This resource is for ENGRUD students who entered the UW in AUT24 or later.

BioE

Bioengineering Graduation Requirements
University of Washington
https://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

◆ **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] OR AMATH 351

MATH 208 - Matrix Algebra with Applications (3cr)
[pr: MATH 126] OR AMATH 352

INDE 315 - Prob. & Stats for Engineers (3cr) [pr: MATH 207]
OR STAT 311 - Elements of Stat. Meth. (5cr) [pr: MATH 124]
OR STAT 390 - Stat. Meth. Eng. & Sci. (4cr) [pr: MATH 126]
OR Q SCI 381 - Intro to Prob. & Stats (5cr) [pr: MATH 124]

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) - 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

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 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. See department website for list.

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 (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 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.

Updated September 2024

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BioE

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 & GEN ST 199; MATH 124, 125, 126; CHEM 142; PHYS 121; English Composition; ENGRUD students who are interested in BioE should choose one of the following: BIOEN 215 or ENGR 115; AMATH 301 or CSE 121, CSE 122, or CSE 160 + BIOEN 217; CHEM 152, CHEM 162; PHYS 122.**

First Year

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

Second Year

Autumn Quarter	cr	Winter Quarter	cr	Spring Quarter	cr
BIOL180 - Introductory Biology	5	BIOL 200 - Introductory Biology	5	MATH 207 - Differential Equations	3
CHEM 223 or 237 - Organic Chemistry	4	AMATH 301 - Beg. Sci. Comp. OR CSE 12X/160 + BIOEN 217	4-5	BIOEN 315 - Biochem. & Molecular Eng.	3
BIOEN 215 - Intro to BioE. Prob. Solv	3			BIOEN 316 - Biomed. Signals & Sensors	4
PHYS 122 - Electromagnetism	5	A&H / SSc / DIV	5	BIOEN 317 - Signals & Sensors Lab	2
				A&H / SSc	3
Qtr. Total:	**17**	Qtr. Total:	**14+**	Qtr. Total:	**15**

Third Year

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

Fourth Year

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

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

Honors or accelerated sequences of chemistry, math and physics can satisfy the placement requirements.

Updated September 2024