SBME Pre-Approved Electives

In general, electives need to be at a 3000-level or above. The list below serves as a source of pre-approved course options, however approval from an SBME faculty advisor is recommended when selecting 'Math, Science, & Engineering' electives. Other courses not on this list may be approved with permission by the SBME faculty via the Undergraduate Studies Committee.

Not all classes are offered frequently. Students are responsible for ensuring that the courses will be offered in the semester they intend to take it, and that all prerequisites or other permissions are acquired before enrolling in electives.

Courses less than 3 credit hours will have to be supplemented with another course to account for the credit hour discrepancy. 6 credit hours are required for BME electives and 6 credit hours are required for 'Science, Math, & Engineering' electives. BME elective course credits, in excess of 6 credit hours can be counted toward 'Science, Math, & Engineering' elective credit hours.

BME Electives

Aerospace and Mechanical Engineering
AME 4213/5213 Biomechanics I
AME 5203 Bioengineering Principles
AME 5223 Biomechanics II
AME 5233 Biomaterials
AME 5293 Transport in Biological Systems

Biomedical Engineering
†BME 3113 Bioimaging
†BME 3123 Biotransport
†BME 3133 Bioelectricity
†BME 3143 Biomechanics
†BME 3153 Molecular, Cellular, & Tissue Engineering
†BME 3163 Biomedical Micro- & Nanotechnology
†BME 3111 Bioimaging Lab
†BME 3121 Biotransport Lab

†BME 3131 Bioelectricity Lab
†BME 3141 Biomechanics Lab
†BME 3151 Mol, Cell, & Tissue Engineering Lab
†BME 3161 Biomedical Micro- & Nanotechnology Lab
BME 5233 Biomaterials
BME 5143 Nonomedicine
BME/AME 5970 Topics in Biomedical Engineering

Chemical, Biological & Materials Engineering
CH E 5203 Bioengineering Principles
CH E 5243 Biochemical Engineering
CH E 5273 Biomedical Engineering
CH E 5293 Transport in Biological Systems

Electrical and Computer Engineering
ECE 4843 Medical Imaging Systems

† If taken in excess of the required BME core area course requirements (4 BME Core Area Courses and 3 BME Core Area Labs).

Science, Math, & Engineering Electives

AME 4193 Intro to Computer Aided Design

Engineering
ENGR 3401 Engineering Economics
ENGR 3431 Electromechanical Systems
ENGR 3441 Fluid Mechanics
ENGR 4003 Engineering Practice
ENGR 4013 Leadership and Management for Engineers
ENGR 4023 Disruptive and Innovative Tech Ideation

Aerospace and Mechanical Engineering

Electrical and Computer Engineering
ECE 3323 Intro-Solid State Elec Devices
ECE 3813 Introductory Electronics
ECE 4813 Electronics
ECE 4823 Engineering Principles of the Human Body
ECE 4213 Digital Signal Processing
ECE 5273 Digital Image Processing
ECE 5523 Random Signals

Updated as of November 2018, per BME Undergraduate Committee Chair

ECE 5363 Optical Engineering

BIOL 5374 Scanning Electron Microscopy

Industrial Systems Engineering
ISE 4223 Fundamentals of Engineering Economics

Chemistry
CHEM 3423 Physical Chemistry
CHEM 3523 Physical Chemistry II
CHEM 3153 Organic Chemistry II
*CHEM 3653 Biochemistry
CHEM 3753 Intro to Biochemical Methods
CHEM 4023 Instrumental Methods in Chemical Analysis
CHEM 4333 Advanced Inorganic Chemistry
CHEM 5453 Polymer Science
CHEM 5753 Principles of Biochem I
CHEM 5853 Principles of Biochem II
CHEM 6813 Intro to Biochemical Methods
CHEM 6823 Protein, Nucleic Acids, & Gene Expression
CHEM 6833 Structure & Function of Membranes & Hormones
CHEM 6843 Enzyme Mechanisms & Metabolic Regulation
CHEM 6853 Protein Structure & Function

Anthropology
ANTH5273 Bioethics, Biotechnology, Biomedicine

Biology
*BIOL 3333 Genetics
*BIOL 3113 Cell Biology
*BIOL 3822 Intro to Neurology
*BIOL 4843 Intro to Molecular Biology
MBIO 3813 Fundamentals of Microbiology
MBIO 3812 Fund. Microbiology Lab
BIOL 3103 Principles of Physiology
BIOL 3201 Animal Development Lab
BIOL 3203 Animal Development
BIOL 4244 Animal Histology
BIOL 4233 Neurobiology of Disease
BIOL 4853 Neurobiology of Memory
BIOL 4893 Behavioral Neurobiology
BIOL 4913 Quantitative Biology
BIOL 5153 Endocrine Physiology
BIOL 5293 Cytology Ultrastructure
BIOL 5343 Developmental Genetics
BIOL 5364 Transmission Electron Microscopy

Math
MATH 3333 Linear Algebra
MATH 3423 Physical Math II
MATH 4163 Intro Partial Diff. Equations

*If not taken as Upper-Level Biology Requirement

Courses not approved:

- Anything below 3000 level
- Courses cannot be double counted for the 'Upper-Level Biology Elective' and a 'Science, Math, & Engineering' Elective
- Courses cannot be double counted for 'Science, Math, & Engineering' and BME electives.
- Any other courses already fulfilling another graduation requirement (e.g., ENGR 3511 Transfer Engineering Experience).