**Bioengineering Graduation Requirements**

University of Washington

http://bioe.washington.edu

**E-FIG: ENGR 101 and GEN ST 199 (2cr)**

**Mathematics (24-26cr)**
- MATH 124, 125, 126 - Calc. w/ Analytic Geom. I-III (15cr)
  - MATH 207 - Intro to Diff. Equations (3cr) [pr: MATH 125]
  - MATH 208 - Matrix Algebra with Applications (3cr) [pr: MATH 126]
- INDE 315 - Prob. & Stats for Engineers (3cr) [pr: MATH 207]
  - OR Q SCI 381 - Intro to Prob. & Stats (5cr) [pr: MATH 124]
  - OR STAT 311 - Elements of Stat. Meth. (5cr) [pr: MATH 124]

**Sciences (44cr)**
- CHEM 142 - General Chemistry (5cr)
- CHEM 152 - General Chemistry (5cr)
- CHEM 162 - General Chemistry (5cr)
- BIOL 200 - Introductory Biology (5cr) [pr: BIOL 180; CHEM 152 (concurrent)]
- BIOL 220 - Introductory Biology (5cr) [pr: BIOL 200]

**Engineering General Education Requirements (39cr)**

**Written and Oral Communication:**
- English Composition (5cr)

Additional Writing Courses – W (7 credits)

**Areas of Inquiry:**
- Arts & Humanities – A&H (10cr)
- Social Sciences - SSc (10cr)
- Additional A&H or SSc (4cr)
- Diversity - DIV (5cr) (may overlap with A&H or SSc)

**Engineering Fundamentals (4-5cr)**
- AMATH 301 - Beg. Scientific Comp. (4cr) [pr: MATH 125]
  - OR
- CSE 121 - Comp. Prog. I (4cr) + BIOEN 217 - MATLAB (1cr)
  - OR
- CSE 122 - Comp. Prog. II (4cr) + BIOEN 217 - MATLAB (1cr)
  - OR
- CSE 160 - Data Prog. I (4cr) + BIOEN 217 - MATLAB (1cr)

*CSE courses (121, 122, 160) should be completed before taking BIOEN 217

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**Department Core (37cr)**

**ENGR 215 - Bioengineering Problem Solving (3cr)**
- BIOEN 401 and 402 may overlap with general education (W credits)

**ENGR 115 - Engineering Transformation of Health (3cr)**
- BIOEN 315 - Biochemical Molecular Engineering (3cr)
- BIOEN 316 - Biomedical Signals and Sensors (4cr)
- BIOEN 317 - Biomedical Signals and Sensors Lab (2cr)
- BIOEN 325 - Biotransport I (4cr)
- BIOEN 326 - Solid and Gel Mechanics (4cr)
- BIOEN 327 - Fluids and Materials Laboratory (4cr)
- BIOEN 335 - Biotransport II (3cr)
- BIOEN 336 - BioE Systems and Control (3cr)
- BIOEN 337 - Mass Transport and Systems Laboratory (2cr)
- BIOEN 345 - Failure Analysis and Human Physiology (4cr)
- BIOEN 400 - Fundamentals of Bioengineering Design (3cr)

**Senior Electives (15cr)**

Courses taken from approved list of 400-level and above BIOEN- prefixed engineering courses. See department for list.

**Capstone and Approved Engineering Electives (7-10cr)**

Option A: integrated design and research
- BIOEN 401 - BioE Capstone Proposal (1cr) AND BIOEN 402 - Research and Design Capstone (9cr)
  *BIOEN 401 and 402 may overlap with general education (W credits)

OR

Option B: research project and small group design and build
- BIOEN 404 - Team Design I (3cr) AND BIOEN 405 - Team Design II (4cr)

**Approved Engineering Electives (9-12cr)**

See department for list of approved courses. Students completing Capstone Option A are required to take 9 credits of approved electives; students completing Capstone Option B take 12 credits of approved electives. Students can take additional BIOEN- prefixed elective courses to satisfy this requirement area.

**Total credits required for graduation: 180cr**

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Honors or accelerated sequences of chemistry, math and physics can satisfy the placement requirements. AMATH 351/352/353 may be alternatives to MATH 207/208/209, work with the department to confirm.

