## Mathematics (24 cr)

- **MATH 124, 125, 126 - Calculus with Analytical Geometry I, II, III (15 cr)**
- AMATH 351 - Applied Differential Equations (3 cr) [pr: MATH 125]
- AMATH 352 - Matrix Algebra (3 cr) [pr: MATH 126]
- IND E 315 - Probability & Statistics for Engineers (3 cr) [pr: either MATH 136, MATH 307, or AMATH 351]

## Sciences (35 cr)

- **Biol 180 - Introductory Biology (5 cr)**
- **CHEM 142 - General Chemistry (5 cr)**
- **CHEM 152 - General Chemistry (5 cr) [pr: CHEM 142, CHEM 143 or CHEM 145]**
- **CHEM 162 - General Chemistry (5 cr) [pr: CHEM 152]**
- **PHYS 121 - Mechanics (5 cr) [pr: MATH 124 or MATH 134]**
- **PHYS 122 - Electromagnetism (5 cr) [pr: MATH 125 or MATH 134; PHYS 121]**
- **PHYS 123 - Waves (5 cr) [pr: MATH 126 or MATH 134; PHYS 122]**

## Engineering General Education Requirements (36 cr)

**Written and Oral Communication:**

- **ENGL composition (5 cr)**
- ENGR 231 - Into to Technical Communication (3 cr)
- Add’l Writing or Composition (4 cr)

**Areas of Knowledge:**

- Visual, Literary & Performing Arts - VLPA (10 cr)
- Individuals & Society - I&S (10 cr)
- VLPA or I&S (10 cr)
- Diversity – DIV (3 cr) – (may overlap with VLPA/I&S)

## Engineering Fundamentals (16-17 cr)

- AA 210 - Engineering Statics (4cr) [pr: MATH 126; PHYS 121]
- CEE 220 - Introduction to Mechanics of Materials (4cr) [pr: AA 210]
- AA 260 - Thermodynamics (4cr) [pr: CHEM 142, CHEM 144, or CHEM 145; MATH 126 or MATH 136; PHYS 121]
- AMATH 301 - Beginning Scientific Computing (4cr) [pr: MATH 125 or MATH 135]

## Economics Requirement (4-5 cr)

- Choose one: ECON 200 (can satisfy I&S) (5 cr) OR IND E 250 (can satisfy Engr. Fundamentals) (4 cr)

## Departmental Core (30 cr)

- CEE 347 - Introduction to Fluid Mechanics (5 cr)
- CEE 348 - Hydrology and Environmental Fluid Methods (4 cr)
- CEE 349 - Case Studies in Environmental Engineering (3 cr)
- CEE 350 - Mass and Energy Balances in Environmental Engineering (4 cr)
- CEE 352 - Introduction to Microbial Principles in Environmental Engineering (5 cr)
- CEE 354 - Introduction to Chemical Principles in Environmental Engineering (5 cr)
- CEE 356 - Quantitative and Conceptual Tools for Sustainability (4 cr)

## EnV/CEE Senior Courses (7 cr)

- CEE 440 - Professional Practice Studio (2 cr) AND Choose one: CEE 444 (5 cr) OR CEE 445 (5 cr)

## Technical Electives (15 cr)

Select courses from the Technical Electives: Core Courses list on the CEE website. Thematic areas: Engineered Systems and Processes, Natural Systems and Processes, and Hydrology and Hydrodynamics.

## Upper-Division Engineering and Science (13 cr)

See department for a list of approved courses.

**Total credits required for graduation: 180 cr**

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Honors or accelerated sequences of math and chemistry can satisfy some of the above requirements, see department website for specifics. AMATH 351/352/353 are alternatives to Math 307/308/309.

Updated January 2020
This is a sample four-year plan for ENGRUD students. 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: MATH 124, MATH 125, MATH 126; three courses from CHEM 142, CHEM 152, CHEM 162, PHYS 121, PHYS 122, PHYS 123, or BIOL 180; 5 credits of English Composition.

<table>
<thead>
<tr>
<th>Year</th>
<th>Autumn Quarter</th>
<th>Winter Quarter</th>
<th>Spring Quarter</th>
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</thead>
<tbody>
<tr>
<td>Freshman</td>
<td><strong>MATH 124 - Calculus with Analytical Geometry I</strong></td>
<td><strong>MATH 125 - Calculus with Analytical Geometry II</strong></td>
<td><strong>MATH 126 - Calculus with Analytical Geometry III</strong></td>
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<td><strong>CHEM 142 - General Chemistry</strong></td>
<td><strong>CHEM 152 - General Chemistry</strong></td>
<td><strong>CHEM 162 - General Chemistry</strong></td>
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<td>VLPA/I&amp;S</td>
<td><strong>English Composition</strong></td>
<td><strong>PHYS 121 - Mechanics</strong></td>
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<td>E-FIG: ENGR 101 &amp; GEN ST 199</td>
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<td><strong>PHYS 122 - Electromagnetism</strong></td>
<td><strong>PHYS 123 - Waves</strong></td>
<td><strong>BIOI 180 - Intro Biology I</strong></td>
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<td>VLPA/I&amp;S</td>
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<tr>
<td>Junior</td>
<td>CEE 349 - Case Studies in Environmental Engineering</td>
<td>CEE 347 - Intro to Fluid Mechanics</td>
<td>CEE 348 - Hydrology &amp; Environmental Fluid Methods</td>
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<td>CEE 352 - Introduction to Microbial Principles in Environmental Engineering.</td>
<td>ENGR 231 - Intro to Technical Communication</td>
<td>IND E 250 - Engineering Economy</td>
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<td>IND E 315 - Probability and Statistics For Engineers</td>
<td>Additional Writing</td>
<td>Technical Elective</td>
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<td>Senior</td>
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<td>Technical Elective</td>
<td>CEE 440 - Professional Practice Studio</td>
<td>CEE 444/445 - Capstone Design</td>
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◆ = Placement Requirement  
★ = Pick three to satisfy placement requirements