## Bioengineering Graduation Requirements

**University of Washington**

Depts.washington.edu/bioe

### Requirement Sheet Key

- ♦ = Upper-Division Admission Requirements  
- * = Pre-requisite may be in progress at time of application  
- **= Contact department adviser if Biol 180 is full during fall quarter  
- ***= Students are strongly encouraged to complete BIOEN 215 prior to application to the department

### Mathematics (25 Credits)

- ♦ Math 124 (5cr) – Calculus I  
- ♦ Math 125 (5cr) – Calculus II  
- ♦ Math 126 (5cr) – Calculus III  
- Math 307 (3cr) – Differential Equations \( [pr: Math 125] \)  
- Math 308 (3cr) – Matrix Algebra \( [pr: Math 126] \)  
  
  (AMATH 351/352 may substitute for Math 307/308)  
  Math/Stat 390 (4cr) – Prob. & Statistics \( [pr: Math 126] \)  
  
  (IND E 315 may substitute for Math 390)

### Natural Sciences (44 Credits)

- ♦ Chem 142 (5cr) – General Chemistry with lab  
- ♦ Chem 152 (5cr) – General Chemistry with lab  
- ♦ Chem 162 (5cr) – General Chemistry with lab  
  
  (Chem 144 or 145 series can substitute for 142 series)  
- ♦ Chem 237 (4cr) – Organic Chemistry \( [pr: Chem 162] \)  
  
  -Or-  
  ♦ Chem 223 (4cr) – Organic Chem. Short Program \( [pr: Chem 162] \)

- ♦ Phys 121 (5cr) – Mechanics with lab \( [pr: Math 124] \)  
- ♦ Phys 122 (5cr) *– Electro/Oscillatory with lab \( [pr: Math 125] \)

- ♦ Biol180 (5cr)** – Intro Biology  
- ♦ Biol 200* (5cr) – Intro Biology \( [pr: Biol 180, Chem 152] \)  
- Biol 220 (5cr) – Intro Biology \( [pr: Biol 200, Chem 152] \)

### Written & Oral Communications (7 Credits)

- ♦ English Comp (5cr) – English Composition  
- HCDE 231 (3cr) – Intro to Technical Writing \( [pr: Engl. Comp] \)

### Visual, Literary & Performing Arts/Individuals & Society (VLPA/I&S) (24 Credits)

Minimum 10 credits in VLPA required.  
Minimum 10 credits in I&S required.  
Remaining 4 credits can be either VLPA or I&S.

### Engineering Fundamentals (4 Credits)

- ♦ AMATH 301 (4cr)* – Beg. Scientific Computing

### BioE Core Courses (44 Credits)

- BIOEN 215 (3cr)*** – Intro to BioE Problem Solving  
- BIOEN 315 (3cr) – Biochemical & Molecular Bioengineering  
- BIOEN 316 (3cr) – Biomedical Signals and Sensors  
- BIOEN 317 (2cr) – Biomedical Signals and Sensors Lab  
- BIOEN 325 (3cr) – Biotransport I  
- BIOEN 326 (3cr) – Solid and Gel Mechanics  
- BIOEN 327 (2cr) – Fluids and Materials Lab  
- BIOEN 335 (3cr) – Biotransport II  
- BIOEN 336 (3cr) – Bioengineering Systems and Control  
- BIOEN 337 (2cr) – Mass Transport and Systems Lab  
- BIOEN 345 (4cr) – Failure Analysis of Human Physiology  
- BIOEN 401 (3cr) – BioE Capstone Fundamentals  
  
  Students must complete one of the two following options  
  BIOEN 402 (10cr) – BioE Capstone Design  
  
  -Or-  
  BIOEN 403,404,405 (10cr) – BioE Capstone Design

### BioE Senior Electives (15 Credits)

See BioE Advising for list of acceptable courses. Courses should focus on one of the following areas: Biomaterials, Cells and Tissue, Instrumentation, Molecular Engineering. At least one design-designated senior elective is required.

