

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

ChemE

**Chemical Engineering
Graduation Requirements**
University of Washington
<http://cheme.washington.edu>

ENGRUD Requirement Sheet – Key:

◆ = Placement Requirements;

Placement: July 1 at the end of the first year

◆ **E-FIG: ENGR 101 and GEN ST 199 (2cr)**

Mathematics (24-25cr)

◆ **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 with Applications (3cr)

[pr: MATH 126]

One course from the following: IND E 315 (3cr); MATH 209 (3cr); STAT 390 (4cr); MATH 224 (3cr)

Sciences (41cr)

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

◆ **CHEM 152 - General Chemistry (5cr)**

CHEM 162 - General Chemistry (5cr)

***Strongly recommended to complete in the first year**

CHEM 237 - Organic Chemistry (4cr) OR CHEM 223 (4cr)

[pr: CHEM 153, CHEM 155, or CHEM 162]

CHEM 238 - Organic Chemistry (4cr) OR CHEM 224 (4cr)

[pr: CHEM 237, CHEM 355, or CHEM 237]

CHEM E 456 - Quantum Mechanics OR 455 - Physical Chemistry (3cr) [pr: CHEM 162; MATH 126; PHYS 123]

◆ **PHYS 121- Mechanics (5cr)**

[pr: MATH 124 or MATH 134]

PHYS 122 - Electromagnetism (5cr)

[pr: MATH 125; PHY 121]

PHYS 123 - Waves (5cr)

[pr: MATH 126; PHYS 122]

Engineering General Education

Requirements (32cr)

Written and Oral Communication:

◆ **English Composition (5cr)**

ENGR 231 - Intro to Technical Communication (3cr) or department approved alternative

Areas of Inquiry:

Arts & Humanities – A&H (10cr)

Social Sciences - SSc (10cr)

Additional A&H or SSc (4cr)

Diversity - DIV (3cr) (may overlap with A&H or SSc)

Departmental Core (51cr)

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)

CHEM E 437 - Chemical Engineering Lab II (3cr)

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)

See department for list of approved courses

Free Electives (~6-7cr)

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. AMATH 351/352/353 may be alternatives to MATH 207/208/209, work with the department to confirm.

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**Chemical Engineering
Sample Curriculum**
University of Washington
<http://cheme.washington.edu>

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Email: chemeadv@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 their 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, MATH 125, MATH 126; CHEM 142; PHYS 121; English Composition. ENGRUD students who are interested in ChemE must complete CHEM 152 and are strongly recommended to complete CHEM 162.**

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	PHYS 123 - Waves	5	CHEM E 310 - Materials/Energy Balance*	4
PHYS 122 - Electromagnetism	5	CHEM 238/224 - Organic Chemistry II	4	CHEM E 375 - ChemE Computing	3
CHEM 237/223 - Organic Chemistry I	4	MATH 208 - Matrix Algebra	3	MATH 209 - Linear Analysis	3
A&H / SSc / DIV	5	ENGR 231 - Intro to Technical Comm	3	Free Elective	3
Qtr. Total:	17	Qtr. Total:	16	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>
CHEM E 325 - Energy & Entropy	4	CHEM E 326 - CHEM E Thermodynamics	4	CHEM E 436 - CHEM E 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	3
A&H / SSc	4	A&H / SSc	5	A&H / SSc	5
Qtr. Total:	16	Qtr. Total:	16	Qtr. Total:	14

Fourth Year

<u>Autumn Quarter</u>	<u>cr</u>	<u>Winter Quarter</u>	<u>cr</u>	<u>Spring Quarter</u>	<u>cr</u>
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	3		
Qtr. Total:	13	Qtr. Total:	14	Qtr. Total:	14

◆ = Placement Requirements

*CHEM E 310 is the first course in a seven-quarter sequence of core classes; MATH 207 and PHYS 122 are prerequisites and must be completed prior to enrolling in CHEM E 310.

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