

BIOMEDICAL ENGINEERING

ABOUT THE MINOR

A minor in biomedical engineering is open to all students in the University with the prerequisite calculus and physics background. The minor is particularly designed for majors in electrical or computer engineering, other engineering departments, or biology and health sciences fields, who would like a basic background in relevant aspects of biology and electrical engineering, with the opportunity to complete an interdisciplinary biomedical engineering design (capstone) project.

For additional information contact:

Prof. Dana Brooks

brooks@ece.neu.edu

Office: 423 Dana – 617-373-3352

A minimum of **26** semester hours is required.

1. 10 SH for required core courses:

EECE2401 OR EECE 2411 Intro to ECE Laboratory	1 SH
BIOL1117/1118 Integrated Anatomy & Physiology 1 (w. lab)	5 SH
EECE4512 Biomedical Electronics	
OR	4 SH
EECE4664 Biomedical Signal Processing	
OR	
EECE5698 Special Topics (Biophotonics course only)	4SH

2. 8 SH of required capstone-design course on a biomedically-oriented project:

EECE4790 Capstone 1 (or equivalent from other COE Dept.)	4 SH
EECE4792 Capstone 2 (or equivalent from other COE Dept.)	4 SH

3. 8 SH of elective courses from the following list:

Electrical Engineering

EECE 2210/2211 Electrical Engineering with lab 4 SH
(not open to EE, CE or ECE majors; Note that lab (EECE 2211) is identical to EECE 2411 and will be credited towards required core)

Biology

BIOL1119/1120 Integrated Anatomy and Physiology 2 w lab	5 SH
BIOL2319/2320 Regulatory Cell Physiology (with lab)	5 SH
BIOL2321/3322 General Microbiology (with lab)	5 SH
BIOL3405 Neurobiology	4SH
BIOL5551/5552 Principles of Animal Physiology (w lab)	5 SH
BIOL5573/5574 Medical Microbiology (with lab)	5 SH

BIOL5587 Comparative Neurobiology 4 SH

Physics

PHYS4621 Biological Physics 4 SH

PHYS4623 Medical Physics 4 SH

PHYS4651 Medical Imaging 4 SH

Psychology

PSYS3452 Introduction to Sensation and Perception 4 SH

PSYS3458 Psychobiology 4 SH

Cardiopulmonary Sciences

EXSC2300 Cardiopulmonary Physiology 4 SH

EXSC2301 Cardiopulmonary Assessment 4 SH

EXSC2302 Cardiopulmonary Disease 4 SH

EXSC4500/4501 Exercise Physiology 1 5 SH

EXSC4504/4505 Clinical Kinesiology (with 0 SH lab) 4 SH

EXSC4508/4509 Echocardiography (with 0 SH lab) 4 SH

Physical Therapy

PT 5138/5139 Neuroscience (3 SH + 1 SH lab) 4 SH

PT 5170 Motor Control 4 SH

Speech-Language Pathology and Audiology

SLPA1103 Anatomy and Physiology of the Vocal Mechanism 4 SH

SLPA1202 Neurological Bases of Communication 4 SH

SLPA1203 Introduction to Audiology 4 SH

SLPA1205 Speech and Hearing Science 4 SH

Notes:

- Students must file a petition with the Coordinator of Undergraduate Services in Room 404 Dana to declare the minor prior to taking any coursework.
- Minor is awarded to students completing the requirements and earning a minimum QPA of 2.0 in the minor coursework.
- Students may have to take pre-requisite courses to gain entry into specified courses.
- Students who complete core courses (1. above) as part of their major will be given credit towards the minor for these courses. ECE students take EECE2401 or EECE2411. These students may also take ECE U512 or ECE U664 as a part of their major (technical elective). Some Health Science and Biology students take BIO U117/118 Integrated Anatomy and Physiology (with laboratory) as a part of their major.
- The Biomedical Engineering Capstone Design courses (2. above) may be counted towards a student's major with the approval of the student's major department.
- Capstone design need not be taken in the ECE department. It may be completed in any COE department, but each Capstone design project must be certified by the capstone instructor as having sufficient biomedical content to qualify as a Biomedical Engineering Capstone.
- Credit for elective courses (3. above) cannot be double counted. If an elective course counts towards fulfillment of the student's major it will not be counted towards the minor. For instance, students who take EECE 2210 to fulfill a

requirement for their major cannot count it towards the minor. Thus 8SH of minor electives must be taken that are in addition to the coursework taken to fulfill the major.

- No credit will be given for elective courses that have substantial overlap with courses the student has taken as part of the major.

Life science courses not on this list may be considered for the minor. Students would need to discuss this with the faculty advisor for the minor.