



Minor in Biomedical Engineering Plan of Study School of Engineering

Minor in Biomedical Engineering

Biomedical engineers apply engineering methods, science and technology to problems in medicine and biology. Biomedical Engineering is a growing field that will continue to have a significant impact on health care. In fact, many feel that biomedical engineering will be the technological area with the most impact on people's lives in the 21st century. A minor in Biomedical engineering is offered for students at the University of Connecticut who wish to expand their knowledge in the field.

Biomedical engineering involves learning about biology in new ways and developing new tools to diagnose and treat disease and to repair or replace diseased organs. Many students select biomedical engineering to be of service to people and for the excitement of working in a health field. Additionally, biomedical engineering provides excellent preparation for entrance into medical school.

Biomedical engineering is interdisciplinary; that is, biomedical engineers often work with other medical health care professionals as members of a team. Exciting advances in medicine, such as the artificial hearts, pacemakers, medical imaging techniques, lasers, prosthetic implants, life support systems, and devices that help the paralyzed walk, have been the result of team efforts by biomedical engineers and other professionals. In addition, bioengineers have developed new processes for manufacturing products for the pharmaceutical and biotechnology industries, an example being humulin, or human insulin, the first product based on recombinant DNA technology.

Requirements;

The minor requires a minimum of 15 credit hours of course work. The following courses are necessary to fulfill the requirements of the minor:

- BME 2101: Introduction to Biomedical Engineering - 3 credits
- 12 credits selected from BME 3000-level courses, BME 4000-level courses (BME 4999, Independent Study, may not be used to meet the minor requirement) CSE 3800, 3810; MSE 3700 or 4701.

Courses are grouped by concentration within the Biomedical Engineering curriculum but students may choose any combination of courses to fulfill the BME Minor Requirements

<p>Courses*</p> <p>*Check the undergraduate catalog for course prerequisites Unless otherwise noted all courses are 3 credit hours</p>	Biomaterials / Biotissue	Biomechanics	Systems, Imaging & Instrumentation	Computational & Systems Biology
BME 3100 Physiological Modeling			X	X
BME 3120 LabVIEW Basics for Engineers (1 credit)	X	X	X	X
BME 3320 Biosensors and Nanodevices for Biomedical Applications	X	X	X	
BME 3401 Introduction to Computational and Systems Biology				X
BME 3420 Stem Cells for Regenerative Medicine	X			
BME 3500 Biomedical Engineering Measurements (4 credits)	X	X	X	
BME 3520 Developing Mobile Apps for Healthcare	X	X	X	X
BME 3600 Biomechanics	X	X		
BME 3620 Failure Analysis for Biomedical Application		X		
BME 3630 Multiphysics Finite Element Analysis		X	X	X
BME 3700 Biomaterials (4 credits) / MSE 3700 (3 credits)	X	X		
BME 3720 Drug Delivery	X			
BME 3740 Introduction to Microscopy and Biophotonics	X		X	
BME 3750 Tissue Engineering Laboratory	X			
BME 3810 Computational Genomics / CSE 3810				X
BME 4120 Neural Information Processing and Sensory Coding			X	
BME 4130 Neural Prostheses	X	X	X	
BME 4170 Nanomedicine: From Concepts to Applications	X			
BME 4201 Introduction to Medical Imaging		X		
BME 4300 Physiological Control Systems			X	X
BME 4400 Dynamical Modeling of Biological Networks				X
BME 4401 Computational Foundations of Systems Biology				X
BME 4500 Bioinstrumentation			X	
BME 4520 Digital Image Processing for Biomedical Engineering			X	
BME 4600 Biosolid Mechanics		X		
BME 4701 Advanced Biomaterials / MSE 4701	X			
BME 4710 Tissue Engineering	X			
BME 4720 Cellular Engineering	X			
BME 4800 Bioinformatics / CSE 3800				X
BME 4810 Machine Learning Methods for Biomedical Signal Analysis	X	X	X	X