

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

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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

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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

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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

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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 432 - Systems Biology (3 hr)
- BIOE 434 - Immunoengineering (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 HG/SR1 - Soft Robotics (3 hr)
- BIOE 498 RI - Regulatory Safety Issues in Bioengineering (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)