### Approved Engineering Electives (9 Credits)

See BioE Advising for a list of acceptable courses. Extra Bioengineering senior elective credit may fulfill this requirement.

### Free Electives (8 Credits)

### Total Credits Required for Graduation (180 Credits)

#### Early Admission Requirements

1. Early Admission is an option for Autumn Quarter Only.  
2. Students must be enrolled at UW-Seattle.  
3. Math 124, 125 & 126 or equivalent.  
4. Chem 142, 152 & 162 or equivalent.  
5. 5 credits of English Composition.  
6. 15 credits of the above 30 must have been completed at UW.  
7. Running Start students should consult w/ a BioE adviser.

#### Application Deadlines

Early Admission – July 1st  
Upper Division Admission – February 1st
# BioE: Bioengineering Sample Curriculum

University of Washington  
dep.ts.washington.edu/bioe

<table>
<thead>
<tr>
<th>Freshman – Autumn Quarter</th>
<th>Freshman – Winter Quarter</th>
<th>Freshman – Spring Quarter</th>
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<tbody>
<tr>
<td>◆ MATH 124 – Calculus I</td>
<td>◆ MATH 125 – Calculus II</td>
<td>◆ MATH 126 – Calculus III</td>
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<tr>
<td>◆ CHEM 142 – CHEM &amp; Lab I</td>
<td>◆ CHEM 152 – CHEM &amp; Lab II</td>
<td>◆ CHEM 162 – CHEM &amp; Lab III</td>
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<tr>
<td>◆ BIOEN 215 – Intro to BioE</td>
<td>◆ English Comp.</td>
<td>◆ *AMATH 301–Scientific Computing</td>
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<tr>
<td>Problem Solving</td>
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<td>General Elective (Seminar)</td>
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<tr>
<td>VLPA/I&amp;S</td>
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<td>Quarter Total 15</td>
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<tr>
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<th>Sophomore – Winter Quarter</th>
<th>Sophomore – Spring Quarter</th>
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<tbody>
<tr>
<td>◆ BIOL 180 – Intro Biology</td>
<td>◆ BIOL 200 – Intro Biology II *</td>
<td>◆ BIOL 220 – Intro Biology III</td>
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<tr>
<td>◆ PHYS 121 – Mechanics &amp; Lab I</td>
<td>◆ PHYS 122 – Electro &amp; Lab I *</td>
<td>◆ MATH 308 – Matrix Algebra</td>
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<td>MATH 307 – Diff. Equations</td>
<td>◆ BIOEN 316 – Biomed Signals &amp; Sens</td>
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<td>◆ BIOEN 317 - Biomedical Signals and Sensors Lab</td>
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<td>Lab 5</td>
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<tr>
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<th>Junior – Winter Quarter</th>
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<tbody>
<tr>
<td>BIOEN 325 – Biotransport I</td>
<td>BIOEN 335 – Biotransport II</td>
<td>BIOEN 345 – Failure Analysis of Human</td>
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<td>BIOEN 326 – Solid and Gel Mech.</td>
<td>BIOEN 336 – BioEn Sys. &amp; Control</td>
<td>Physiology</td>
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<td>IND E 315 – Stats for Engineers</td>
<td>Lab</td>
<td>BIOEN Sr. Elective</td>
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<td>ENGR Elective</td>
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<td>BIOEN 402 or 403 – Capstone variable cr</td>
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<td>BIOEN Focus Area Elective IV</td>
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<td>Quarter Total 14</td>
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**Bold face** courses are required for upper-division admission.  
*May be in-progress during Quarter of Admission  
Students planning on attending medical school are encouraged to meet with an advisor to discuss additional requirements.

**For more information contact:**  
Engineering Advising  
Office: 301 Loew Hall  
Box 352180, Seattle, WA 98195-2180  
Phone: (206) 543-1770   Email: engradv@uw.edu  
-or-  
Kelli Jayn Nichols/Rika Kurose  
Bioengineering Advising  
Office: Foege Hall, N107  
Box 355061, Seattle, WA 98195-5061  
Phone: (206) 685-2022   Email: bioeng@uw.edu

_Last revised July 2011_