

Biomedical Engineering

Undergraduate Certificate in Biomedical Engineering

CERTIFICATE CODE - CU02

The Department of Chemical and Biomedical Engineering administers a certificate program in biomedical engineering that is open to all students with appropriate prerequisites, which are: basic biology (BIOL 115/BIOL 115L, mathematics through MATH 261 (differential equations), CHEM 115/CHEM 115L, and CHEM 116/CHEM 116L and a working knowledge of organic chemistry, specifically the naming conventions for, and knowledge of charge distribution in, organic molecules. Currently, the certificate program consists of at least 16 credit hours listed below. As other courses are added in the biomedical engineering area, more choices of elective courses will be made available.

Code	Title	Hours
Required Courses		
Choose one of the following:		4-5
BIOL 235 & BMEG 236L	Human Physiology and Human Physiology: Quantitative Laboratory	
BIOL 117 & 117L	Introductory Physiology and Introductory Physiology Laboratory	
BMEG 201	Introduction to Biomedical Engineering	4
Electives		
Choose three of the following:		9
BMEG 311	Biomaterials	
BMEG 310	Biomedical Imaging	
BMEG 340	Biomechanics	
BMEG 480	Cellular Machinery	
BMEG 481	Applied Bio-Molecular Modeling	
BMEG 482	Introduction to Tissue Engineering	
Total Hours		17

Certificate Learning Outcomes

BIOMEDICAL ENGINEERING

Students graduating with the Biomedical Engineering Certificate will demonstrate:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.