

Cell & Tissue Track - Curriculum Map

Fall Year 1 (16 hrs)

Spring Year 1 (16 hrs)

Fall Year 2 (17 hrs)

Spring Year 2 (18 hrs)

Fall Year 3 (16 hrs)

Spring Year 3 (14 hrs)

Fall Year 4 (14/17 hrs)

Spring Year 4 (14 hrs)

MATH 221 (4)
Calculus I

ENG 100 (0)
Engineering
Lecture

BIOE 100 (1)
BIOE Freshman
Seminar

RHET 105 (4)
Principles of
Composition

CHEM 102 (3)
General
Chemistry I

CHEM 103 (1)
General Chem
Lab I

SS/Hum (3)

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

BIOE 198 (2)
Biomedical
Data Analysis

CHEM 104 (3)
General
Chemistry II

CHEM 105 (1)
General Chem
Lab II

MATH 241 (4)
Calculus III

PHYS 212 (4)
Univ Physics,
Elec & Mag

CS 101 (3)
Intro to Comp

BIOE 201 (3)
Conservation
Princ Bioeng

BIOE 206 (3)
Cellular
Bioengineering

BIOE 200 (1)
BIOE Career
Immersion

MATH 285 (3)
Intro Diff Eq

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

SS/Hum (3)

BIOE 476 (3)
Tissue
Engineering

BIOE 302 (3)
Modeling
Human
Physiology

BIOE 303 (2)
Quant Human
Physiology Lab

Free Elective (2)

MCB 450 (3)
(as free elective)

SS/Hum (3)

BIOE 310 (3)
Comp Tools for
Bio Data

BIOE 360 (3)
Transport &
Flow in
Bioengineering

BIOE 414 (3)
Biomedical
Instrumentation

BIOE 415 (2)
Biomedical
Instrumentation
Lab

Track Elec (3)

Track Elec (3)

BIOE 435 (2)
Sr. Design I

Free Elec (3)

Track Elec (3)

Track Elec (3)

SS/Hum (3)

BIOE 436 (2)
Sr. Design II

BIOE 420 (3)
Intro Bio
Control
Systems

Track Elec (3)

SS/Hum(3)

SS/Hum (3)

** 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

Cell & Tissue Track Electives

- BIOE 306 – Biofabrication Lab (3 hr)
- BIOE 416 – Biosensors (3 hr)
- BIOE 430 – Intro to Synthetic Biology (3 hr)
- BIOE 460– Gene Editing Lab (3 hr)
- BIOE 461 – Cellular Biomechanics (4 hr)
- BIOE 487 – Stem Cell Bioengineering (3 hr)
- BIOE 498 WD – Preclinical Molecular Imaging (3 hr)
- BIOE 498 TL – Intro to Systems Bio (3 hr)
- BIOE 498 PJ – Experimental Design in Automation (3 hr)
- BIOE 498 RI – Regulatory Safety Issues In Bioengineering (3 hr)
- BIOE 498 AL – Immunoengineering (3 hr)
- BIOE 498 QP – Quantitative Pharmacology (3 hr)
- MSE 404 – LabStudies in MatSE (Biomaterials) (1.5 hr each)
- MSE 470 – Design and Use of Biomaterial (3 hr)
- MSE 474 – Biomaterials and Nanomedicine (3 hr)
- CHBE 471 – Biochemical Engineering (3 hr)
- CHBE 472 – Techniques in Biomolecular Engineering (3 hr)
- IE 330 – Industrial Quality Control (3 hr)
- TMGT 461 Sections TMD/TME – Tech, Eng, and Mngmt Final Project (4 hr)
- ME 483 – Mechanobiology (4 hr)

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
- Language Other Than English

PreMed Requirements

- Meet with The Career Center for Premed advising
- Common Courses (*additional requirements may apply depending on school*):
 - MCB 450/354 (BioChem)
 - CHEM 233 (Orgo 1 lab)
 - Social/Behavioral Science Sequence (3 courses)