# Four-Year Academic Plan

**BIOLOGICAL ENGINEERING**

**2021/2022**

**Four-Year Academic Plan**

**Fall**

**BE 142**
Introduction to Biological Engineering. Fall only

**CHEM 111/111L**
General Chemistry I
C or better in CHEM 101, MATH 143, MATH 160 or MATH 170; sufficient test scores; or permission

**ENGL 102**
College Writing and Rhetoric
English 101 or sufficient test scores

**MATH 170**
Calculus I
C or better in MATH 143 and 144 or sufficient test scores

**Total Credits**: 16

**Spring**

**BIOL 115/115L**
Cells & the Evolution of Life with Lab
CHEM 111

**CHEM 112/112L**
General Chemistry II with Lab
CHEM 111

**MATH 175**
Calculus II
MATH 170

**ELECTIVE**
Humanities/Social Science Elective

**Total Credits**: 16

**Courses in italics are prerequisites**

* A grade of C or better is required before registration is permitted in upper-division courses.

See course catalog for complete degree requirements and additional information at uidaho.edu/registrar/classes/catalogs. Last updated 7/22/20

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**FRESHMAN**

**Fall**

- **BE 142**
  Introduction to Biological Engineering. Fall only

- **CHEM 111/111L**
  General Chemistry I
  C or better in CHEM 101, MATH 143, MATH 160 or MATH 170; sufficient test scores; or permission

- **ENGL 102**
  College Writing and Rhetoric
  English 101 or sufficient test scores

- **MATH 170**
  Calculus I
  C or better in MATH 143 and 144 or sufficient test scores

**Total Credits**: 16

**Spring**

- **BIOL 115/115L**
  Cells & the Evolution of Life with Lab
  CHEM 111

- **CHEM 112/112L**
  General Chemistry II with Lab
  CHEM 111

- **MATH 175**
  Calculus II
  MATH 170

- **ELECTIVE**
  Humanities/Social Science Elective

**Total Credits**: 16

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**Sophomore**

**Fall**

- **BE 242**
  Biological Engineering Analysis and Design
  MATH 170, MATH 175, Fall only

- **BIOL 250/255**
  General Microbiology with Lab
  BIOL 115/115L, CHEM 101 or 111

- **PHYS 211/211 Lab**
  Engineering Physics with Lab
  MATH 170 or MATH 170

- **MATH 275**
  Calculus III
  MATH 175

**Total Credits**: 15

**Spring**

- **CHEM 277/278**
  Organic Chemistry with Lab
  CHEM 112

- **ENGR 210**
  Engineering Statics
  MATH 170

- **ENGR 240**
  Introduction to Electrical Circuits
  PHYS 211, MATH 175

- **MATH 310**
  Ordinary Differential Equations
  MATH 175 (MATH 275 recommended)

**Total Credits**: 16

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**Junior**

**Fall**

- **STAT 301**
  Probability & Statistics
  MATH 175

- **BIOL 380**
  Biochemistry I (no lab)
  CHEM 112, CHEM 277

- **ENGR 320**
  Engineering Thermodynamics & Heat Transfer
  MATH 310, ENGR 210 recommended

- **ENGR 335**
  Engineering Fluid Mechanics
  MATH 275, ENGR 210

- **ENGR 360**
  Engineering Economy
  Junior standing

- **ENGR 105 or GEOG 385**
  Engineering Graphics OR GIS Primer
  2 or 3

**Total Credits**: 16/17

**Spring**

- **BE 462**
  Electric Power and Controls
  ENGR 240, MATH 310

- **ENGR 350**
  Engineering Mechanics of Materials
  ENGR 210, MATH 175, MATH 310

- **ELECTIVE**
  Communications Elective
  Fulfills U of I General Degree Requirements (J-3)

- **ELECTIVE**
  Humanities/Social Science Elective

- **ELECTIVE**
  Technical Elective

**Total Credits**: 16/17

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**Senior**

**Fall**

- **BE 478**
  Engineering Design I
  BE 242, ENGR 320, 335 & 350

- **BE 491**
  Senior Seminar
  Senior standing

- **BE 441**
  Instrumentation and Measurements
  ENGR 240, STAT 301

- **ELECTIVE**
  Technical Elective

- **ELECTIVE**
  Engineering Elective

- **ELECTIVE**
  Humanities/Social Science Elective

**Total Credits**: 16

**Spring**

- **BE 479**
  Engineering Design II
  BE 478

- **BE 461**
  Bioprocess Engineering
  MATH 310, ENGR 320 & 335

- **ELECTIVE**
  Humanities/Social Science Elective

- **ELECTIVE**
  Technical Elective

- **ELECTIVE**
  Engineering Elective

**Total Credits**: 15
Creatively solve problems involving plants, animals, microorganisms and biological materials. Integrate engineering principals into biological systems to improve environmental quality, produce a value-added product, harvest and process food, or manufacture medical devices.

ABOUT YOUR DEGREE PATH

Biological Engineering majors take courses in biology, chemistry, mathematics, and physics to prepare for more advanced courses in transport processes, bio-based products, bioenergy, biomedical engineering, bioprocessing and sustainability.

Much of your education takes place in labs. Explore water flow, quality and use in the water resources lab and in the field, make discoveries about renewable energy in the advanced biofuel lab, design controls and instruments in the power lab, analyze medical images in the neurophysiology lab, and operate bioreactors in our cell and tissue engineering lab.

Graduates apply their technical expertise to solve problems by designing components, processes and systems. Graduates communicate and work effectively in teams and have adequate knowledge in inorganic/organic chemistry, biochemistry, biological/biomedical science and environmental science.

MATCH YOUR INTERESTS

- Biomedical
- Cell and Tissue Engineering
- Drug and Gene Delivery
- Neural Imaging and Modeling
- Medicine and Pharmaceuticals
- Bioenergy and Biofuels
- Precision Agriculture
- Environmental Impact Assessment
- Waste Treatment Technology
- Water Resources and Sustainability
- Biomaterials
- Bionanotechnology
- Bioprocessing
- Food Science
- Synthetic Biology

YOUR DEGREE IS ACCREDITED

Our undergraduate Biological Engineering program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org.