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

ChemE

Chemical Engineering Degree Requirements
http://cheme.washington.edu
chemeadv@uw.edu

ENGRUD Requirement Key:
◆ = **Placement Requirements**
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 (24-27cr)
◆ **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), MATH 209 (4cr), STAT 390 (4cr), MATH 224 (4cr), AMATH 353 (3cr)

Sciences (41cr)
◆ **CHEM 142 - General Chemistry (5cr)**

◆ **CHEM 152 - General Chemistry (5cr)** [pr: CHEM 142]

CHEM 162 - General Chemistry (5cr) [pr: CHEM 152]
*Strongly recommended to complete in the first year

CHEM 237 - Organic Chemistry (4cr)
OR CHEM 223 (4cr) [pr: CHEM 162]

CHEM 238 - Organic Chemistry (4cr)
OR CHEM 224 (4cr) [pr: CHEM 237]

CHEM E 456 - Quantum Mechanics (3cr) OR CHEM 455 Physical Chemistry (3cr)
[pr: CHEM 162; MATH 207, MATH 208; PHYS 123]

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

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

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

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)

Major Core Requirements (54cr)
CHEM E 310 - Material Energy Balances (4cr)
CHEM E 325 - Energy & Entropy (4cr)
CHEM E 326 - Chem. Engineering Thermodynamics (4cr)
CHEM E 330 - Transport Processes I (5cr)
CHEM E 340 - Transport Processes II (4cr)
CHEM E 375 - Chemical Engineering Computing (3cr)
CHEM E 435 - Transport Processes III (4cr)
CHEM E 436 - Chemical Engineering Lab I (3cr) (W)
CHEM E 437 - Chemical Engineering Lab II (3cr) (W)
CHEM E 457 - Principles of Molecular Engineering (3cr)
CHEM E 465 - Reactor Design (4cr)
CHEM E 480 - Process Dynamics and Control (4cr)
CHEM E 485 - Process Design I (4cr)
CHEM E 486 - Process Design II (5cr)

Molecular and Nanoscience Engineering (3cr)
CHEM E 455 - Surface and Colloid Science Lab (3cr)
OR
CHEM E 460 - Polymer Chemistry Laboratory (3cr)

Engineering Electives (16cr)
Visit department website for list of approved courses.

Free Electives (to reach 180 total credits)
Additional coursework in any subject area not used elsewhere in degree.

Total credits required for graduation: 180cr

Enrollment and Continuation Requirements: *Prior to the start of the first Spring Quarter following entrance into the ChemE major students must complete CHEM 162, PHYS 122, MATH 207. Students must complete CHEM 237, CHEM 238, PHYS 123, MATH 208, CHEM E 310, CHEM E 375 or equivalents prior to the start of the following autumn quarter.*

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

Updated June 2025

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Chemical Engineering

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

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

Courses required to request placement for ENGRUD students: **ENGR 101; MATH 124, 125, 126; CHEM 142; PHYS 121; English Composition; CHEM 152. Students are strongly recommended to complete CHEM 162 prior to placement.**

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**

Autumn Quarter	cr	Winter Quarter	cr	Spring Quarter	cr
MATH 207 - Diff. Equations	4	PHYS 123 - Waves	5	CHEM E 310 - Mat./Energy Balance*	4
PHYS 122 - Electromagnetism	5	CHEM 238/224 - Organic Chem II	4	CHEM E 375 - ChemE Computing	3
CHEM 237/223 - Organic Chem I	4	MATH 208 - Matrix Algebra	4	Math Elective	4
A&H / SSc / DIV	5	Free Elective	4	Free Elective	3
Qtr. Total:	**18**	Qtr. Total:	**17**	Qtr. Total:	**14**

Autumn Quarter	cr	Winter Quarter	cr	Spring Quarter	cr
CHEM E 325 - Energy & Entropy	4	CHEM E 326 - ChemE Thermodynamics	4	CHEM E 436 - ChemE Lab I	3
CHEM E 330 - Transport Processes I	5	CHEM E 340 - Transport Processes II	4	CHEM E 457 - Principles of Molecular Engineering	3
CHEM E 456 - Quantum Mechanics	3	Engineering Elective	3	Engineering Elective	4
A&H / SSc	4	A&H / SSc	5	A&H / SSc	5
Qtr. Total:	**16**	Qtr. Total:	**16**	Qtr. Total:	**15**

Autumn Quarter	cr	Winter Quarter	cr	Spring Quarter	cr
CHEM E 435 - Transport Processes III	4	CHEM E 437 - CHEM E Lab II	3	CHEM E 486 – Process Design II	5
CHEM E 455 - Surface and Colloid Science Laboratory	3	CHEM E 480 - Proc. Dynamics & Control	4	Engineering Elective	5
CHEM E 465 - Reactor Design	4	CHEM E 485 - Process Design I	4	Free Elective	4
Free Elective	2	Engineering Elective	4		
Qtr. Total:	**13**	Qtr. Total:	**15**	Qtr. Total:	**14**

◆ = **Placement Requirement**

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