Bioengineering, MSBioE—Connect (Boston)

The Master of Science in Bioengineering—Connect program, with a concentration in biomedical devices and bioimaging, addresses the demand for skilled individuals who can engage with bioengineering challenges and innovations by preparing students from nonengineering backgrounds to become bioengineers. Recognizing bioengineering's complexity and interdisciplinary nature, this Connect program focuses on learners developing the necessary foundational and applied knowledge in mathematics and programming to successfully transition to the bioengineering field. Through specially created and defined core courses, students gain the bioengineering knowledge to excel in their academic coursework and the bioengineering sector.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Connect Courses

Code	Title	Hours
Courses to be taken concurrently in the first semester. A grade of C or higher is required.		
BIOE 5150	Foundational Mathematics of Bioengineering	4
BIOE 5151	Computational Tools in Bioengineering	4

Core Requirements

Code	Title	Hours
Required Core		
A grade of C or higher is required.		
BIOE 6000	Principles of Bioengineering	1
BIOE 6100	Medical Physiology	4
Seminar		
BIOE 7390	Seminar	0

Concentration in Biomedical Devices and Bioimaging

Code	Title	Hours
Required Courses		
A grade of C or higher is required.		
BIOE 5800	Systems, Signals, and Controls for Bioengineers	4
Complete two of the following:		8
BIOE 5235	Biomedical Imaging	
or BIOE 5648	Biomedical Optics	
BIOE 5250	Regulatory and Quality Aspects of Medical Device Design	
BIOE 5810	Design of Biomedical Instrumentation	

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
Complete 16 semester hours of courses from the electives course list. (p. 2)		16

PROJECT OPTION

Code	Title	Hours
BIOE 7945	Master's Project	4
Complete 12 semester hours of courses from the electives course list. (p. 2)		12

THESIS OPTION

Code	Title	Hours
BIOE 7945	Master's Project	4
BIOE 7990	Thesis	4
Complete 8 semester hours of courses from the electives course list. (p. 2)		8

In addition to completing the thesis course, students must successfully complete the thesis submission process, including securing committee and Graduate School of Engineering signatures and submission of an electronic copy of their MS thesis to ProQuest.

Optional Co-Op Experience

Code	Title	Hours
Complete the following (students must complete ENCP 6100 to qualify for co-op experience):		
ENCP 6100	Introduction to Cooperative Education	1
ENCP 6964	Co-op Work Experience	0
or ENCP 6954	Co-op Work Experience - Half-Time	
or ENCP 6955	Co-op Work Experience Abroad - Half-Time	
or ENCP 6965	Co-op Work Experience Abroad	

Program Credit/GPA Requirements

41 total semester hours required (42 with optional co-op)
Minimum 3.000 GPA required

ELECTIVES

Code	Title	Hours
BIOE 5115	Dynamical Systems in Biological Engineering	
BIOE 5510	Bioengineering Products/Technology Commercialization	
BIOE 5520	Bioengineering Design for Robotic Rehabilitation	
BIOE 5648	Biomedical Optics	
BIOE 5770	Machine Learning Methods in Biology and Health	
BIOE 5820	Biomaterials	
or CHME 5631	Biomaterials Principles and Applications	
BIOE 5850	Design of Implants	
CHME 5632	Advanced Topics in Biomaterials	
EECE 5606	Micro- and Nanofabrication	
EECE 7200	Linear Systems Analysis	
EECE 7203	Complex Variable Theory and Differential Equations	
EECE 7204	Applied Probability and Stochastic Processes	
ME 5657	Finite Element Method 1	
NNMD 5370	Nanomedicine Research Techniques	