

MS BIOMEDICAL ENGINEERING

Program Learning Objectives

1. Analyze contemporary challenges in biomedical engineering, discover knowledge gaps, and assess needs to formulate research and development opportunities.
2. Demonstrate understanding of biomedical engineering practice in a regulated environment.
3. Utilize modern techniques and technologies to generate data of significance to biomedical innovations/challenges.
4. Apply advanced engineering methods – such as theoretical, computational, or manufacturing tools – to the design and/or evaluation of biomedical systems.
5. Employ statistical approaches to design experiments, and analyze & interpret data to form data-driven conclusions.
6. Communicate engineering, biological, and medical concepts in both written and oral forms.
7. Demonstrate independence and initiative in acquiring the knowledge and skills necessary to complete biomedical engineering projects at the interface between biology, medicine, and engineering.

Required Courses

BMED 520 or BMED 530	Modeling of Biomedical Systems Biomaterials	4
BMED 505 or BMED 515	Biomedical Signal Transduction and Data Acquisition Introduction to Biomedical Imaging	4
BMED 563	Biomedical Engineering Graduate Seminar	2
STAT 513 or IME 527	Applied Experimental Design and Regression Models ¹ Design of Experiments	4
BMED 599 or BMED 593	Design Project (Thesis) ² Regenerative Medicine Internship	9

Approved Engineering, Science and Mathematics Electives

Course selection requires advisor approval. ³	22
Total units	45

¹ Masters Students who have not had the pre-requisite statistics courses will be required to take either IME 503 or STAT 511 prior to enrolling in IME 527 or STAT 513, respectively. IME 503 or STAT 511 can count towards Approved Electives.

² Masters Students on the Project Track will be required to take BMED 591 (2), BMED 592 (2), and BMED 599 (5).

³ 60% or more of the total 45 units must be from approved 500 level courses, the balance being approved 400 level courses.