

Biomedical Engineering – Program Map: Cellular Engineering Focus Area

Cellular Engineering Requisites

ENGR:2750	Mechanics of Deformable Bodies	All	P: ENGR:2110; C: MATH:2560
BME:5421	Cell Material Interactions	Sp	P: BME:2400
BME:5430	Biotransport	F	P: BME:2500
BME:5435	Systems Biology for BME	Sp	P: BME:2400, BME:2200

Cellular Engineering Electives

Engineering Topics (must choose two)

BME:4310	Computational Biochemistry	F (even)	P: MATH:1560 or MATH:1860, CHEM:1120
ECE:5480	Digital Image Processing	F	P: BME:2200
BME:5441	Num & Stat Methods for Bioengr	Sp	P: MATH:2560 and MATH:2550
BME:5445	Stem Cells in Regenerative Engr	F (even)	P: BME:2400 or BIOL:2723
BME:5451	Research Methods in Cellular Engr	Sp	P: BIOL:1411, STAT:3510 or BIOS:4120

Suggested Electives

BME:5340:0002	Contemp. Topics in BME: Principles of Microfluidics	Sp	P: BME:2500
BME:5530	Art Organ & Circ Implants Design	F	P: BME:2500, BME:5510
ENGR:2510	Fluid Mechanics	F/Sp	P: MATH:2560, ENGR:2710
ENGR:2710	Dynamics	All	P: MATH:1550, ENGR:2110
ENGR:2720	Materials Science	All	P: CHEM:1110
ENGR:2730	Computers in Engineering	All	P: ENGR:1300
ME:5179	Continuum Mechanics	Sp	P: ENGR:2750 or ENGR:2510
BIOL:1412	Diversity of Form & Function	All	P: BIOL:1411
CHEM:2210	Organic Chemistry I	All	P: CHEM:1120
CHEM:2220	Organic Chemistry II	All	P: CHEM:2210
CHEM:2410	Organic Chemistry Lab	All	P: CHEM:1120, CHEM:2210; C: CHEM:2220
BIOC:3110	Biochemistry	All	See MyUI for recommendations
BIOC:3120	Biochemistry & Molecular Biology I	F/Sp	See MyUI for recommendations
BIOC:3130	Biochemistry & Molecular Biology II	F/Sp	P: BIOC:3120
BIOL:2512	Fundamental Genetics	All	P: BIOL:1411, BIOL:1412 or PSY:2701, CHEM:1110; Recommended: CHEM:2210

Pre-Medicine

**BIOL:1412	Diversity of Form & Function	All	P: BIOL:1411
CHEM:2210	Organic Chemistry I	All	P: CHEM:1120
CHEM:2220	Organic Chemistry II	All	P: CHEM:2210
CHEM:2410	Organic Chemistry Lab	All	P: CHEM:1110, CHEM:1120, CHEM:2210
BIOC:3110	Biochemistry	All	See MyUI for requirements
BIOL:2512	Fundamental Genetics	All	P: BIOL:1411, BIOL:1412 or PSY:2701, CHEM:1110; Recommended: CHEM:2210

****Pre-medicine students should check with their Pre-medicine advisor regarding the need for this course.**

Note: At least two electives must be from the list of Engineering Topics.

Please check MyUI for the most up to date course offerings and pre/corequisites.

Last updated (03/29/21)

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Semester 1	Chem I & Lab CHEM:1110	Engr Math I MATH:1550		Intro Engr Prob Solving ENGR:1100	Rhetoric RHET:1030	Engr Success First Year ENGR:1000
Semester 2	Chem II & Lab CHEM:1120	Engr Math II MATH:1560	Engr Math III MATH:2550	Intro Engr Computing ENGR:1300	Physics I / Lab PHYS:1611	BME Forum BME:1010
Semester 3	Foundations of Biology BIOL:1411	Engr Math IV MATH:2560	Statics ENGR:2110	Elec Circuits ENGR:2120	Thermodynamics ENGR:2130	BME Prof Seminar BME:2010
Semester 4	Human Physiology HHP:3500	Systems, Instrum, & Data Acquisition / Lab BME:2200	Mech Def Bodies ENGR:2750	Focus Area Elective #1	Biostatistics BIOS:4120 or STAT:3510	BME Prof Seminar BME:2010
Semester 5	Cell Biology for Engr / Lab BME:2400	Focus Area Elective #2	Biomaterials & Biomechanics / Lab BME:2500	Focus Area Elective #3	GEC Elective #1	Leadership & Resourcefulness BME:3010
Semester 6	Cell Material Interactions BME:5421	Bioimaging & Bioinformatics / Lab BME:2210	Focus Area Elective #4	Focus Area Elective #5	GEC Elective #2	BME Design Seminar BME:4010
Semester 7	BME Senior Design I BME:4910	Biotransport BME:5430	Focus Area Elective #6	GEC Elective #3	GEC Elective #4	
Semester 8	BME Senior Design II BME:4920	Systems Biology for BME BME:5435	Focus Area Elective #7	Physics II / Lab PHYS:1612	GEC Elective #5	

- Math & Science Courses
- Engineering Core Courses
- Required Engineering Courses
- Biomedical Core Courses
- Focus Area Requisite Courses
- Focus Area Elective Courses
- General Education Courses
- Seminars

Note: At least two Focus Area Electives must be from the list of Engineering Topics