

**BIOMEDICAL ENGINEERING CURRICULUM**  
*BACHELOR OF SCIENCE IN BME -*  
**BIOMATERIALS/RESEARCH CONCENTRATION -**  
*FALL 2023 AND LATER*

NAME:

ID:

EMAIL:

CUMULATIVE GPA:

1st Year (Fall)	Prerequisite	Cr	Semester	1st Year (Spring)	Prerequisite	Cr	Semester	Summer I
CHEM 125 CHEM I	None	3		CHEM 126 CHEM II	MATH 110 or higher and CHEM 125 or CHEM 121 with a C or higher.	3		
CHEM 125A Chem Laboratory	None	1		BME 101- Freshman Seminar <b>S</b>		0		
ENGL 101	None	3		ENGL 102	ENGL 101	3		
MATH 111 Calc I	None	4		MATH 112 Calc II	MATH 111 with a C or higher.	4		
PHYS 111 Physics I	coreq PHYS 111A, MATH 111	3		PHYS 121 Physics II	PHYS 111, PHYS 111A, MATH 111 with a C or higher / coreq PHYS 121A, MATH 112 with a C or higher.	3		
PHYS 111A Physics I Lab	coreq PHYS 111	1		PHYS 121A Physics II Lab	PHYS 111/PHYS 111A and MATH 111 with grade of C or higher. Coreq: PHYS 122	1		
FED 101	ENGL 101 and (ENGR 101 and MATH 110) or MATH 111	2						
		17				14		
2nd Year (Fall)			Semester	2nd Year (Spring)				Summer II
MATH 211(13) Calc IIIA	MATH 112 with a C or higher.	3		MATH 222 Diff Equations	MATH 112 with a C or higher.	4		Research at Outside Institution or URI Grant
MATH 279 (333) Engr Prob & Stat*	MATH 112 with a C or higher.	2		BME 210 Computing for BMEs	MATH 112 with a C or higher.	3		Presentation of Summer work at showcase
BME 304 - Material Fundamentals	(CHEM 126 or CHEM 122) and PHYS 111 with a C or higher.	3		BME 302 - Mech Fund <b>U</b>	MATH 112, PHYS 121 with a C or higher.	3		
BME 303 - Biological Fundamentals	CHEM 126 or CHEM 121 with a C or higher.	3		BME 301 - Electrical Fund <b>U</b>	MATH 112, PHYS 121 with a C or higher. Pre/Coreq: FED 101	3		
BME 111 - Intro to Anatomy and Phys	Prereq/Coreq FED 101 with a C or higher.	3		COM 312 Oral Presentation	VARIOUS	3		
STS 205 Intro to Research Methods	ENGL 102 with a grade of C or higher.	3	Individualized Development Plan (IDP)	BME 3XX Biomedical Research Design	VARIOUS	3		
Training Workshops		17		Training Workshops		19	Thesis Proposal	
3rd Year (Fall)				3rd Year (Spring)				Summer III
CHEM 243 Org Chem	CHEM 122 or CHEM 126 with a C or higher.	3		BME383 Meas Lab Phys Sys <b>U</b>	BME 302, (BME 210 or BME 310), (MATH 279 or MATH 333)	3		URI Grant
MTEN 201 Intro Principles of Materials Engineering	CHEM 126, (PHYS 121 or PHYS 122), MATH 112.	3		BME 420 Adv. Biomat. Science	BME 302, BME 304, and MTEN 201	3		Work on Thesis
BME 352 Biomedical Thermodynamics	MATH 112, PHYS 111, CHEM 126, BME 111. Coreq: MATH 211 or MATH 213.	3		IE 492 (Management GER)	Junior or Senior Standing	3		Poster Presentation
BME 385 Cell & Biomat Lab	MATH 112, PHYS 121, BME 304 and (MATH 279 or MATH 333) with a C or higher.	3		BME 422 - Biomat. Charact.	MATH 112, PHYS 121, BME 304 and MTEN 201	3		
COM 319 Technical, Professional and Scientific Writing for Publication	Various	3						
				Dana Knox Showcase				
		15		Regional Conference		12		
4th Year (Fall)				4th Year (Spring)				
BME 495 Capstone Design I	BME 372 or MTEN 201 or (MECH 236 and BME 321) or BME 386. Restrictions: Senior	2		BME 496 Capstone Design II	BME 495	3		
BME 382 Eng Mod Phys Sys	BME 111, BME 301, BME 302 and MATH 222 with a C or higher.	3		HSS 404 Disease, Health, and Social Justice	Senior Standing	3		
BME430 Tissue Engineering	BME 302 and MATH 222 and (BME 303 or R120 201 and R120 202 or BIOL 201 and	3		BME 427 Biotransport	BME 303 or (R120 201 and R120 202) or (BIOL 201 and BIOL 202) and MATH 222 and BME 352	3		
BME 491 Research and Independent Study I	Please see Catalog & confirm w/ advisor	3		BME 492 Research and Independent Study II	Please see Catalog & confirm w/ advisor	3		
*Sci or Eng Elective	Please see Catalog & confirm w/ advisor	3		Dana Knox Showcase				
		14		National Conference		12	Defend Thesis	
				TOTAL CREDITS		120		
Additional Coursework	Prerequisite	Cr	Semester	Additional Coursework	Prerequisite	Cr	Semester	

All courses are offered Fall and Spring semester unless otherwise labeled: (F-Fall only; S-Spring only; U-also offered in Summer)

Students must earn a grade of "C" or better to satisfy most course prerequisites.

\*It is recommended that students take MATH 333 instead of MATH 279.

Science Elective or Engineering Elective: Please see the list here <https://biomedical.njit.edu/academics/undergraduate/curriculum.php>