

This resource is for ENGRUD students who entered the UW in AUT22 or later.

ChemE

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

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)

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 455 - Physical Chemistry (3cr)

[CHEM 162; MATH 126; PHYS 123]

◆ PHYS 121- Mechanics (5cr)

[pr: MATH 124 or MATH 134]

PHYS 122 - Electromagnetism (5cr)

[pr: MATH 125 or MA; 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)

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)

Engineering Fundamentals (4cr)

AMATH 301 - Beginning Scientific Computing (4cr)

[pr: MATH 125, Q SCI 292, or MATH 135]

OR

CSE 122 - Computing Programming II (4cr)

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 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.

Updated July 2022

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ChemE

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

Chemical Engineering Advising
Office: 137 Benson Hall, Box 351750
Seattle, WA 98195-1750
Phone: (206) 685-1634
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 |
| ◆ English Composition | 5 | A&H / SSc | 5 | ◆ PHYS 121 - Mechanics | 5 |
| ◆ E-FIG: ENGR 101 & GEN ST 199 | 2 | | | | |
| Qtr. Total: | 17 | 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 | AMATH 301 or CSE 122 | 4 | CHEM E 310 - Materials/Energy Balance* | 4 |
| PHYS 122 - Electromagnetism | 5 | PHYS 123 - Waves | 5 | MATH 209 - Linear Analysis | 3 |
| CHEM 237/223 - Organic Chemistry I | 4 | CHEM 238/224 - Organic Chemistry II | 4 | Free Elective | 3 |
| A&H / SSc | 5 | MATH 208 - Matrix Algebra | 3 | ENGR 231 - Intro to Technical Comm | 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 455 - Physical Chemistry | 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.

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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