

Biomedical Engineering – Program Map: Bioimaging Focus Area

Bioimaging Requisites

BME:5210	Medical Imaging Physics	F	P: BME:2200, BME:2210
ENGR:2730	Computers in Engineering	F/Sp	P: ENGR:1300
ECE:3330	Intro to Software Design	F/Sp	P: ENGR:2730
ECE:5480	Digital Image Processing	F	P: BME:2200 or ECE:2400

Bioimaging Electives

Engineering Topics (must choose two)

BME:5200	Biomedical Signal Processing	Sp	
ECE:5490	Multidimensional Image Analysis Tools & Techniques	Every other Sp (odd years)	P: ECE:5480 and (ECE:3330 or CS:2820)
BME:5251	Advanced Biosystems	Sp	P: BME:2200
ECE:5330	Graph Algorithms & Combinatorial Optimization	Sp	P: ECE:3330
ECE:5450	Machine Learning	F	P: ECE:2400

Suggested Electives

BME:5340:0001	Contemp. Topics in BME: Principles of Magnetic Resonance Imaging	Sp	P: BME:5210 or BME:5200 or ECE:5460
MATH:3800	Elementary Numerical Analysis	All	P: (MATH:2550 or MATH:2700) and (MATH:1560 or MATH:1860)
CS:4480	Knowledge Discovery	F	
ECE:5460	Digital Signal Processing	F	P: ECE:3400
CS:2210	Discrete Structures	All	
CS:2230	Data Structures	All	P: ENGR:2730 or CS:1210

Pre-Medicine

**BIOL:1412	Diversity of Form & Function	All	P: BIOL:1411, CHEM:1110
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)

Biomedical Engineering – Program Map: Bioimaging Focus Area

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	Thermo ENGR:2130 or *Intro AI & Mach Learning ENGR:2995*	BME Prof Seminar BME:2010
Semester 4	Human Physiology HHP:3500	Systems, Instrum, & Data Acquisition / Lab BME:2200	Bioimaging & Bioinformatics / Lab BME:2210	Comp in Engr ENGR:2730	Biostatistics BIOS:4120 or STAT:3510	BME Prof Seminar BME:2010
Semester 5	Cell Biology for Engr / Lab BME:2400	Biomaterials & Biomechanics / Lab BME:2500	Medical Imaging Physics BME:5210	Intro to Software Design ECE:3330	GEC Elective #1	Leadership & Resourcefulness BME:3010
Semester 6	Focus Area Elective #1	Focus Area Elective #2	Physics II / Lab PHYS:1612	GEC Elective #2	GEC Elective #3	BME Design Seminar BME:4010
Semester 7	BME Senior Design I BME:4910	Digital Image Processing ECE:5480	Focus Area Elective #3	Focus Area Elective #4	GEC Elective #4	
Semester 8	BME Senior Design II BME:4920	Focus Area Elective #5	Focus Area Elective #6	Focus Area Elective #7	GEC Elective #5	

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

***ENGR:2995 will be not be offered in Fall 2021 but will be offered in Spring 2022. Students who want to take ENGR:2995 and not ENGR:2130 can take ENGR:2730 Computers in Engr in Semester 3 and ENGR:2995 in Semester 4.**

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

Last updated 03/29/21