

## **Biomaterials and Tissue Engineering Curriculum 20-21**

MATH 1131Q Calculus	Freshman	Credits
CSE 1010 - Introduction to Computing for Engineers       3         ENGL 1010 - Seminar in Academic Writing or ENGL 1011 - Seminar in Writing Through Literature       4         ENGR 1000 - Orientation to Engineering       1         MATH 1131Q Calculus I       4         BIOL 1107 - Principles of Biology       4         CHEM 1128Q - General Chemistry       4         ENGR 1166 - Foundations of Engineering       3         MATH 1132Q - Calculus II       4         Sophomore       15         CE 2110 - Applied Mechanics I       3         MATH 2110Q Multivariable Calculus       4         PHYS 1501Q - Physics for Engineers I       4         PNB 2264 - Human Physiology & Anatomy       4         STAT 3025Q - Statistical Methods       3         3BME 3120 - LabVIEW Basics for Engineers       1         ECE 2001 - Electrical Circuits       4         MATH 2410Q - Applied Linear Algebra       3         MATH 2410Q - Physics for Engineers II       4         MEN 250Q - Physics for Engineers II       4         MBME 3500 - Biomedical Engineering Measurements       4         But 3600 - Biomechanics       4	CHEM 1127Q - General Chemistry	4
ENGL 1010 - Seminar in Academic Writing or ENGL 1011 - Seminar in Writing Through Literature   4		3
Section		4
16	ENGR 1000 - Orientation to Engineering	1
16	MATH 1131Q Calculus I	4
CHEM 1128Q - General Chemistry       4         ENGR 1166 - Foundations of Engineering       3         MATH 1132Q - Calculus II       4         Sophomore         CE 2110 - Applied Mechanics I       3         MATH 2110Q Multivariable Calculus       4         PHYS 1501Q - Physics for Engineers I       4         PNB 2264 - Human Physiology & Anatomy       4         STAT 3025Q - Statistical Methods       3         BME 3120 - LabvIEW Basics for Engineers       1         ECE 2001 - Electrical Circuits       4         MATH 2210Q - Applied Linear Algebra       3         MATH 2210Q - Elementary Differential Equations       3         MSE 2101 - Materials Science & Engineering I       3         PHYS 1502Q - Physics for Engineers II       4         Junior         BME 3500 - Biomedical Engineering Measurements       4         BME 3600 - Biomechanics       4		16
CHEM 1128Q - General Chemistry       4         ENGR 1166 - Foundations of Engineering       3         MATH 1132Q - Calculus II       4         Sophomore         CE 2110 - Applied Mechanics I       3         MATH 2110Q Multivariable Calculus       4         PHYS 1501Q - Physics for Engineers I       4         PNB 2264 - Human Physiology & Anatomy       4         STAT 3025Q - Statistical Methods       3         BME 3120 - LabvIEW Basics for Engineers       1         ECE 2001 - Electrical Circuits       4         MATH 2210Q - Applied Linear Algebra       3         MATH 2210Q - Elementary Differential Equations       3         MSE 2101 - Materials Science & Engineering I       3         PHYS 1502Q - Physics for Engineers II       4         Junior         BME 3500 - Biomedical Engineering Measurements       4         BME 3600 - Biomechanics       4	BIOL 1107 - Principles of Biology	4
Sophomore		4
MATH 1132Q - Calculus II		
Sophomore   CE 2110 - Applied Mechanics   3   3   MATH 2110Q Multivariable Calculus   4   4   5   5   5   5   5   5   5   5		
Sophomore         CE 2110 - Applied Mechanics I       3         MATH 2110Q Multivariable Calculus       4         PHYS 1501Q - Physics for Engineers I       4         PNB 2264 - Human Physiology & Anatomy       4         STAT 3025Q - Statistical Methods       3         BME 3120 - LabVIEW Basics for Engineers       1         ECE 2001 - Electrical Circuits       4         MATH 2210Q - Applied Linear Algebra       3         MATH 2410Q - Elementary Differential Equations       3         MSE 2101 - Materials Science & Engineering I       3         PHYS 1502Q - Physics for Engineers II       4         Junior         BME 3500 - Biomedical Engineering Measurements       4         BME 3600 - Biomechanics       4	The state of the s	
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MATH 2410Q - Elementary Differential Equations       3         MSE 2101 - Materials Science & Engineering I       3         PHYS 1502Q - Physics for Engineers II       4         Is         Junior       8         BME 3500 - Biomedical Engineering Measurements       4         BME 3600 - Biomechanics       4		
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BME 3600 - Biomechanics 4		4
	ECE 3101 - Signals and Systems	3
	PHIL 1104 - Philosophy and Social Ethics	_
	Content Area 1 (Arts and Humanities, not PHIL)	_
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<u> </u>	BME 3700 - Biomaterials	
	BME 3900 - Junior Design	
	MCB 2210 - Cell Biology	_
	Track Elective Content Area 2 (Social Sciences)	
Content Area 2 (Social Sciences)	Content Area 2 (Social Sciences)	
·	Comitor	10
	Senior  RMF 4740 Tissue Franciscosina	2
	BME 4710 - Tissue Engineering	
	BME 4900 - Biomedical Engineering Design I	
	BME Elective	
CHEM 3563 - Physical Chemistry 4	CHEM 3563 - Physical Chemistry	
	Content Area 2 (Social Sciences, not the same department as Junior year)	
DME (OAOM) Pierre likel Feeting along Desire II	DNE 4040W. Picara Bartina dia Parina II	
	BME 4910W - Biomedical Engineering Design II	
	BME Elective	
	Track Elective	_
	Content Area 4 (Diversity and Multiculturalism)	
	Content Area 4 (Diversity and Multiculturalism - International)	
15		15
Total Credits 131	Total Credits	131

