



## Biomechanics and Mechanobiology Curriculum 24-25

Freshman	Credits
CHEM 1127Q - General Chemistry	4
CSE 1010 - Introduction to Computing for Engineers	3
ENGL 1007 Seminar & Studio in Writing and Multimodal Composition OR 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
<b>16</b>	
BIOL 1107 - Principles of Biology	4
CHEM 1128Q - General Chemistry	4
ENGR 1166 - Foundations of Engineering	3
MATH 1132Q - Calculus II	4
<b>15</b>	
<b>Sophomore</b>	
CE 2110 - Applied Mechanics I	3
MATH 2110Q Multivariable Calculus	4
MATH 2210Q - Applied Linear Algebra	3
PHYS 1501Q - Physics for Engineers I	4
PNB 2264 - Human Physiology & Anatomy	4
<b>18</b>	
BME 3120 - LabVIEW Basics for Engineers	1
ECE 2001 - Electrical Circuits	4
ENGR 3400 - Engineering Data Analysis Techniques or STAT 3025Q - Statistical Methods	3
MATH 2410Q - Elementary Differential Equations	3
MSE 2101 - Materials Science & Engineering I	3
PHYS 1502Q - Physics for Engineers II	4
<b>18</b>	
<b>Junior</b>	
BME 3600 - Biomechanics	4
<b>BME Elective</b>	3
CE 2120 - Applied Mechanics II	3
CE 3110 - Mechanics of Materials	3
<b>Content Area 1 (Arts and Humanities, not PHIL)</b>	3
<b>16</b>	
BME 3900 - Junior Design	3
<b>BME Elective</b>	3
<b>BME Elective or Track Elective</b>	3
BME 3620 - Failure Analysis for Biomedical Application	3
ME 2233 - Thermodynamic Principles	3
<b>Content Area 2 (Social Sciences)</b>	3
<b>18</b>	
<b>Senior</b>	
BME 4900 - Biomedical Engineering Design I	3
ME 3227 - Design of Machine Elements or ME 3255 - Computational Mechanics	3
PHIL 1104 - Philosophy and Ethics	3
<b>Track Elective</b>	3
<b>Content Area 2 (Social Sciences, not the same department as Junior year)</b>	3
<b>15</b>	
BME 4910W - Biomedical Engineering Design II	3
ME 3250 - Fluid Dynamics I	3
<b>Track Elective</b>	3
<b>Content Area 4 (Diversity and Multiculturalism)</b>	3
<b>Content Area 4 (Diversity and Multiculturalism - International)</b>	3
<b>15</b>	
<b>Total Credits</b>	<b>131</b>

General Education Requirement:

Within the above courses 2 must have a W (Writing) designation and 1 must have an E (Environmental Literacy) designation

<b>Biomechanics and Mechanobiology - BME Electives 24-25</b>	Credits
BME 3320 - Biosensors and Nanodevices for Biomedical Applications	3
BME 3400 - Biosystem Analysis**	3
BME 3420 - Stem Cells for Regenerative Medicine	3
BME 3500 - Biomedical Engineering Measurements	4
BME 3520 - Developing Mobile Apps for Healthcare	3
BME 3540 - Principles of Biomedical Optical Sensing: A Laboratory-Based Course	3
BME 3630 - Multiphysics Finite Element Analysis	3
BME 3640 - Human Factors Engineering	3
BME 3700 - Biomaterials	4
BME 3760 - Microfluidics and Lab-on-Chip	3
BME 4130 - Neural Prostheses	3
BME 4170 - Nanomedicine: From Concepts to Applications	3
BME 4201 - Introduction to Medical Imaging.	3
BME 4600 - Biosolid Mechanics	3
BME 4701 - Biomedical Materials and Implants	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

\*\* Only BME 3400 or ECE 3101, not both, may be used towards degree requirements

<b>Biomechanics and Mechanobiology - Track Electives 24-25</b>	Credits
<b>Solids Focus</b>	
ME 3253 - Linear Systems Theory	3
ME 3227 - Design of Machine Elements*	3
ME 3255 - Computational Mechanics*	3
ME 3295. Special Topics in Mechanical Engineering (requires BME Departmental Approval)	3
MSE 3004 - Mechanical Behavior of Materials	3
<b>Fluids Focus</b>	
ME 2234 - Applied Thermodynamics	3
ME 3214 - Dynamics of Particles and Rigid Bodies	3
ME 3251 - Fluid Dynamics II	3
ME 3253 - Linear Systems Theory	3
ME 3275 - Introduction to Computational Fluid Dynamics	3
ME 3295. Special Topics in Mechanical Engineering (requires BME Departmental Approval)	3
<b>Dynamics Focus</b>	
ECE 3101 - Signals and Systems**	3
ECE 3161 - Introduction to Robotics	3
ME 3224 - Analysis and Design of Mechanisms	3
ME 3253 - Linear Systems Theory	3
ME 3295. Special Topics in Mechanical Engineering (requires BME Departmental Approval)	3
ME 5105 - Basic Concepts of Continuum Mechanics	3

\* May be used as a track elective if not used to meet a required course in the curriculum

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