

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:

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

1. 10 SH for required core courses:

ECE U401 Intro to EE laboratory	1 SH
BIO U117/118 Integrated Anatomy & Physiology 1 (w. lab)	5 SH
ECE U512 Biomedical Electronics	
OR	4 SH
ECEU664 Biomedical Signal Processing	
OR	
ECEU698 Special Topics (Biophotonics course only)	

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

ECEU790 Capstone 1	(or equivalent from other COE Dept.)	4 SH
ECEU792 Capstone 2	(or equivalent from other COE Dept.)	4 SH

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

Electrical Engineering

ECE U210/211 Electrical Engineering with lab	4 SH
(not open to EE, CE or ECE majors; Note that lab (ECE U211) is identical to ECE U401 and will be credited towards required core)	

Biology

BIO U119/120 Integrated Anatomy and Physiology 2 w lab	5 SH
BIO U319/320 Regulatory Cell Physiology (with lab)	5 SH
BIO U321/322 General Microbiology (with lab)	5 SH
BIOU405 Neurobiology	4SH
BIO U551/552 Principles of Animal Physiology (w lab)	5 SH
BIO U573/574 Medical Microbiology (with lab)	5 SH
BIO U587 Comparative Neurobiology	4 SH

Physics

PHY U621 Biological Physics	4 SH
PHY U623 Medical Physics	4 SH
PHY U651 Medical Imaging	4 SH

Psychology

PSY U452 Introduction to Sensation and Perception	4 SH
PSY U458 Psychobiology	4 SH

Cardiopulmonary Sciences

CES U300 Cardiopulmonary Physiology	4 SH
CES U301 Cardiopulmonary Assessment	4 SH
CES U302 Cardiopulmonary Disease	4 SH
CES U500/501 Exercise Physiology 1	5 SH
CES U504/505 Clinical Kinesiology (with 0 SH lab)	4 SH
CES U508/509 Echocardiography (with 0 SH lab)	4 SH

Physical Therapy

PTH U308/309 Neuroscience (3 SH + 1 SH lab)	4 SH
PTH U400 Motor Control	4 SH

Speech-Language Pathology and Audiology

SLA U103 Anatomy and Physiology of the Vocal Mechanism	4 SH
SLA U202 Neurological Bases of Communication	4 SH
SLA U203 Introduction to Audiology	4 SH
SLA U205 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 ECEU401 and may take ECE U512 or ECE U664 as a part of their major. 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 ECE. 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 ECE U210 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.

12/12/06

For now, students can petition for ECE classes to count toward life science credit. Biophotonics can count for this year only as an elective.

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