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| BioE | **Bioengineering**  **Degree Requirements**  <https://bioe.washington.edu>  [bioeng@uw.edu](mailto:bioeng@uw.edu) | **ENGRUD Requirement Key:**  ⯁ = **Placement Requirements**  **★** = *Pick* ***one*** *to satisfy placement requirement*  **Placement:** July 1 at the end of the first year |

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| **Engineering First-year Interest Group (E-FIG)**  ⯁ **ENGR 101 (1cr)**  GEN ST 199 (1cr)  **Mathematics (24-28cr)**  ⯁ **MATH 124, 125, 126 - Calc. w/ Analytic Geom. I-III (15cr)**  MATH 207 - Intro to Differential Equations (4cr)  [pr: MATH 125] OR AMATH 351 (3cr) [pr: MATH 125]  MATH 208 - Matrix Algebra with Applications (4cr)  OR AMATH 352 (3cr) [pr: MATH 126]  One course from the following:  IND E 315 (3cr), STAT 311 (5cr), STAT 390 (4cr), Q SCI 381 (5cr)  **Sciences (44cr)**  ⯁ **CHEM 142 - General Chemistry (5cr)**  **★ *CHEM 152 - General Chemistry (5cr)*** [pr: CHEM 142]  **★ *CHEM 162 - General Chemistry (5cr)*** [pr. CHEM 152]  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; 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]  **General Education Requirements (29-41cr)**  ***Written and Oral Communication:***  ⯁ **English Composition (5cr)**  Writing (7cr) - can be met by coursework in the major  ***Areas of Inquiry:***  Arts & Humanities - A&H (10cr)  Social Sciences - SSc (10cr)  Additional A&H or SSc (4cr)  ***Diversity*** - DIV (5cr) (may overlap with Areas of Inquiry or W)  **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 123 - Comp. Prog. III (4cr)*** + BIOEN 217 - MATLAB (1cr)  OR  **★ *CSE 160 - Data Prog. I (4cr)*** *+*BIOEN 217 - MATLAB (1cr)  \*CSE course should be completed before taking BIOEN 217 | [**Major Core Requirements**](https://myplan.uw.edu/course/#/courses?states=N4Igwg9grgTgzgUwMoIIYwMYAsQC4TAA6IAZhDALYAiqALqsbkSBqhQA5RyPGJ20AbBMQA0xAJZwUGWuIgA7FOmyMSqAYjEhJASXlxaMKDPJLMWVes3EAjlAQwAnkkPj5Acx4gA5ACEdAPIAogBy3qLEACaojtx4zACMlhoIWgBMydYgAMyZqcQALHlaAKzFxABseQC%2BWgbotEHykQAq4hQIcbgA2gAMIgCcFb0AulpuGAJQkQghCgHsCIoIMnL6jIb24-KT0wgASp2uMgiR0rIKXZv52jtTMwAKMA4INnCHduLPkRtGNxP3BAtABGqHOayufzqWAgAHcAvIBI4HhhkCsLus8GoUtC4QikXoHg44ApwZcarjYb4YHDEOUQFhUFI0OZTr8tlFJJMIIgAIKRABuqB2pzMKixVgQ1RAIhAsPYcDwBGIsLckThAAkEOJ3FhaIwAOwJNIlLSq5pwh488QYxgJbLS6pAA) **(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 Lab (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. [Visit department website for list](https://bioe.uw.edu/academic-programs/undergraduate/undergraduate-degree-requirements/%20).  **Capstone & Approved Engineering Electives (7-10cr)**  One of the following course pairs:  **Option A**: integrated design and research  BIOEN 401 - BioE Capstone Proposal (1cr) (W)  BIOEN 402 - Research and Design Capstone (7-9cr) (W)  **Option B**: research project and small group design and build  BIOEN 404 - Team Design I (3cr)  BIOEN 405 - Team Design II (4cr)  **Approved Engineering Electives (9-12cr)**  Visit department website for a [list of approved courses](https://bioe.uw.edu/academic-programs/undergraduate/undergraduate-degree-requirements/%20). 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.  **Free Electives** **(to reach 180 total credits)**  Additional coursework in any subject area not used elsewhere in degree.  **Total credits required for graduation: 180cr** |

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| **Bioengineering** |  | **Questions: Contact ENGRUD Advising**  Email: engradv@uw.edu  Office: IEB 307  Phone: (206) 543-1770 |

This is a sample four-year plan for Bioengineering to provide ENGRUDs a framework to their individual academic plan.