Updated September 2023
This resource is for ENGRUD students who entered the UW in AUT23 or later.

**BioE**

University of Washington  
https://bioe.washington.edu

This is a sample four-year plan for ENGRUD students that prepares them to be able to request placement at the end of the first year. It is intended to provide a framework for ENGRUD students to reference as they create their own individual academic plan.

Courses required to request placement for ENGRUD students: ENGR 101; MATH 124, 125, 126; CHEM 142; PHYS 121; English Composition; ENGRUD students who are interested in BioE should choose one of the following: AMATH 301; BIOEN 215 or ENGR 115; CSE 121 or CSE 122 or CSE 160 + BIOEN 217; CHEM 152, CHEM 162; PHYS 122.

### First Year

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 124 - Calc. w Analytic Geom I</td>
<td>MATH 125 - Calc. w Analytic Geom II</td>
<td>MATH 126 - Calc. w Analytic Geom III</td>
</tr>
<tr>
<td>CHEM 142 - General Chemistry</td>
<td>CHEM 152 - General Chemistry</td>
<td>CHEM 162 - General Chemistry</td>
</tr>
<tr>
<td>E-FIG: ENGR 101 &amp; GEN ST 199</td>
<td>English Composition</td>
<td>PHYS 121 - Mechanics</td>
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<tr>
<td>A&amp;H / SSc</td>
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<tr>
<td>Qtr. Total: 15</td>
<td>Qtr. Total: 15</td>
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### Second Year

<table>
<thead>
<tr>
<th>Autumn Quarter</th>
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<th>Spring Quarter</th>
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<tbody>
<tr>
<td>BIOL 180 - Introductory Biology</td>
<td>BIOL 200 - Introductory Biology</td>
<td>BIOS 207 - Differential Equations</td>
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<tr>
<td>PHYS 122 - Electromagnetism</td>
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<td>BIOS 317 - Signals &amp; Sensors Lab</td>
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<td>A&amp;H / SSc</td>
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<td>Qtr. Total: 17</td>
<td>Qtr. Total: 14+</td>
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<tbody>
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<td>BIOEN 336 - BioE Systems &amp; Control</td>
<td>BIOS 400 - BioE Design ENGR</td>
</tr>
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<td>BIOEN 327 - Fluids and Materials Lab</td>
<td>BIOEN 337 - Mass Transport and Systems Lab</td>
<td>BIOEN Elective I</td>
</tr>
<tr>
<td>IND E 315 - Prob Stats for Engineers</td>
<td>BIOEN 220 - Introductory Biology</td>
<td>A&amp;H / SSc</td>
</tr>
<tr>
<td>MATH 208 - Matrix Algebra</td>
<td>A&amp;H / SSc</td>
<td>BIOEN 401 - Capstone Proposal (only for 402 track)</td>
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<tr>
<td>Qtr. Total: 16</td>
<td>Qtr. Total: 16</td>
<td>Qtr. Total: 14</td>
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### Fourth Year

<table>
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<tr>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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<tbody>
<tr>
<td>BIOEN 402 - Design &amp; Research</td>
<td>BIOEN 402 - Design &amp; Research OR BIOEN 404 - Team Design</td>
<td>BIOEN 402 - Design &amp; Research OR BIOEN 405 - Team Design</td>
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<tr>
<td>BIOEN Elective II</td>
<td>BIOEN Elective III</td>
<td>BIOEN Elective V (if needed)</td>
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<tr>
<td>Engineering Elective</td>
<td>Engineering Elective</td>
<td>Engineering Elective</td>
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<tr>
<td>A&amp;H / SSc / W course</td>
<td>A&amp;H / SSc</td>
<td>General Elective / W course (if needed)</td>
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<td>One of the following:</td>
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<tr>
<td>Full-time internship (ENGR 321)</td>
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<tr>
<td>Study Abroad, Clinical Experience</td>
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<tr>
<td>Qtr. Total: 14+</td>
<td>Qtr. Total: 13+</td>
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◆ = Placement Requirement  
★ = Pick one to satisfy placement requirements

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