BME Concentrations

Core Classes

All courses required for B.S. in BME

- BIOG 140, 240 - Molecular and Cellular Biology
- BIME 270 - Biomaterials
- BIME 280 - Intro to Biomechanics
- BIME 250 - Biosystem Process Analysis
- BIME 320 - Fluid Mechanics
- BIME 360 - Biomedical Signal Analysis
- BIME 391 - Biomechanics/Biomaterials Lab
- BIME 410 - Quantitative Physiology
- BIME 411 - Quantitative Systems Physiology
- BIME 407 - Medical Device Design
- BIME 450 - Numerical Analysis
- BIME 491 - Quant Phys Signal Analysis Lab
- BIME 492 - BME Senior Lab

Concentration Electives

3 electives required for selected concentration:
- 1 must be a technical 300-level or higher
- 1 must be a technical 400-level or higher

Mechanics and Transport

Technical Electives:

BIME 340 - 3D-Technologies for Prosthetic Applications
BIME 430 - Bioprocess Engineering
BIME 480 - Stress Analysis & Biomechanics
BIME 520 - Hemodynamics
BIME 610 - Bioanalytical Microfluidics
ISEE 330 - Ergonomics and Human Factors
MECE 555 - Biomechatronics
MECE 557 - Applied Biomaterials

Open Electives:

+ MATH 241 - Linear Algebra
MATH 305 - Intro to Mathematical Computing (CSCI 141 req.)
MATH 311 - Linear Optimization (MATH 241 req.)
+ MATH 341 - Advanced Linear Algebra (MATH 241 req.)
# MATH 381 - Complex Variables
MATH 421 - Mathematecal Modeling (MATH 241 req.)
PACK 546/547 - Pharmaceutical & Medical Packaging w/Lab

after taking MATH 241 and 341 (+), one of these two help toward math minor after immersion

Biomedial Signals & Instrumentation

Technical Electives:

BIME 460 - Dynamics & Control of Biomedical Systems
BIME 560 - Introduction to Medical Imaging Systems
BIME 589 - Intro Rehabilitation Robotics
EEEE 530 - Biomedical Instrumentation
EEEE 531 - Biomedical Sensors and Transducers I
MECE 555 - Biomechatronics

Open Electives:

+ MATH 241 - Linear Algebra
MATH 305 - Intro to Mathematical Computing (CSCI 141 req.)
MATH 311 - Linear Optimization (MATH 241 req.)
+ MATH 341 - Advanced Linear Algebra (MATH 241 req.)
# MATH 381 - Complex Variables
MATH 421 - Mathematecal Modeling (MATH 241 req.)
IMGS 261 - Linear and Fourier Methods for Imaging
IMGS 361 - Image Processing and Computer Vision I
IMGS 371 - Imaging Systems Analysis
CSCI 510 - Foundations in Computer Graphics

after taking MATH 241 and 341 (+), one of these two help toward math minor after immersion

Tissue Engineering

Technical Electives:

BIME 570 - Tissue Engineering (REQUIRED)

BIME 430 - Bioprocess Engineering
BIME 470 - Cell Culture Techniques
BIME 520 - Hemodynamics
BIME 610 - Bioanalytical Microfluidics
BIME 670 - Advanced Topics in Tissue Engineering
BIME 675 - Practical Methods in Tissue Engineering
CHME 570 - Biochemical Engineering

Open Electives:

* CHMO 231 - Organic Chemistry I
* CHMO 232 - Organic Chemistry II
* CHMB 402 - Biochemistry I
CHMB 610 - Advanced Protein Biochemistry
BIOL 450 - Genetic Engineering
BIOL 494 - Molecular Modeling and Proteomics
PACK 546/547 - Pharmaceutical & Medical Packaging w/Lab

*part of Chemistry Immersion