

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

BSE

Bioresource Science & Engineering Graduation Requirements

University of Washington

<https://sefs.uw.edu/students/undergraduate/bse-major>

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 Differential Equations (3cr)
[pr: MATH 125]

MATH 208 - Matrix Algebra w/ Applications (3cr)
[pr: MATH 126]

Q SCI 381 - Intro to Probability & Stats (5cr)
OR STAT 390 - Stat Methods in Engr. & Science (4cr)
OR IND E 315 - Prob & Stats for Engineers (3cr)

Sciences (38cr)

◆ CHEM 142 - General Chemistry (5cr)

★ CHEM 152 - General Chemistry (5cr)

★ CHEM 162 - General Chemistry (5cr)

CHEM 237 - Organic Chemistry (4cr)
[pr: CHEM 153, 155 or 162]

CHEM 238 - Organic Chemistry (4cr)
[pr: CHEM 237 or 335]

◆ PHYS 121 - Mechanics (5cr) [pr: MATH 124 or MATH 134]

★ PHYS 122 - Electromagnetism (5cr) [pr: MATH 125 or MATH 134; PHYS 121]

★ PHYS 123 - Waves (5cr) [pr: MATH 126 or MATH 134; PHYS 122]

Engineering General Education Requirements (29cr)

Written and Oral Communication:

◆ English Composition (5cr)

ENGR 231 - Intro to Technical Communication (3cr)

Areas of Inquiry, Part I - Outside of Major

Social Sciences - SSc (10cr)

Areas of Inquiry, Part II - No Overlap Restriction with Major Requirements

Arts & Humanities – A&H (10cr)

Social Sciences - SSc (10cr)

ECON 200 - Introduction to Microeconomics (5cr)

Remaining credits met in major (BSE 480)

Diversity - DIV (5cr) (may overlap with A&H or SSc)

Engineering Fundamentals (4cr)

A A 260 - Thermodynamics (4cr)

Departmental Core (63cr)

BSE 210: Concepts in Bioproduct Sustainability (4 cr)

BSE 248 - Paper Properties (4cr)

BSE 391 - Engineering Principles of Biorefineries (5cr)

BSE 392 - Bioresource Transport Phenomena (5cr)

BSE 406 - Natural Products Chemistry (5cr)

BSE 410 – Industrial Wastewater Treatment & Reduction (4cr)

BSE 420 - Bioresource Engineering I (4cr)

BSE 421 - Bioresource Engineering II (4cr)

BSE 422 - Bioresource Engineering III (4cr)

BSE 426 - Bioresource Laboratory (4cr)

BSE 430 - Papermaking Processes (5cr)

BSE 436 - Pulp and Paper Laboratory II (4cr)

BSE 480 - Bioresource Design I (4cr)

BSE 481 - Bioresource Design II (5cr)

BSE 497 - Pulp and Paper Internship (1cr)

Engineering Electives (11cr minimum)

See department for list of approved courses

Business Option (12cr minimum)

See department for list of approved courses

Free Electives

Additional coursework in any subject area not used elsewhere in degree.

Total credits required for graduation: 180cr

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

Updated September 2023

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**Bioresource Science & Engineering
Sample Curriculum**
University of Washington

<https://sefs.uw.edu/students/undergraduate/bse-major>

Bioresource Science & Engineering Advising

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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 BSE should choose one of the following: CHEM 152, CHEM 162; PHYS 122, PHYS 123.**

First Year

<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		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

<u>Autumn Quarter</u>		<u>cr</u>	<u>Winter Quarter</u>		<u>cr</u>	<u>Spring Quarter</u>		<u>cr</u>
MATH 207 - Differential Equations		3	MATH 208 - Matrix Algebra		3	A A 260 - Thermodynamics		4
CHEM 237 - Organic Chemistry		4	PHYS 123 - Waves		5	BSE 248 - Paper Properties		4
PHYS 122 – Electromagnetism		5	CHEM 238 - Organic Chemistry		4	Econ 200 - Microeconomics		5
BSE 210 - Bioproduct Sustainability		4	A&H / SSc / DIV		5			
Qtr. Total:		16	Qtr. Total:		17	Qtr. Total:		13

Third Year

<u>Autumn Quarter</u>		<u>cr</u>	<u>Winter Quarter</u>		<u>cr</u>	<u>Spring Quarter</u>		<u>cr</u>
BSE 391 - Engineering Principles of Biorefineries		5	BSE 392 - Bioresource Transport Phenomena		5	BSE 421 - Biores. Engineering II		4
BSE 406 - Natural Products Chemistry		5	BSE 420 - Biores. Engineering I		4	BSE 426 - Bioresource Lab		4
ENGR 231: Intro to Technical Communication		3	BSE 410: Industrial Wastewater treatment Engineering Elective		4	Engineering Elective		4
					4	QSCI 381: Statistics		5
Qtr. Total:		13	Qtr. Total:		17	Qtr. Total:		17

Fourth Year

<u>Autumn Quarter</u>		<u>cr</u>	<u>Winter Quarter</u>		<u>cr</u>	<u>Spring Quarter</u>		<u>cr</u>
BSE 422 - Biores. Engineering III		4	BSE 436 - Pulp and Paper Lab II		4	BSE 481 - Bioresource Design II (I&S)		5
BSE 430 - Papermaking Processes		5	BSE 480 - Bioresource Design I (I&S)		4	Engineering Elective		4
BSE 497 - Internship		1	A&H / SSc		4	A&H / SSc		5
A&H / SSc		5						
Qtr. Total:		15	Qtr. Total:		13	Qtr. Total:		14

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