UNIVERSITY of HOUSTON
CULLEN COLLEGE of ENGINEERING
Department of Biomedical Engineering

Biomedical Engineering Course Plan
Updated Spring 2021

Freshman Year			
✓	**Fall**	✓	**Spring**
	ENGI 1100: Intro to Engineering		ENGI 1331: Computers & Problem-Solving
	BIOL 1361/1306: Biological Science I		BIOL 1362/1307: Biological Science II
	BIOL 1161/1106: Biological Science I Lab		BIOL 1162/1107: Biological Science II Lab
	CHEM 1331/1311: Chemistry I		CHEM 1332/1312: Chemistry II
	CHEM 1111: Chemistry I Lab		CHEM 1112: Chemistry II Lab
	ENGL 1303/1301: First Year Writing I		MATH 1432/2414: Calculus II
	MATH 1431/2413: Calculus I		PHYS 1321/2325: University Physics I

Sophomore Year			
✓	**Fall**	✓	**Spring**
	BIOE 2100: Intro to Biomedical Engineering		BIOE 2331: Biomedical Processes
	CHEM 3331/2323: Organic Chemistry I		ECE 2201: Circuit Analysis I
	CHEM 3221/2123: Organic Chemistry I Lab		BCHS 3304: Biochemistry I
	ENGL 1304/1302: First Year Writing II		MATH 3321: Engineering Math
	MATH 2433/2415: Calculus III		Core: Social & Behavioral Sciences
	PHYS 1322/2326: University Physics II		Core: Creative Arts

Junior Year			
✓	**Fall**	✓	**Spring**
	MECE 3400: Intro to Mechanics		BIOE 3340: Quantitative Physiology
	ENGI 2304: Technical Communication		BIOE 3140: Quantitative Physiology Lab
	INDE 2333: Engineering Statistics		BIOE 3341: Biothermodynamics
	POLS 1337/GOVT 2305 – US Government		BIOE 4302: Numerical Analysis
	POLS 1336/GOVT 2306 -US & TX Constitutions		BIOE Track Course
			HIST 1378-US History Since 1877

Senior Year			
✓	**Fall**	✓	**Spring**
	BIOE 4335: Capstone Design I		BIOE 4336: Capstone Design II
	BIOE 4315: Intro to Bioinstrumentation		BIOE 4350: Genomic and Proteomic Engineering
	BIOE 4115: Intro to Bioinstrumentation Lab		BIOE 4150: Genomic and Proteomic Lab
	BIOE Track Course		BIOE Track Course
	BIOE Track Course		BIOE Track Course
	HIST 1377-US History to 1877		Core: Language, Philosophy, & Culture

Notes:

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Bionanoscience Track
+Choose 3 from the following:
BIOE 4303: Biomaterials
BIOE 4310: Drug Design and Delivery #
BIOE 4311: Advances in Vision Research #
BIOE 4319: Mass Transport for Bio-systems
BIOE 4347: Cell and Molecular Biology for BME ^#
BIOE 4348: Tissue Engineering—Principles & Practice #
BIOE 4349: Biomedical Microdevices #
BIOE 4366: Biomolecular Engineering Fundamentals
+Choose 2 Additional Advanced BIOE Courses from Technical Electives or other Tracks*
Neural, Cognitive, & Rehabilitation Engineering Track
+Choose 3 from the following:
BIOE 4305: Brain-Machine Interfacing
BIOE 4309: Neural Technology Interfaces #
BIOE 4313: Introduction to Neurocomputing
BIOE 4342: Biomedical Signal Processing
BIOE 4397: Neural Engineering Methods and Applications
ECE 3337: Signals & Systems (**ECE 2202 required as prerequisite)
+Choose 2 Additional Advanced BIOE Courses from Technical Electives or other Tracks*
Biomedical Imaging Track
3 required courses:
BIOE 4307: Introduction to Optical Imaging #
BIOE 5317: Introduction to Imaging #
BIOE 5320: Introduction to Electrical Imaging
+Choose 2 Additional Advanced BIOE Courses from Technical Electives or other Tracks*
Additional Advanced Electives
BIOE 3351: Introduction to Diseases ^#
BIOE 4397: Healthcare Innovations and Entrepreneurship
BIOE 4397: Engineering the Human Body #
BIOE 5318: Bioinformatics #
BIOE 5319: Global Healthcare #
ECE 3355/3155: Electronics (**ECE 2202 required as pre-requisite)
ECE 3456: Analog Electronics (**ECE 2202 required as pre-requisite)
Premedical Track Electives
1 required BIOL course:
BIOL 3301: Genetics ^
BIOL 3332/2321: Microbiology ^
BIOL 4315: Neuroscience ^
BIOL 4323: Immunology ^
+Choose 4 Additional BIOE courses marked with #

^: Included in Science GPA calculations: Medical Schools use the BCPM GPA, which takes into account Biology, Chemistry, Physics, and Mathematics courses only. Engineering courses are *not* typically factored into the science GPA calculation.