Washington University in St. Louis

Biomedical Engineering

Phone: 314-935-7208
Website: https://bme.wustl.edu/academics/undergraduate-programs/index.html

Majors

The Major in Biomedical Engineering

The BS in Biomedical Engineering requires completion of the courses in the Core Curriculum as well as five upper-level Tier courses beyond the Core, as described below. Students must meet all McKelvey School of Engineering and Washington University requirements, including the English proficiency requirement (please refer to the Engineering Degree Requirements page). They must also satisfy ABET requirements for a professional degree, which require the accrual of 47 engineering topics units over their course work. A list of Topics Units - Engineering Courses is available on the Engineering Student Services website.

The Basic Core

The Biomedical Engineering Core Curriculum consists of 80 credits, outlined below.

Courses	Units
Physical Sciences	
General Chemistry (Chem 111A or Chem 105, Chem 112A or Chem 106)(111A and 112A recommended)	6
General Chemistry Laboratory I, II (Chem 151, Chem 152)	4
General Physics (Physics 191, Physics 191L, Physics 192, Physics 192L)	8
	18
Biological Science	
Principles of Biology I (Biol 2960)	4
Physiological Control Systems (Biol 3058)	2
	6
Mathematics	
Calculus II & III (Math 132, Math 233)	6
Differential Equations (Math 217)	3
Engineering Mathematics A & B (ESE 318, ESE 319)	6
Probability and Statistics for Engineering (ESE 326)*	3
	18
Engineering Science	
Computer Science (CSE 131)	3
	3
Biomedical Engineering	
Introduction to Biomedical Engineering (BME 140)	3
Introduction to Biomedical Circuits (BME 220)**	4
Biomechanics (BME 240) and Biomechanics Lab (BME 240L)	4
Quantitative Physiology I, II (BME 301A, BME 301B)	8
Bioengineering Thermodynamics (BME 320B)	3
Transport Phenomena in BME (BME 366)	3
Senior Design A, B (BME 401A, BME 401B)	4
	29
Other	
Engineering Practice and Professional Values (Engr 4501, Engr 4502 and Engr 4503)	3
Technical Writing (Engr 310)	3
	6
Total Basic Core	**80**

* Engr 328 Engineering Statistics with Probability can be substituted for ESE 326 Probability and Statistics for Engineering.

** ESE 230 Introduction to Electrical and Electronic Circuits can be substituted for BME 220 Introduction to Biomedical Circuits.

Students must complete **five upper-level Tier engineering courses (15 units), five humanities and social sciences courses (15 units), and three general electives courses (minimum 10 units)** beyond the Core Curriculum to complete the major and to prepare for particular fields of employment or education beyond the baccalaureate degree. At least two of the five Tier electives need to be drawn from the Tier I course list below; the remaining three can be chosen from Tier I or Tier II. Students must complete a minimum of **120 units** to meet the degree requirements.

Tier I

For the most up-to-date Tier list, please refer to the BME website.

Tier II

All upper-level (300-500) engineering and physics courses that carry 3 engineering topics units (with the exception of required courses such as BME 301A, BME 301B, BME 320B, and so on) count as Tier II electives.