Biomaterials and Tissue Engineering - BME Electives 20-21	Cı	Credits
BME 3320 - Biosensors and Nanodevices for Biomedical Applications		3
BME 3420 - Stem Cells for Regenerative Medicine		3
BME 3520 - Developing Mobile Apps for Healthcare		3
BME 3630 - Multiphysics Finite Element Analysis		3
BME 3720 - Drug Delivery		3
BME 3740 - Introduction to Microscopy and Biophotonics		3
BME 3750 - Tissue Engineering Laboratory		3
BME 4130 - Neural Prostheses		3
BME 4170 - Nanomedicine From Concepts to Applications		3
BME 4701 - Advanced Biomaterials		3
BME 4720 - Cellular Engineering		3
BME 4810 - Machine Learning Methods Biomedical Signal Analysis		3
BME 4985 - Special Topics in BME (requires BME Departmental Approval)		1-3
BME 4999 - Independent Study (requires BME Departmental Approval)		1-3
BME 5000-6000 Graduate Courses (requires BME Departmental Approval)		3

Biomaterials and Tissue Engineering - Track Electives 20-21	Credits
CHEG 2103 - Introduction to Chemical Engineering	3
CHEG 2111 - Chemical Engineering Thermodynamics I	3
CHEG 3112 - Chemical Engineering Thermodynamics II	3
CHEG 3123 - Fluid Mechanics	3
CHEG 3124 - Heat and Mass Transfer	3
CHEG 3127 - Fluid Mechanics Laboratory	1
CHEG 3128 - Chemical Engineering Junior Laboratory	2
CHEG 3145 - Chemical Engineering Analysis	3
CHEG 3151 - Process Kinetics	3
CHEG 3156 / MSE 3156 - Polymeric Materials	3
CHEG 3173 - Introduction to Biochemical Engineering	3
CHEG 4995 - Special Topics in Chemical Engineering (requires BME Departmental Approval)	Variable
MSE 2102 - Materials Science and Engineering II	3
MSE 3001 - Applied Thermodynamics of Materials	4
MSE 3002 - Transport Phenomena in Materials Processing	4
MSE 3003 - Phase Transformationion Kinetics & Applications	3
MSE 3004 - Mechanical Behavior of Materials	3
MSE 3020 - Failure Analysis	3
MSE 3029 - Ceramic Materials	3
MSE 3030 - Introduction to Composite Materials	3
MSE 4001 - Electrical & Magnetic Properties of Materials	3
MSE 4021 - Materials Joining	3
MSE 4034 - Corrosion & Materials Protection	3
MSE 4038 - Alloy Casting Processes	3
MSE 4095 - Special Topics in Materials Engineering (requires BME Departmental Approval)	Variable
MSE 4240 - Nanomaterials Synthesis & Design	3
MSE 4241 - Nanomaterials Characterization & Application	3