

BioE

**Bioengineering
Degree Requirements**
<https://bioe.washington.edu>
bioeng@uw.edu

ENGRUD Requirement Key:

◆ = Placement Requirements

★ = *Pick one to satisfy placement requirement*

Placement: July 1 at the end of the first year

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 (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.](#)

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](#).

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

This resource is for ENGRUD students who entered the UW-Seattle in AUT25.

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.**

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

<u>Autumn Quarter</u>	<u>cr</u>	<u>Winter Quarter</u>	<u>cr</u>	<u>Spring Quarter</u>	<u>cr</u>
BIOL 180 - Introductory Biology	5	BIOL 200 - Introductory Biology	5	MATH 207 - Differential Equations	4
CHEM 223 or 237 - Organic Chemistry	4	AMATH 301 - Beg. Sci. Comp.	4-5	BIOEN 315 - Biochem. & Molecular Eng.	3
BIOEN 215 - Intro to BioE. Prob. Solv	3	OR CSE 12X/160 + BIOEN 217		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:	16

<u>Autumn Quarter</u>	<u>cr</u>	<u>Winter Quarter</u>	<u>cr</u>	<u>Spring Quarter</u>	<u>cr</u>
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	4	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:	17	Qtr. Total:	16	Qtr. Total:	15

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

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Honors or accelerated sequences of chemistry, math and physics will satisfy degree requirements.

Updated June 2025