACES. The suggested program of study that follows fulfills the additional graduation requirements for the second degree, which requires completion of the Grainger College of Engineering degree.

Agricultural and biological engineering is the application of mathematics, physical and biological science, and engineering to agriculture, food systems, energy, natural resources, the environment, and related biological systems. This program has special emphasis on environmental protection and the biological interface of plants, animals, soils, and microorganisms with the design and performance of environments, machines, mechanisms, processes, and structures. Graduates are employed by industry, consulting firms, and government for research, education, and manufacturing.

For the degree of Bachelor of Science in Agricultural & Biological Engineering

**Department website:** https://abe.illinois.edu/undergraduate/
**Department faculty:** Agricultural & Biological Engineering Faculty (https://abe.illinois.edu/directory/faculty/)
**Overview of college admissions & requirements:** Agricultural, Consumer & Environmental Sciences (http://catalog.illinois.edu/schools/aces/academic-units/)
**College websites:** https://aces.illinois.edu/ and https://grainger.illinois.edu/
**Email:** abe@illinois.edu

Students pursuing this major select one of two concentrations:

- **Agricultural Engineering Concentration** (http://catalog.illinois.edu/undergraduate/eng_aces/agricultural-biological-engineering-bs/agricultural-engineering/)
- **Biological Engineering Concentration** (http://catalog.illinois.edu/undergraduate/eng_aces/agricultural-biological-engineering-bs/biological-engineering/)

For the dual degree of Bachelor of Science in Agricultural & Biological Engineering and the Bachelor of Science in Agriculture in Agricultural & Biological Engineering

**While completing the Agricultural & Biological Engineering, B.S. the student takes additional classes in ACES for the BSAG degree. The student is in ACES in years 1 and 2, transferring to The Grainger College of Engineering for years 3 through 5. The curriculum for the additional classes to complete the BSAG degree is as follows:**

**Agricultural & Biological Engineering, BSAG Requirements in addition to completion of Agricultural & Biological Engineering, B.S.**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CMN 101</td>
<td>Public Speaking</td>
<td>3</td>
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<tr>
<td>ANSC 100</td>
<td>Intro to Animal Sciences</td>
<td></td>
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<tr>
<td>ANSC 221</td>
<td>Cells, Metabolism and Genetics</td>
<td></td>
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<tr>
<td>ANSC 350</td>
<td>Cellular Metabolism in Animals</td>
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<tr>
<td>ANSC 363</td>
<td>Behavior of Domestic Animals</td>
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<td>ANSC 400</td>
<td>Dairy Herd Management</td>
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<tr>
<td>ANSC 401</td>
<td>Beef Production</td>
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<tr>
<td>ANSC 402</td>
<td>Sheep and Goat Production</td>
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<tr>
<td>ANSC 403</td>
<td>Pork Production</td>
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<tr>
<td>ANSC 404</td>
<td>Poultry Science</td>
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<tr>
<td>ANSC 406</td>
<td>Zoo Animal Conservation Sci</td>
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<tr>
<td>ANSC 450</td>
<td>Comparative Immunobiology</td>
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<tr>
<td>ATMS 201</td>
<td>General Physical Meteorology</td>
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<tr>
<td>ATMS 307</td>
<td>Climate Processes</td>
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<tr>
<td>CHEM 232</td>
<td>Elementary Organic Chemistry I</td>
<td></td>
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<tr>
<td>&amp; CHEM 233</td>
<td>Elementary Organic Chem Lab I</td>
<td></td>
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<tr>
<td>CHEM 312</td>
<td>Inorganic Chemistry</td>
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<tr>
<td>CHEM 332</td>
<td>Elementary Organic Chem II</td>
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<tr>
<td>CHEM 360</td>
<td>Chemistry of the Environment</td>
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<tr>
<td>CHEM 460</td>
<td>Green Chemistry</td>
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<tr>
<td>CPSC 112</td>
<td>Introduction to Crop Sciences</td>
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<tr>
<td>CPSC 261</td>
<td>Biotechnology in Agriculture</td>
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<tr>
<td>CPSC 265</td>
<td>Genetic Engineering Lab</td>
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<tr>
<td>CPSC 270</td>
<td>Applied Entomology</td>
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<tr>
<td>CPSC 352</td>
<td>Plant Genetics</td>
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<tr>
<td>CPSC 414</td>
<td>Forage Crops &amp; Pasture Ecology</td>
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<tr>
<td>CPSC 415</td>
<td>Bioenergy Crops</td>
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<tr>
<td>CPSC 418</td>
<td>Crop Growth and Management</td>
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<tr>
<td>CPSC 431</td>
<td>Plants and Global Change</td>
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<tr>
<td>CPSC 437</td>
<td>Principles of Agroecology</td>
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</tbody>
</table>

