

# MASTER OF SCIENCE IN MEDICAL DEVICES AND BIOMATERIALS

The overall objective of the Master of Medical Device and Biomaterials is to provide education and training relevant to the design and development of medical devices. Special emphasis is placed on principles of engineering design methodology, computational and modeling aspects of medical devices, and design and use of biomaterials in medical devices. Students will be encouraged to apply for internship and co-op opportunities. The student must have a minimum 3.0/4.0 GPA in an engineering or science bachelor's program to be admitted. Candidates should have prior coursework that demonstrates proficiency in math.

The admission requirements for the degree include a relevant undergraduate degree with the following **minimum requirements**: an earned GPA of 3.0, GRE composite score of 300 and quantitative score of 80%, 2 semesters of Calculus and 1 semester of Differential Equations.

## Curriculum

Requirement	Credits
Requirement	Credits
Minimum Credits Required	32
Maximum 400-Level Credit	12
Maximum 500-Level Credit	32
Maximum Transfer Credit	9
Maximum 700-Level Credit	0

Code	Title	Credit Hours
<b>Required Courses</b>		<b>(17)</b>
BME 500	Introduction to Biomedical Engineering	2
BME 525	Introduction to Medical Devices, BioMEMS and Microfluidics	3
or BME 425	Introduction to Medical Devices, BioMEMS and Microfluidics	
BME 526	Advanced Biomedical Engineering Design	3
BME 533	Biostatistics	3
or BME 433	Biomedical Engineering Applications of Statistics	
or MATH 425	Statistical Methods	
or MATH 476	Statistics	
or CHE 426	Statistical Tools for Engineers	
BME 553	Advanced Quantitative Physiology	3
or BME 453	Quantitative Physiology	
CHE 580	Biomaterials	3
<b>Elective Courses</b>		<b>(15)</b>
Select 2 courses from the following list (6 credits).		15
Select additional 9 credits of Math/Life Science/Eng (Recommended to take from the Select 2 list).		
BME 502	Introduction to Regulatory Science for Engineers	3

BME 516	Biotechnology for Engineers	3
BME 523	Cell Biomechanics: Principles and Biological Processes ((or))	3
BME 524	Quantitative Aspects of Cell and Tissue Engineering ((or))	3
BME 594	Special Projects <sup>1</sup>	3-6
CHE 506	Entrepreneurship and Intellectual Property Management ((or))	3
CHE 538	Polymerization Reaction Engineering	3
CHE 555	Polymer Processing	3
CHE 577	Bioprocess Engineering	3
CHE 583	Pharmaceutical Engineering	3
CHE 585	Drug Delivery ((or))	3
MMAE 451	Finite Element Methods in Engineering	3
PHYS 420	Bio-Nanotechnology	3
<b>Total Credit Hours</b>		<b>32</b>

<sup>1</sup> An independent research project may be completed to fulfill credit hour requirements.