

BIOMEDICAL ENGINEERING, BACHELOR OF SCIENCE IN BIOMEDICAL ENGINEERING/ MASTER OF SCIENCE

Minimum Total Credit Hours: 150

Overall GPA - Combined and OU: 3.25

Major GPA - Combined and OU: 3.25

Curriculum GPA - Combined and OU: 3.25

Program Code: A108/F109 Q062

In order to progress in your curriculum in the Gallogly College of Engineering, and as a specific graduation requirement, a grade of C or better is required in each course in the curriculum, including all prerequisite courses.

Two college-level courses in a single foreign language are required; this may be satisfied by successful completion of 2 years in a single foreign language in high school. Students who must take foreign language at the University will have an additional 6-10 hours of coursework.

Course	Title	Credit Hours
Freshman		
First Semester		
ENGL 1113	Principles of English Composition (Core I)	3
CHEM 1315	General Chemistry (Core II) ^{1,4}	5
MATH 1914	Differential and Integral Calculus I (Core I) ^{2,4}	4
HIST 1483 or HIST 1493	United States, 1492 to 1865 (Core IV) or United States, 1865 to the Present	3
ENGR 1411	Freshman Engineering Experience ³	1
Credit Hours		16
Second Semester		
ENGL 1213 or EXPO 1213	Principles of English Composition (Core I) or Expository Writing	3
CHEM 1415	General Chemistry (Continued) ^{1,4}	5
MATH 2924	Differential and Integral Calculus II ^{2,4}	4
PHYS 2514	General Physics for Engineering and Science Majors (Core II) ⁴	4
Credit Hours		16
Sophomore		
First Semester		
MATH 2934	Differential and Integral Calculus III ²	4
PHYS 2524	General Physics for Engineering and Science Majors	4
BIOL 1124	Intro Biol: Molecule/Cell/Phys (Core II)	4
ENGR 2431	Electrical Circuits	1
ENGR 2002	Professional Development	2
BME 2333	Biomedical Engineering Fundamentals	3
Credit Hours		18

Second Semester

MATH 3113	Introduction to Ordinary Differential Equations	3
C S 1213	Programming for Non-Majors with Python	3
CHEM 3053	Organic Chemistry I: Biological Emphasis	3
CHEM 3152	Organic Chemistry Laboratory: Biological Emphasis	2
BME 2433	Signals and Systems for Biomedical Engineering	3
ISE 3293	Applied Engineering Statistics	3
Credit Hours		17

Junior

First Semester

BME Core Area Course 1 (Approved Area Core Course) (p. 2)	3	
BME Core Area Lab 1 (Corresponding Area Core Lab) (p. 2)	1	
BME Core Area Course 2 (Approved Area Core Course) (p. 2)	3	
BME Core Area Lab 2 (Corresponding Area Core Lab) (p. 2)	1	
BME 3722	Numerical Methods in Biomedical Engineering	2
COMM 2613	Public Speaking (Core I-Other)	3
Upper-Division Biology Elective (per BME faculty)	3	
Credit Hours		16

Second Semester

BME Core Area Course 3 (Approved Area Core Course) (p. 2)	3	
BME Core Area Lab 3 (Corresponding Area Core Lab) (p. 2)	1	
BME Core Area Course 4 (Approved Area Core Course) (p. 2)	3	
BME 4813	Quantitative Physiology	3
BME 3533	Biomedical Instrumentation	3
Approved Elective, Social Science (Core III) ⁵	3	
P SC 1113	American Federal Government (Core III)	3
Credit Hours		19

Senior

First Semester

BME 4713	Biomedical Engineering Design I	3
BME 3233	Biomaterials	3
Choose one of the following:	3	
BME 5203	Bioengineering Principles (offered alternate fall)	
Graduate-level Science, Math, Eng. Elective (per advisor)		
Graduate-level Biomedical Engineering Elective (per a list maintained by the department)	3	
Approved Elective: Artistic Forms (Core IV) ⁵	3	
Credit Hours		15

Second Semester

BME 4823	Biomedical Engineering Design II (Capstone)	3
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Graduate-level Biomedical Engineering Elective (per a list maintained by the department)	3	BME 3151	Molecular, Cellular and Tissue Engineering Lab	1
Graduate-level Science, Math, Eng. Elective (per advisor)	3	BME 3161	Biomedical Micro-/Nano-Technology Lab	1
Approved Elective: Western Civ. & Culture (Core IV) ⁵	3			
Approved Elective: Non-Western Culture (Core IV) ⁵	3			
Credit Hours	15			

Fifth Year**First Semester**

Graduate-level Life Science Elective (per a list maintained by the department)	3
Graduate-level Biomedical Engineering Elective (per a list maintained by the department)	3
BME 5980 Research for Master's Thesis	2
Credit Hours	8

Second Semester

Graduate-level Life Science Elective (per a list maintained by the department)	3
Graduate-level Elective in Engineering, Science, or Math	3
BME 5980 Research for Master's Thesis	4
Credit Hours	10
Total Credit Hours	150

¹ CHEM 1315 and CHEM 1415 can be substituted with CHEM 1335 (Fall only) and CHEM 1435 (Spring only), respectively.

² MATH 1823, MATH 2423, MATH 2433, and MATH 2443 sequence can be substituted for MATH 1914, MATH 2924, and MATH 2934.

³ Engineering transfer students may take ENGR 3511 in place of ENGR 1411.

⁴ The prerequisite courses for BME 2333 require a minimum grade of B.

⁵ To be chosen from the University-Wide General Education Approved Course List. Three of these 12 hours must be upper-division (3000-4000). One of these courses should be an English course 2000-level or above. See list in the Class Schedule.

Courses designated as Core I, II, III, IV or Capstone are part of the General Education curriculum. Students must complete a minimum of 40 hours of General Education courses, chosen from the approved list.

BME Area Core Courses

Code	Title	Credit Hours
BME 3113	Bioimaging	3
BME 3123	Biotransport	3
BME 3133	Bioelectricity	3
BME 3143	Biomechanics	3
BME 3153	Molecular, Cellular and Tissue Engineering	3
BME 3163	Biomedical Micro-/Nano-Technology	3

Corresponding BME Area Core Labs

Code	Title	Credit Hours
BME 3111	Bioimaging Lab	1
BME 3121	Biotransport Lab	1
BME 3131	Bioelectricity Lab	1
BME 3141	Biomechanics Lab	1