Bioengineering Graduation Requirements
University of Washington
http://bioe.washington.edu

ENGRUD Requirement Sheet – Key:
♦ = Placement Requirements;
★ = Pick one to satisfy placement requirement
Placement: July 1 at the end of the first year

ENGRUD Requirement Sheet

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

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 STAT 390 - Stat. Meth. Eng. & Sci. (4cr) [pr: MATH 126]
       OR Q SCI 381 - Intro to Prob. & Stats (5cr) [pr: MATH 124]
       OR STAT 311 - Elements of Stat. Meth. (5cr) [pr: MATH 124]
★ MATH 124, 125, 126 - Calc. w/ Analytic Geom. I-III (15cr)
   MATH 207, 208, 209 - Calc. w/ Analytic Geom. IV-VI (15cr)
   MATH 207, 208, 209 - Calc. w/ Analytic Geom. IV-VI (15cr)

Sciences (44cr)
♦ CHEM 142 - General Chemistry (5cr)
★ CHEM 152 - General Chemistry (5cr)
★ CHEM 162 - General Chemistry (5cr)
   CHEM 223 - Org. Chem. Short Prog. (4cr) [pr: CHEM 152]
       OR CHEM 237 - Organic Chemistry (4cr) [pr: CHEM 162]
   PHYS 121 - Mechanics (5cr) [pr: MATH 124]
★ PHYS 122 - Electromagnetism (5cr)
   [pr: MATH 125 or MATH 134; PHYS 121]
   BIOL 180 - Introductory Biology (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)

Department Core (37cr)
★ BIOEN 215 - Bioengineering Problem Solving (3cr)
   OR 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 Laboratory (2cr)
★ BIOEN 325 - Biotransport I (4cr)
★ BIOEN 326 - Solid and Gel Mechanics (4cr)
★ BIOEN 327 - Fluids and Materials Laboratory (2cr)
★ 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

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.

Bioengineering Sample Curriculum
University of Washington
https://bioe.washington.edu

Bioengineering Advising
Office: N107 Foege Hall, Box 355061
Seattle, WA 98195-5061
Phone: (206 685-2022)
Email: bioeng@uw.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

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<tr>
<th>Quarter</th>
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<td>Autumn</td>
<td>MATH 124 - Calc. w Analytic Geom I</td>
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<td>Winter</td>
<td>MATH 125 - Calc. w Analytic Geom II</td>
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<td>MATH 126 - Calc. w Analytic Geom III</td>
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<td>E-FIG: ENGR 101 &amp; GEN ST 199</td>
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<td>Autumn</td>
<td>BIOL180 - Introductory Biology</td>
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<td>MATH 207 - Differential Equations</td>
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<td>CHEM 223 or 237 - Organic Chemistry</td>
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<td>AMATH 301 - Beg. Sci. Comp. OR CSE 12X160 + BIOEN 217</td>
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<td>PHYS 122 - Electromagnetism</td>
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### Third Year

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<td>BIOEN 345 - Failure Analysis of Human Physiology</td>
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<td>BIOEN 326 - Solid and Gel Mechanics</td>
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<td>MATH 208 - Matrix Algebra</td>
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<td>BIOEN 401 - Capstone Proposal (only for 402 track)</td>
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Updated September 2023