

Biomedical Engineering - Master of Engineering

The Master of Engineering in Biomedical Engineering offers a course intensive program and culminating experience (internship, industrial practicum, or non-thesis project). The mission of the program is to prepare graduates with the versatile skills and mindset to meet the needs of a demanding and dynamic career in the biomedical industry. Students have the opportunity to gain experience in areas such as tissue engineering, drug delivery, biomaterials, biomechanics, bioinstrumentation, biomedical optical imaging and sensing, cardiac electrophysiology, and FDA regulations.

Program Requirements

The total credit hours needed for the program is 30.

Code	Title	Credit Hours
Required Courses		
Select the following:		
CPB 517	Biomedical Engineering	3
CPB 612	Engineering Analysis	3
or CPB 614	Clinical Trials and Data Analysis	
or STA 672	Statistical Modeling and Study Design	
Elective Courses		18-21
Recommended Electives:		
CPB 516	Biochemical Engineering	
CPB 519	Biomaterials	
CPB 523	Biomechanics	
CPB 526	Fundamentals of Tissue Engineering	
CPB 528	Engineering Principles in Medical Device Design	
CPB 552	Introduction to FDA Regulations and Medical Device Laws	
CPB 611	Transport Phenomena in Engineering	
CSE 556	Bioinformatic Principles	
CSE 570	Special Topics in CSE (Computational Genomics (3))	
CSE 616	Simulation of Physical Systems	
ECE 526	Biomedical Signal Analysis and Machine Learning	
Other Electives - permission required (no more than 2 courses):		
EGM 511	Leading and Managing Projects	
ECE 525	Digital Signal Processing	
ECE 529	Digital Image Processing	
CSE 532	Machine Learning	
CSE 543	High Performance Computing & Parallel Programming	
CSE 588	Image Processing & Computer Vision	
Any 500 or 600 level course in CPB, CSE, ECE, or MME.		
Culminating Experience ¹		3-6
Select one of the following:		
CPB 640	Internship	

CPB 704	Non-Thesis Project
CPB 710	Industrial Practicum

Total Credit Hours **30**

¹ Students must register for 3-6 credit hours of CPB 640, CPB 704, or CPB 710, which will serve as their culminating experience. The student will write a summary report and make a formal presentation, which should be evaluated and approved by a committee of a minimum of two (2) members with Miami University graduate level A or B standing.

Note: Applicants must have completed an undergraduate degree to enroll in this program, and no BS/MS double counting of courses is allowed.