

# BIOMEDICAL ENGINEERING, BACHELOR OF ARTS

## Program Requirements

(See also General Requirements for Departmental Majors (<http://e-catalog.jhu.edu/engineering/full-time-residential-programs/undergraduate-policies/academic-policies/requirements-bachelors-degree/>))

The B.A. in biomedical engineering requires 120 credits. The courses listed below must either be taken or passed by examination for advanced credit. See the Biomedical Engineering Undergraduate Advising Manual (<https://www.bme.jhu.edu/undergraduate/resources/>) for lists of recommended courses, acceptable course substitutions, and limitations on credits for courses with overlapping material.

Code	Title	Credits
<b>Basic Sciences</b>		
AS.171.101 or AS.171.107	General Physics: Physical Science Major I General Physics for Physical Sciences Majors (AL)	4
AS.171.102 or AS.171.108	General Physics: Physical Science Major II General Physics for Physical Science Majors (AL)	4
AS.173.111	General Physics Laboratory I	1
AS.173.112	General Physics Laboratory II	1
AS.030.101	Introductory Chemistry I	3
AS.030.102	Introductory Chemistry II	3
AS.030.105	Introductory Chemistry Laboratory I	1
AS.030.106	Introductory Chemistry Laboratory II	1
<b>Mathematics</b>		
AS.110.108	Calculus I (Physical Sciences & Engineering)	4
AS.110.109	Calculus II (For Physical Sciences and Engineering)	4
AS.110.202 or AS.110.211	Calculus III Honors Multivariable Calculus	4
EN.553.291	Linear Algebra and Differential Equations	4
<b>Computer Programming</b>		
EN.500.112 or EN.500.113 or EN.500.114	Gateway Computing: JAVA Gateway Computing: Python Gateway Computing: Matlab	3
<b>Humanities and Social Sciences</b>		
Select courses from a coherent program, with at least 9 credits chosen from one department, including at least one 300-level course. <sup>1</sup>		24
<b>Biomedical Core</b>		
EN.580.111	Biomedical Engineering and Design	2
EN.580.151	Structural Biology of Cells	3
EN.580.153	Structural Biology of Cells Laboratory	1
EN.580.221	Biochemistry and Molecular Engineering	4
EN.580.241	Statistical Physics	2
EN.580.242	Biological Models and Simulations	2
EN.580.243	Linear Signals and Systems	2
EN.580.244	Nonlinear Dynamics of Biological Systems	2
EN.580.246	Systems and Controls	2

EN.580.248	Systems Biology of the Cell	2
EN.580.475	Biomedical Data Science	2
EN.580.477	Biomedical Data Science Laboratory	1
EN.580.485	Computational Medicine: Cardiology	2
EN.580.487	Computational Medicine: Cardiology Laboratory	1

Select two of the following core electives: 6

EN.580.424	Neuroengineering Lab	
EN.580.451	Cell and Tissue Engineering Lab	
	or EN.580.452	Cell and Tissue Engineering Lab
EN.580.454	Methods in Nucleic Acid Sequencing Lab	
EN.580.494	Build an Imager	

### Electives

Select at least 25 additional credits needed to complete the 120 credit requirement for the BA degree. 25

<sup>1</sup> At least four semesters of writing intensive courses and at least two semesters of a modern foreign language.