## Suggested Course Sequencing

### Autumn
- **CHEM 142** General Chemistry I (5 cr)
- **MATH 124** Calculus I (5 cr)
- **GEN ST 199** or Elective (1-2 cr)
- **BSE 150** Intro to Bioresources (1 cr)

### Winter
- **CHEM 152** General Chemistry II (5 cr)
- **MATH 125** Calculus I (5 cr)
- **BSE 201** Pulp, Paper and Bioproducts (3 cr)
- **BSE 202** Pulp & Paper Field (1 cr)

### Spring
- **CHEM 162** General Chem. III (5 cr)
- **MATH 126** Calculus III (5 cr)
- **ENGL 131** Composition (5 cr)

### Autumn
- **CHEM 237** Organic Chemistry I (4 cr)
- **PHYS 121** Mechanics (5 cr)
- **MATH 307** Differential Equations (3 cr)
  - Or **AMATH 351** Diff Equations (3 cr)
- **BSE 248** Paper Structure/Prop (4 cr)

### Winter
- **CHEM 238** Organic Chemistry II (4 cr)
- **PHYS 122** Electromag-Oscill (5 cr)
- **MATH 308** Linear Algebra (3 cr)
  - Or **AMATH 352** Linear Algebra (3 cr)
- **Q SCI 381** Statistics (5 cr)

### Spring
- **BSE 2XX** Tech Writing (3 cr)
- **PHYS 123** Waves (5 cr)
- **A A 260** Thermodyn (4 cr)

### Autumn
- **BSE 391** Eng Princip. Biorefineries (5 cr)
- **BSE 406** Natural Products Chem (5 cr)
- Engineering Topics (6 cr)

### Winter
- **BSE 392** Bioresource Transport (5 cr)
- **BSE 420** Bioresource Sci/Eng (4 cr)
  - Engineering Topics (3 cr)
- **ECON 200** Microeconomics (5 cr)

### Spring
- **BSE 426** Bioresource Lab (4 cr)
- **BSE 421** Biore. Sci/Eng 2 (4 cr)
  - Engineering Topics (6 cr)

### Autumn
- **BSE 422** Biores. Sci/Eng 3 (4 cr)
- **BSE 430** Paper. Process+ (5 cr)
- **BSE 497** Internship (1 cr)

### Winter
- **BSE 436** Papermaking Lab II (4 cr)
- **BSE 480** Bioresource Design (4 cr)
  - Any I&S credit (5 cr)
  - Any VLPA (5 cr)

### Spring
- **BSE 481** Biore. Design II (5 cr)
  - Any VLPA (5 cr)
  - DIV credit (3 cr)

### Contact Chemical Engineering advising if you plan to apply for admission for a double degree: chemeadv@uw.edu

### Additional College of the Environment Requirements:

1. 10 cr I&S outside of BSE and major
2. 10 cr NW outside of BSE and major

**General Electives** may be used to fulfill these requirements. Remaining requirements are met within the major.

### Notes:
- +Requires 2.0 minimum grade.
- *STAT 390* or IND E 315

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### Academic Progress Policy

All BSE students are expected to maintain satisfactory progress with the department and the University.

http://www.sefs.washington.edu/academicPrograms/undergrad/bse/BSEAcademicProgressPolicy.pdf
The BSE program is accredited by the Engineering Accreditation Commission of ABET, www.abet.org. The Bioresource Science and Engineering Program is an engineering major based in the School of Environmental and Forest Sciences in the College of the Environment.

The BSE program focuses on the development of process engineers who optimize the manufacture of value added products from sustainable natural resources. Students learn the fundamentals of science and engineering related to the conversion of biomass to fuels, chemicals, and pulp and paper products. The BSE program has a strong research component.

BSE graduates begin careers in manufacturing, engineering, technical service and management training. Positions include process engineer, technical sales engineer, product development engineer, environmental engineer or scientist and research engineer as well as many other specialties that require a fundamental chemical engineering background.

Additional Areas of Study: Students with an interest in chemical engineering may apply for admission to CHEM E during their BSE sophomore year. Contact the CHEM E department for advising in advance of application and notify the BSE advisers of the intent to pursue a double degree.

Admission:
BSE is a competitive admission major. Applications for incoming freshmen are due December 1st. Current UW and transfer students apply through the College of Engineering online application (open early to mid-June for autumn application and mid-January for spring application).

Prospective UW students: www.admit.washington.edu

Program/study options: Research, internships, honors, scholarships, and graduate study for qualified applicants.

Career/job information:
BSE students are supported by the Washington Pulp and Paper Foundation (https://depts.washington.edu/wppf) for scholarships, internships and a path to full time employment.

Sample Areas of Research
High-speed chemical analysis of biomass
Use of natural non-wood products to make paper and other bio-products
Bioconversion of lignocellulosic biomass to ethanol
Biofuel and bioenergy options from wood
Surface and colloid science in bioprocessing
Fiber composites
Sensor development for biorefineries
Fiber production from agriculture residues
Bioconversion of biomass to fuels and chemicals
Life cycle assessment of biofuel systems
Thermal conversion of biomass to fuels and chemicals
Supercritical processes in biorefineries
Production of unique nano-carbon structures from biomass