

BIOMEDICAL ENGINEERING (MS)

Code	Title	Units
REQUIRED COURSES		
BMED 5505 or BMED 5515	Biomedical Signal Transduction and Data Acquisition Biomedical Imaging	3
Select from the following:		3
BMED 5520	Modeling of Biomedical Systems	
BMED 5530	Advanced Issues in Biomaterials	
BMED 5535	Bioseparations and Clinical Diagnostics	
BMED 5563	Biomedical Engineering Graduate Seminar	1
STAT 5120 or STAT 5440	Intermediate Statistics for Graduate Students Statistical Methods for Study Design and Analysis	3-4
Select from the following:		6
BMED 5591 & BMED 5592 & BMED 5598	Project Seminar I and Project Seminar II and Project	
BMED 5599	Thesis	
Approved Engineering, Science, and Mathematics Electives		
Select from the following: ¹		13-14
AERO 5507	Computational Aerodynamics	
ASCI 4403	Applied Biotechnology in Animal Science	
BIO 4451	Bioinformatics Applications	
BIO 4457	Molecular Biology Laboratory	
BIO 5501	Molecular and Cellular Biology	
BIO 5528	Principles of Stem Cell Biology	
BMED 4404	Applied Finite Element Analysis	
BMED 4409	Interdisciplinary Projects in Biomechanics	
BMED 4422	Medical Device Evaluation and FDA Regulatory Processes	
BMED 4432	Microfluidics/MEMS Design	
BMED 4433	Microfluidics/MEMS Design and Fabrication Laboratory	
BMED 4434	Micro/Nano Fabrication	
BMED 4435	Micro/Nano Fabrication Laboratory	
BMED 4445	Biopotential Instrumentation	
BMED 4480	Drug Discovery and Development	
BMED 5510	Principles of Tissue Engineering	
BMED 5525	Skeletal Tissue Mechanics	
BMED 5550	Current and Evolving Topics in Biomedical Engineering	
BMED 5555	Introduction to Computational Neuroscience	
BMED 5560	Cell Transplantation and Biotherapeutics	
BMED 5561	Cell Transplantation and Biotherapeutics Laboratory	
CE 5504	Finite Element Analysis of Continua	
CHEM 4432	Advanced Techniques in Chemical Analysis	
CHEM 4440	Advanced Organic Chemistry - Mechanisms	
CHEM 4442	Advanced Organic Chemistry - Synthesis	
CHEM 4444	Advanced Organic Chemistry Laboratory	
CHEM 4452	Physical Biochemistry Methods and Applications	
CHEM 4454	Protein Techniques	
CHEM 4480	Polymer Synthesis and Characterization	
CHEM 4481	Polymer Synthesis and Characterization Laboratory	
CHEM 4484	Functional Polymeric Materials	
CHEM 4486	Surface Chemistry of Materials	

CHEM 4490	Computational Chemistry
CHEM 5580	Advanced Polymer Synthesis and Characterization
CHEM 5581	Advanced Polymer Synthesis and Characterization Laboratory
CPE 5350	Digital Systems Design
CSC 5666	Advanced Machine Learning
EE 5428	Computer Vision
ENVE 5581	Biochemical Engineering
IME 5503	Applied Statistical Methods in Engineering
MATE 4402	Materials Characterization Theory
MATH 5053	Discrete Mathematics
MCRO 4433	Microbial Biotechnology
ME 5501	Continuum Mechanics and Elasticity
PHYS 4408	Electromagnetic Fields and Waves I
STAT 5740	Advanced Design and Analysis of Experiments

Total Units **30**

¹ Minimum number of elective units needed will depend on which statistics course was taken to fulfill the requirement.

Specialization in Regenerative Medicine

Code	Title	Units
REQUIRED COURSES		
BMED 5510	Principles of Tissue Engineering	3
BMED 5511	Advanced Cell Culture Techniques	1
BMED 5515	Biomedical Imaging	3
Select from the following:		3
BMED 5520	Modeling of Biomedical Systems	
BMED 5530	Advanced Issues in Biomaterials	
BMED 5535	Bioseparations and Clinical Diagnostics	
BMED 5561	Cell Transplantation and Biotherapeutics Laboratory	2
BMED 5563	Biomedical Engineering Graduate Seminar	1
BMED 5598	Project	6
BIO 4457	Molecular Biology Laboratory	3
or ASCI 4403	Applied Biotechnology in Animal Science	
BIO 5509	Communicating Biology to Various Audiences	1
BIO/ASCI 5528	Principles of Stem Cell Biology	2
BIO/ASCI/BMED 5583	Research and Professional Development for Regenerative Medicine Students	2
STAT 5120	Intermediate Statistics for Graduate Students	3
Total Units		30