

# Cell & Tissue Track - Curriculum Map

## Fall Year 1 (17 hrs)

## Spring Year 1 (16 hrs)

## Fall Year 2 (17 hrs)

## Spring Year 2 (18 hrs)

## Fall Year 3 (16 hrs)

## Spring Year 3 (17 hrs)

## Fall Year 4 (12/13 hrs)

## Spring Year 4 (14/15 hrs)

MATH 221 (4)  
Calculus I

ENG 100 (1)  
Engineering  
Lecture

BIOE 100 (1)  
BIOE Freshman  
Seminar

RHET 105 (4)  
Principles of  
Composition

CHEM 102 (3)  
General  
Chemistry I

C

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

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  
or CS 124 (3)

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

Free Elec (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)  
(For Premed)

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 400 (4)  
Sr. Design  
or  
Free Elective (3)

BIOE 420 (3)  
Intro Bio  
Control  
Systems

Track Elec (3)

Track Elec (3)

BIOE 400 (4)  
Sr. Design  
or  
Free Elective (3)

Free Elec (2)

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 424 - Preclinical Molecular Imaging (3 hr)
- BIOE 430 - Intro to Synthetic Biology (3 hr)
- BIOE 450 - Quantitative Pharmacology (3 hr)
- BIOE 460 - Gene Editing Lab (3 hr)
- BIOE 461 - Cellular Biomechanics (4 hr)
- BIOE 487 - Stem Cell Bioengineering (3 hr)
- BIOE 498 TL - Intro to Systems Bio (3 hr)
- BIOE 498 RI - Regulatory Safety Issues in Bioengineering (3 hr)
- BIOE 498 AL - Immunoengineering (3 hr)
- BIOE 498 BTP - Biotech Principles, Tools, & Applications (3 hr)
- BIOE 498 MPM - Disease Models for Personalized Medicine (3 hr)
- MSE 404 - LabStudies in MatSE (Biomaterials) (1.5 hr each)
- MSE 470 - Design & Use of Biomaterial (3 hr)
- MSE 474 - Biomaterials & 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 TMD/TME - Tech, Eng, & Mngmt Project (4 hr)
- ME 483 - Mechanobiology (4 hr)
- NE 330 - Neuroscience for Engineers (3 hr)

### General Education Requirements

- ☐ 6 hours in Humanities
- ☐ 6 hours in Social/Behavioral Sciences
- ☐ 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 (2-3 courses)