

BME Pre-Med Track

UNIVERSITY of
HOUSTON

CULLEN COLLEGE of ENGINEERING
Department of Biomedical Engineering

The Biomedical Engineering (BME) major at the University of Houston provides pre-med students with a strong foundation in both the life and physical sciences as well as the problem-solving skills that are vital to a successful career in medicine.

Biomedical Engineering and Course Requirements for Medical School

Pre-med students who decide to enter the undergraduate biomedical engineering program will find that it offers most of the requirements necessary for admission into medical schools across the country and success on the MCAT. Indeed, the curriculum is truly interdisciplinary and incorporates math, statistics, physics, chemistry, biology, with an ABET-accredited engineering program.

Further, BME Pre-Med students are exposed to **research, clinical volunteering/shadowing, and leadership positions in student organizations** beginning their freshman year. These opportunities paired with a rigorous course-load provide BME students with a competitive edge in meeting the demands of medical school compared with their peers in other majors.

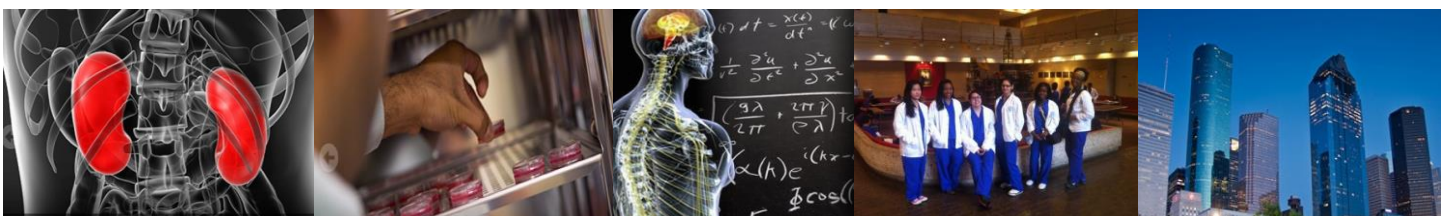
Research, Shadowing, & Volunteering Opportunities

Admission into medical school has become increasingly competitive over the last decade. Competitive applicants must not only perform well academically but take advantage of opportunities outside of the classroom as well. Hence UH Biomedical Engineering Pre-med students are provided the opportunity to:

- ▶ **conduct basic or clinical research** with some of the world's leading experts in various medically-related disciplines, including medical devices, neuroscience, disease markers, biomedical imaging, bionanoscience, gene therapy, systems biology, novel diagnostics, proteomics, etc.
- ▶ **gain healthcare experience through clinical volunteering and physician shadowing.** This is readily feasible because The University of Houston is conveniently located to the Texas Medical Center (TMC), the largest medical complex in the world, thus providing UH BME students with unparalleled opportunities.

Additional Benefits of the UH Biomedical Engineering Pre-Med Program

- ▶ **Small class sizes** allow close interaction with world-class MD/PhD faculty
- ▶ Individualized, **structured guidance on medical school applications** & other healthcare career paths
- ▶ Discounted rates for **MCAT-prep courses**
- ▶ Biomedical Engineering students have the **highest MCAT scores** on average
- ▶ Undergraduate **research fellowships** for qualified upperclassmen
- ▶ Multiple college-wide & university-wide **scholarship** opportunities, including full tuition scholarships
- ▶ Provides **alternative career paths**, including careers in the biomedical technology industry & grad school



ADVANCED TECHNOLOGIES

CLINICAL RESEARCH

INTERDISCIPLINARY

HEALTH ELECTIVES

TEXAS MEDICAL CENTER

For more information, contact Dr. Greg Spillers at gjspillers@uh.edu or visit www.bme.uh.edu

Suggested Four-Year Academic Plan

Freshman Year		Sophomore Year	
Fall	ENGI 1100: Intro to Engineering	Fall	CHEM 3331 & 3221: Organic Chemistry I & Lab*^
	BIOL 1361 & 1161: Biological Science 1 & Lab*^		BIOE 2100: Intro to Biomedical Engineering^
	CHEM 1331 & 1111: Chemistry I & Lab*^		ENGL 1304/1310: Freshman Comp II*
	ENGL 1303/1309: Freshman Comp I*		MATH 2433: Calculus III ^
	MATH 1431: Calculus I^		PHYS 1322: University Physics II*^
Spring	ENGI 1331: Computers & Problem-Solving	Spring	BIOE 2331: Biomedical Processes
	BIOL 1362 & 1162: Biological Science 2 & Lab*^		ECE 2201: Circuit Analysis I
	CHEM 1332 & 1112: Chemistry 2 & Lab*^		BCHS 3304: Biochemistry I*^
	MATH 1432: Calculus II^		MATH 3321: Engineering Math^
	PHYS 1321: University Physics I*^		Core Course/Social & Behavioral Sciences
			Core Course/Language, Philosophy, & Culture
Junior Year		Senior Year	
Fall	MECE 3400: Intro to Mechanics	Fall	BIOE 4335: Capstone Design I
	ENGI 2304: Technical Communication		BIOE 4315 & 4115: Intro to Bioinstrumentation & Lab
	INDE 2333: Engineering Statistics*^		BIOE Elective Course
	Core Course/HIST 1377: US History to 1877		BIOE Elective Course
	BIOL Elective Course*^		Core Course/POLS 1337: US Government
Spring	BIOE 3340 & 3140: Quantitative Physiol. & Lab^	Spring	BIOE 4336: Capstone Design II
	BIOE 3341: Biothermodynamics		BIOE 4350 & 4150: Genomic & Proteomic Engineering
	BIOE 4302: Numerical Analysis		BIOE Elective Course
	Core Course/POLS 1336: US & TX Constitutions		BIOE Elective Course
	Core Course/HIST 1378: US History Since 1877		Core Course/Creative Arts

Additional Required Courses for Medical School		BIOE Pre-Medical Track Elective Options	
	CHEM 3332 & 3222: Organic Chemistry II & Lab*^		+ Choose 4 BIOE elective courses from the following:
	PHYS 1101 or 1121: Physics Lab I*^		BIOE 3351: Introduction to Diseases^
	PHYS 1102 or 1122: Physics Lab II*^		BIOE 4309: Neural Technology Interfaces
Notes: * Courses required by most medical schools ^Included in Science GPA Calculations: Medical schools use the BCPM GPA, which takes into account b iology, c hemistry, p hysics, and m athematics courses only. Engineering courses are <i>not</i> typically factored into the science GPA calculation.			BIOE 4310: Drug Delivery and Design
			BIOE 4311: Advances in Vision Research
			BIOE 4347: Cell and Molecular Biology for BME^
			BIOE 4348: Tissue Engineering
			BIOE 4349: Biomedical Microdevices
			BIOE 5317: Biomedical Imaging
			BIOE 5318: Bioinformatics^
			BIOE 4319: Mass Transport for Bio-systems
			+ Choose 1 BIOL electives courses from following:
	BIOL 3332: Microbiology^		
	BIOL 3301: Genetics^		
	BIOL 4315: Neuroscience^		
	BIOL 4323: Immunology^		

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