Information listed in this catalog is current as of 02/2021
CPSC 473  Mgmt of Field Crop Insects
FSHN 101  The Science of Food and How it Relates to You
FSHN 414  Food Chemistry
FSHN 416  Food Chemistry Laboratory
FSHN 461  Food & Industrial Microbiology
GEOL 107  Physical Geology
GEOL 380  Environmental Geology
HORT 100  Introduction to Horticulture
HORT 341  Greenhouse Mgmt and Production
HORT 344  Planting for Biodiversity and Aesthetics
HORT 360  Vegetable Crop Production
HORT 361  Small Fruit Production
HORT 362  Tree Fruit Production
HORT 363  Postharvest Handling Hort Crop
HORT 421  Horticulutral Physiology
HORT 435  Urban Food Production
IB 103  Introduction to Plant Biology
IB 150  Organismal & Evolutionary Biol
& IB 151  and Organismal & Evol Biol Lab
IB 203  Ecology
IB 329  Animal Behavior
IB 335  Plant Systematics
IB 411  Bioinspiration
IB 420  Plant Physiology
IB 439  Biogeography
IB 444  Insect Ecology
IB 452  Ecosystem Ecology
IB 482  Insect Pest Management
IB 485  Environ Toxicology & Health
IB 486  Pesticide Toxicology
MCB 100  Introductory Microbiology
& MCB 101  and Intro Microbiology Laboratory
MCB 150  Molec & Cellular Basis of Life
& MCB 151  and Molec & Cellular Laboratory 2
MCB 244  Human Anatomy & Physiology I
& MCB 245  and Human Anat & Physiol Lab I
MCB 250  Molecular Genetics
& MCB 251  and Exp Techniqs in Molecular Biol
MCB 252  Cells, Tissues & Development
& MCB 253  and Exp Techniqs in Cellular Biol
MCB 300  Microbiology
& MCB 301  and Experimental Microbiology
MCB 314  Introduction to Neurobiology
MCB 316  Genetics and Disease
MCB 450  Introductory Biochemistry
NRES 201  Introductory Soils
NRES 219  Applied Ecology
NRES 348  Fish and Wildlife Ecology
NRES 351  Introduction to Environmental Chemistry
NRES 419  Env and Plant Ecosystems
NRES 420  Restoration Ecology
NRES 429  Aquatic Ecosystem Conservation
NRES 439  Env and Sustainable Dev
NRES 471  Pedology
NRES 475  Environmental Microbiology
NRES 487  Soil Chemistry
NRES 488  Soil Fertility and Fertilizers
PLPA 204  Introductory Plant Pathology
PLPA 405  Plant Disease Diagnosis & Mgmt
PLPA 407  Diseases of Field Crops
Agricultural Sciences Coursework 3  15
Free Electives 4  158

Total hours required to receive an Agricultural and Biological Engineering, BS and an Agricultural and Biological Engineering, BSAG 158

1 In addition to the Biological and Natural Sciences Elective hours required for Agricultural and Biological Engineering (6 hours), a further 4 hours of biological sciences must be completed to make up a total of 10 hours.
2 CHEM 232 and MCB 150 are required for the BIO concentration.
3 Fifteen hours of agricultural sciences with courses from at least two subject areas other than Agricultural and Biological Engineering and Technical Systems Management, and approval of advisers are required.
4 Sufficient free electives selected to total minimum curriculum requirement of 158 hours. All requirements of the combined curriculum must be completed to satisfy the requirements for both degrees.

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