

Translational Cell and Tissue Engineering Focus Area –
 Upper-Level Engineering Courses – updated June, 2019
 For BME Class of 2021 and beyond

EN.510.311	Structure of Materials	3
EN.510.312	Thermodynamics/Materials	3
EN.510.313	Mechanical Properties of Materials	3
EN.510.314	Electronic Properties of Materials	3
EN.510.315	Physical Chemistry of Materials II	3
EN.510.316	Biomaterials I	3
EN.510.403	Materials Characterization	3
EN.510.407	Biomaterials II: Host response and biomaterials applications	3
EN.510.415	The Chemistry of Materials Synthesis	3
EN.510.421	Nanoparticles	3
EN.510.422	Micro and Nano Structured Materials & Devices	3
EN.510.426	Biomolecular Materials I - Soluble Proteins and Amphiphiles	3
EN.510.430	Biomaterials Lab	3
EN.510.435	Mechanical Properties of Biomaterials	3
EN.510.442	Nanomaterials Lab	3
EN.510.606	Polymer Chemistry & Biology	3
EN.530.410	Biomechanics of the Cell	3
EN.530.426	Biofluid Mechanics	3
EN.530.436	Bioinspired Science and Technology	3
EN.530.446	Experimental Methods in Biomechanics	3
EN.530.448	Biosolid Mechanics	3
EN.540.301	Kinetic Processes	4
EN.540.303	Transport Phenomena I	3
EN.540.304	Transport Phenomena II	4
EN.540.306	Chemical & Biomolecular Separations	3
EN.540.400	Project in Design: Pharmacokinetics	3
EN.540.402	Metabolic Systems Biotechnology	3
EN.540.403	Colloids and Nanoparticles	3
EN.540.405	The Design of Biomolecular Systems	3
EN.540.414	Computational Protein Structure Prediction and Design	3
EN.540.421	Project in Design: Pharmacodynamics	3
EN.540.422	Introduction to Polymeric Materials	3
EN.540.428	Supramolecular Materials and Nanomedicine	3
EN.540.437	Application of Molecular Evolution to Biotechnology	3
EN.540.440	Micro/Nanotechnology: The Science and Eng. of Small Structures	3
EN.540.465	Engineering Principles of Drug Delivery	3
EN.540.602	Metabolic Systems Biotechnology	3
EN.550.391	Dynamical Systems	4
EN.580.418	Pulmonary Physiology	3

EN.580.430	Systems Pharmacology and Personalized Medicine	3
EN.580.435	Applied Bioelectrical Engineering I	1.5
EN.580.436	Applied Bioelectrical Engineering II	1.5
EN.580.441	Cellular Engineering	3
EN.580.442	Tissue Engineering	3
EN.580.444	Biomedical Applications of Glycoengineering	3
EN.580.446	Physical Epigenetics	3
EN.580.447	Computational Stem Cell Biology	3
EN.580.454	Methods in Nucleic Acid Sequencing	3
EN.580.451/2	Cell and Tissue Engineering Lab	3
EN.580.456	Introduction to Rehabilitation Engineering	3
EN.580.457	Rehabilitation Engineering Design Laboratory	3
EN.580.495	Microfabrication Lab	4
EN.580.643	Advanced Orthopaedic Tissue Engineering	3
EN.580.646	Molecular Immunoengineering	3
EN.670.619	Fundamentals of Physics and Chemistry in Nanomaterials	3

Contact the BME Department advising office for course additions.

Non Upper-Level Focus Area Courses

(maximum of 3 credits from this list may count in focus area)

AS.020.303	Genetics	3
AS.020.337	Stem Cells & the Biology of Aging & Disease	2
AS.020.363	Developmental Biology	3
AS.020.373	Developmental Biology Lab	2
EN.580.112	BME Design Group	3
EN.580.211	BME Design Group	3
EN.580.212	BME Design Group	3
EN.580.311	BME Design Group	3
EN.580.312	BME Design Group	3
EN.580.411	BME Design Group	3
EN.580.412	BME Design Group	3
EN.580.580	Senior Design Project	3
EN.580.581	Senior Design Project	3

Students may use a maximum of 3 research credits as a non-upper-level engineering course.