Courses required to request placement for ENGRUD students: **ENGR 101; MATH 124, 125, 126; CHEM 142; PHYS 121; English Composition; choose one:** **BIOEN 215 or ENGR 115, AMATH 301 or CSE 121, CSE 122, or CSE 160 + BIOEN 217, CHEM 152, CHEM 162, PHYS 122.**

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| **Autumn Quarter**  ⯁ **MATH 124 - Calc. w/ Analytic Geom. I**  ⯁ **CHEM 142 - General Chemistry**  **⯁ E-FIG: ENGR 101 & GEN ST 199**  A&H / SSc | **cr**  5  5  2  3 | **Winter Quarter**  **⯁ MATH 125 - Calc. w/ Analytic Geom. II**  **★ *CHEM 152* - *General Chemistry***  **⯁ English Composition** | **cr**  5  5  5 | **Spring Quarter**  **⯁ MATH 126 - Calc. w/ Analytic Geom. III**  **★ *CHEM 162* - *General Chemistry***  **⯁ PHYS 121 - Mechanics** | **cr**  5  5  5 |
| Qtr. Total: | **15** | Qtr. Total: | **15** | Qtr. Total: | **15** |

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| **Autumn Quarter**  BIOL 180 - Introductory Biology  CHEM 223 or 237 - Organic Chemistry  BIOEN 215 - Intro to BioE. Prob. Solv  PHYS 122 - Electromagnetism | **cr**  5  4  3  5 | **Winter Quarter**  BIOL 200 - Introductory Biology  AMATH 301 - Beg. Sci. Comp.  OR CSE 12X/160 +BIOEN 217  A&H / SSc / DIV | **cr**  5  4-5  5 | **Spring Quarter**  MATH 207 - Differential Equations  BIOEN 315 - Biochem. & Molecular Eng.  BIOEN 316 - Biomed. Signals & Sensors  BIOEN 317 - Signals & Sensors Lab  A&H / SSc | **cr**  4  3  4  2  3 |
| Qtr. Total: | **17** | Qtr. Total: | **14+** | Qtr. Total: | **16** |

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| **Autumn Quarter**  BIOEN 325 - Biotransport I  BIOEN 326 - Solid and Gel Mechanics  BIOEN 327 - Fluids and Materials Lab  MATH 208 - Matrix Algebra  A&H / SSc | **cr**  4  4  2  4  3 | **Winter Quarter**  BIOEN 335 - Biotransport II  BIOEN 336 - BioE Systems & Control  BIOEN 337 - Mass Transport and Systems Lab  BIOL 220 - Introductory Biology  IND E 315 - Prob Stats for Engineers | **cr**  3  3  2  5  3 | **Spring Quarter**  BIOEN 345 - Failure Analysis of Human Physiology  BIOEN 400 - BioE Design ENGR  BIOEN Elective I  A&H / SSc  BIOEN 401 - Capstone Proposal (only for 402 track) | **cr**  4  3  4  3  1 |
| Qtr. Total: | **17** | Qtr. Total: | **16** | Qtr. Total: | **15** |

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| **Autumn Quarter**  BIOEN 402 - Design & Research  BIOEN Elective II  Engineering Elective  A&H / SSc / W course  Could consider one of the following:  Full-time internship (ENGR 321)  Study Abroad, Clinical Experience | **cr**  3  3  4  4  3-6 | **Winter Quarter**  BIOEN 402 - Design & Research  OR BIOEN 404 - Team Design  BIOEN Elective III  BIOEN Elective IV  A&H / SSc | **cr**  3  3  4  3 | **Spring Quarter**  BIOEN 402 - Design & Research  OR BIOEN 405 - Team Design  BIOEN Elective V (if needed)  Engineering Elective  General Elective / W course (if needed) | **cr**  3-4  3  4  5 |
| Qtr. Total: | **14+** | Qtr. Total: | **13+** | Qtr. Total: | **15+** |

**⯁ = Placement Requirement**

**★** = Pick ***one*** to satisfy placement requirements