Computation & Systems Biology Track
Curriculum Map

Fall Year 1 (16 hrs)
- MATH 221 (4) Calculus I
- ENG 100 (0) Engineering Lecture
- BIOE 199/100 (1) Undergraduate Seminar
- RHET 105 (4) Principles of Composition
- CHEM 102 (3) General Chemistry I
- BIOE 198 (2) Biomedical Data Analysis
- MCB 150 (4) Molecular & Cellular Basis of Life
- CHEM 104 (3) General Chemistry II
- CHEM 103 (1) General Chemistry Lab I
- SS/Hum (3)

Spring Year 1 (16 hrs)
- MATH 231 (3) Calculus II
- PHYS 211 (4) University Physics, Mechanics
- BIOE 120 (1) Introduction to Bioengineering
- MCB 150 (4) Molecular & Cellular Basis of Life
- CHEM 104 (3) General Chemistry II
- CHEM 103 (1) General Chemistry Lab I
- SS/Hum (3)

Fall Year 2 (18 hrs)
- MATH 241 (4) Calculus III
- PHYS 212 (4) University Physics, Elec & Mag
- BIOE 201 (3) Conservation Principles BIOE
- BIOE 206 (3) Cellular Bioengineering
- CS 125 (4) Introduction to Computer Engineering Lab
- CHEM 232 (4) Organic Chemistry I
- BIOE 200 (1) BioE Career Immersion
- BIOME 298 AMS (1) Career Ecosystems

Spring Year 2 (18 hrs)
- BIOE 205 (3) Systems in Bioengineering
- BIOE 210 (3) Linear Algebra for Biomedical Data Science
- BIOE 202 (2) Cell & Tissue Engineering Lab
- CHEM 232 (4) Organic Chemistry I
- BIOE 202 (2) Quant Human Physiology Lab
- CS 225 Data Structures (4)
- BIOE 298 AMS (1) Career Ecosystems

Fall Year 3 (17 hrs)
- BIOE 476 (3) Tissue Engineering
- BIOE 310 (3) Comp. Tools for Bio. Data
- BIOE 220 (3) Bioenergetics
- BIOE 415 (2) Biomedical Instrumentation Lab
- BIOE 303 (2) Quant Human Physiology Lab
- BIOE 203 (3) Modeling Human Physiology
- BIOE 320 (3) Quant Human Physiology Lab
- BIOE 204 (3) Quant Human Physiology Lab

Spring Year 3 (14/17 hrs)
- BIOE 435 (2) Sr. Design I
- BIOE 310 (3) Comp. Tools for Bio. Data
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab

Fall Year 4 (17 hrs)
- BIOE 436 (2) Sr. Design II
- BIOE 436 (2) Sr. Design II
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab

Spring Year 4 (17 hrs)
- BIOE 436 (2) Sr. Design II
- BIOE 436 (2) Sr. Design II
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab
- BIOE 420 (3) Intro. Bio. Control Systems
- BIOE 414 (3) Biomedical Instrumentation
- BIOE 415 (2) Biomedical Instrumentation Lab

Computation & Systems Biology Track Electives:
- BIOE 424 – Systems Bioengineering (3 hr)
- BIOE 430 – Intro. Synthetic Biology (3 hr)
- BIOE 498 JI – Finite Element Mthds in Biomed (3 hr)
- ABE 440 – Applied Statistical Methods I (4 hr)
- ECE 490 – Introduction to Optimization (3 hr)
- SE 423 – Mechatronics (3 hr)
- IE 310 – Deterministic Models in Optimization (3 hr)
- IE 370 – Stochastic Processes and Applications (3 hr)
- NPRE 461 – Probabilistic Risk Assessment (3 hr)
- NPRE 498 PRA – Advanced Risk Analysis (3 hr)
- TMGT 461TMD/TME – Tech, Eng, and Mngmt Project (4 hr)
- CS 225 – Data Structures (4 hr)
- CS 398 DL – Deep Learning (3 hr)
- CS 411 – Database Systems (3 hr)
- CS 412 – Introduction to Data Mining (3 hr)
- CS 440 – Artificial Intelligence (3 hr)
- CS 465 – User Interface Design (3 hr)
- CS 466 – Introduction to Bioinformatics (3 hr)

**Courses with dashed line borders are not currently required as part of the Core BIOE Curriculum**

**Note** – not taking courses as advised may result in a delayed graduation date. Students are responsible for any impact resulting from not following departmental advising.

**If outlined in RED then the BIOE course is offered both Fall & Spring Semesters**
## Other Requirements

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<thead>
<tr>
<th>General Education Requirements</th>
<th>Premed Requirements</th>
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<tbody>
<tr>
<td>❑ 6 hours in Humanities</td>
<td>❑ Meet with Engineering Career Services Premed advisor</td>
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<tr>
<td>❑ 6 hours in Social/Behavioral Sciences</td>
<td>❑ Common Courses (additional requirements may apply depending on school):</td>
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<tr>
<td>❑ 6 hours in Liberal Education</td>
<td>❑ MCB 450/354 (BioChem)</td>
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<tr>
<td>❑ 1 Advanced Composition Course</td>
<td>❑ CHEM 233 (Orgo 1 lab)</td>
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<tr>
<td>❑ 1 Western Comparative Cultures Course</td>
<td>❑ Social/Behavioral Science Sequence (3 courses)</td>
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<tr>
<td>❑ 1 Non-Western Comparative Cultures Course</td>
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<tr>
<td>❑ 1 US Minority Cultures Course (FA 2018 admits and beyond only)</td>
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<tr>
<td>❑ 3rd Level of a Foreign Language</td>
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