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
- CHEM 103 (1) General Chem Lab I
- C
- SS/Hum (3)

Spring Year 1 (16 hrs)
- MATH 231 (3) Calculus II
- PHYS 211 (4) Univ. Physics, Mechanics
- BIOE 120 (1) Introduction to Bioengineering
- MCB 150 (4) Molec&Cellular Basis of Life
- CHEM 104 (3) General Chemistry II
- CS 125 (4) Intro. to Comp ** Instead of CS 101**
- BIOE 200 (1) BIOE Career Immersion
- CHEM 105 (1) General Chem Lab II
- C
- BIOE 298 AMS (1) Career Ecosystems

Fall Year 2 (18 hrs)
- MATH 241 (4) Calculus III
- PHYS 212 (4) Univ. Physics, Elec & Mag
- BIOE 201 (3) Conservation Principles BIOE
- BIOE 202 (2) Cell & Tissue Engineering Lab
- CS 173 (3) Discrete Structures (prereq required for CS 225)
- BIOE 298 AMS (1) Career Ecosystems

Spring Year 2 (18 hrs)
- BIOE 203 (2) Quant Human Physiology Lab
- CS 225 Data Structures (4)
- Free Elective (3)

Fall Year 3 (17 hrs)
- BIOE 476 (3) Tissue Engineering
- BIOE 220 (3) Bioenergetics
- BIOE 310 (3) Transport & Flow in Bioengineering
- BIOE 360 (3) Biomedical Instrumentation
- BIOE 435 (2) Sr. Design I
- BIOE 420 (3) Intro. Bio. Control Systems

Spring Year 3 (14/17 hrs)
- BIOE 436 (2) Sr. Design II
- Track Elec (3)
- Free Elective (3)

Fall Year 4 (17 hrs)
- BIOE 414 (3) Biomedical Instrumentation
- Track Elec (3)
- SS/Hum (3)

Spring Year 4 (17 hrs)
- Track Elec (3)
- SS/Hum (3)

Computation & Systems Biology Track Electives:
- BIOE 424 – Systems Bioengineering (3 hr)
- BIO 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 498 PRA – Advanced Risk Analysis (3 hr)
- CS 425 – Data Structures (4 hr)
- CS 439 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)

** 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

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

### General Education Requirements
- 6 hours in Humanities
- 6 hours in Social/Behavioral Sciences
- 6 hours in Liberal Education
- 1 Advanced Composition Course
- 1 Western Comparative Cultures Course
- 1 Non-Western Comparative Cultures Course
- 1 US Minority Cultures Course (FA 2018 admits and beyond only)
- 3rd Level of a Foreign Language

### Premed Requirements
- Meet with Engineering Career Services Premed advisor

**Common Courses** *(additional requirements may apply depending on school)*:
- MCB 450/354 (BioChem)
- CHEM 233 (Orgo 1 lab)
- Social/Behavioral Science Sequence (3 courses)