# CHEMICAL (BIOCHEMICAL)

## FIRST YEAR

### FALL SEMESTER

<table>
<thead>
<tr>
<th>GE A</th>
<th>WRIT 150</th>
<th>MATH 125 (GE F)</th>
<th>CHEM 105aL (GE E)</th>
<th>ENGR 102</th>
</tr>
</thead>
<tbody>
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</table>

### SPRING SEMESTER

<table>
<thead>
<tr>
<th>CHEM 120 (MATH 125, CHEM 105aL)</th>
<th>CHEM 205</th>
<th>MATH 126 or MATH 129</th>
<th>CHEM 105bL</th>
<th>PHYS 151L (GE E)</th>
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## SECOND YEAR

### FALL SEMESTER

<table>
<thead>
<tr>
<th>CHEM 330</th>
<th>CHEM 300L</th>
<th>MATH 226 or MATH 229</th>
<th>PHYS 152L</th>
<th>OPTIONAL ELECTIVE</th>
</tr>
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### SPRING SEMESTER

<table>
<thead>
<tr>
<th>WRIT 340</th>
<th>MATH 245</th>
<th>CHEM 322aL</th>
<th>CHEM 350</th>
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## THIRD YEAR

### FALL SEMESTER

<table>
<thead>
<tr>
<th>GE C</th>
<th>BISC 320L (GE D)</th>
<th>CHEM 430a</th>
<th>CHE 442</th>
<th>OPTIONAL ELECTIVE</th>
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### SPRING SEMESTER

<table>
<thead>
<tr>
<th>GE B</th>
<th>BISC 330L</th>
<th>BISC 300L</th>
<th>BISC 330L</th>
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## FOURTH YEAR

### FALL SEMESTER

<table>
<thead>
<tr>
<th>BIOELECTIVE</th>
<th>CHE 444bL</th>
<th>CHEM 405 or ISE 460</th>
<th>CHE 485</th>
<th>CHE 445</th>
<th>OPTIONAL ELECTIVE</th>
</tr>
</thead>
<tbody>
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### SPRING SEMESTER

<table>
<thead>
<tr>
<th>GE C</th>
<th>CHE 446</th>
<th>CHE 460L</th>
<th>CHE 480</th>
<th>CHE 489</th>
<th>BME 410</th>
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## MATHEMATICS (16 UNITS)

- MATH 125: Calculus I
- MATH 126 or MATH 129: Calculus II
- MATH 226 or MATH 229: Calculus III
- MATH 243: Mathematics of Phys. and Engr.

## PHYSICS (8 UNITS)

- PHYS 151L: Mechanics and Thermodynamics
- PHYS 152L: Electricity and Magnetism

## CHEMISTRY (20 UNITS)

- CHEM 105AL: General Chemistry
- CHEM 105BL: General Chemistry
- CHEM 301L: Analytical Chemistry
- CHEM 322AL: Organic Chemistry
- CHEM 430A: Physical Chemistry I

## BIOLOGY (12 UNITS)

- BISC 300L: Intro. to Microbiology
- BISC 320L: Molecular Biology
- BISC 330L: Biochemistry

## GENERAL EDUCATION (32 UNITS)

- GE A: The Arts (1 Course)
- GE B: Humanistic Inquiry (2 Courses)
- GE C: Social Analysis (2 Courses)
- GE D: Life Sciences (1 Course)
- GE E: Physical Sciences (1 Course)
- GE F: Quantitative Reasoning (1 Course)

### GE G, H

- Global Perspectives (2 Courses)*
- GE G: General Education Seminar (1 Course)*

### WRITING (7 UNITS)

- WRIT 150: Writing and Critical Reasoning
- WRIT 340: Advanced Writing

### ENGINEERING (51-52 UNITS)

- BME 410: Intro. to Biomaterials
- CHE 120: Intro. to Chemical Engineering
- CHE 205: Numerical Methods in Chemical Engineering
- CHE 330: Chemical Engr. Thermodynamics
- CHE 350: Intro. to Separation Processes
- CHE 405: Applications of Probability & Statistics for Chemical Engineers or ISE 460: Engineering Economy
- CHE 442: Chemical Reactor Analysis
- CHE 443: Viscous Flow
- CHE 444ABL: Chem. Engineering Laboratory
- CHE 445: Heat Transfer in CHE Processes
- CHE 446: Mass Transfer in CHE Processes
- CHE 460L: Chemical Process Dynamics
- CHE 480: Chem. Process and Plant Design
- CHE 485: Computer-Aided Plant Design
- CHE 489: Biochemical Engineering
- ENGR 102: Engineering Freshman Academy
- BIOELECTIVE

### SPECIAL NOTES

Courses with this symbol may be satisfied with AP, IB or A-Level exams. See page 17 for more information.

GE: Engineering students are encouraged to satisfy GE G and GE H with a course that also satisfies a Core Literacy. GE H may be satisfied by exam. Additionally, your GESM course should be taken in categories A, B, C, or D only. See pp. 16-17 for more information and consult your advisor for detailed assistance.

OPTIONAL ELECTIVES: Consult with your academic advisor to explore optional elective courses. These courses are not required.

BIOELECTIVE: Approved Bioengineering course or BISC 403

BISC 403: Must have 48 engineering units in order to register for this class.