

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

NAME:	ID:	EMAIL:	CUMULATIVE GPA:					
<b>1st Year (Fall)</b>	<b>Prerequisite</b>	<b>Cr</b>	<b>Semester</b>	<b>1st Year (Spring)</b>	<b>Prerequisite</b>	<b>Cr</b>	<b>Semester</b>	<b>Summer I</b>
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 better.	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 better.	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 better. Coreq: PHYS 122	1		
FED 101	ENGL 101 and (ENGR 101 and MATH 110) or MATH 111	2						
		<b>17</b>				<b>14</b>		
<b>2nd Year (Fall)</b>			<b>Semester</b>	<b>2nd Year (Spring)</b>				<b>Summer II</b>
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 303 - Biological Fundamentals	CHEM 126 or CHEM 121 with a C or higher.	3		Presentation of Summer work at showcase
BME 302 - Mech Fund <b>U</b>	MATH 112, PHYS 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 210 Computing for BMEs	MATH 112 with a C or higher.	3		BME 304 - Material Fundamentals	(CHEM 126 or CHEM 122) and PHYS 111 with a C or higher.	3		
BME 111 - Intro to Anatomy and	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		<b>17</b>		Training Workshops		<b>19</b>		Thesis Proposal
<b>3rd Year (Fall)</b>				<b>3rd Year (Spring)</b>				<b>Summer III</b>
MATH 337 Linear Algebra	MATH 112 with a C or higher.	3		BME 351 - Intro to BioFluid Mech - <b>S</b>	BME 302, MECH 236 and (MECH 320 or BME 321)	3		URI Grant
MECH 236 Dynamics	For BME students: BME 302 with a C or higher. Must fill out MECH 236 Permit Request.	2		BME 382 Eng Mod Phys Sys	BME 111, BME 301, BME 302 and MATH 222 with a C or Higher	3		Work on Thesis
BME 321 Adv Mech for BME	BME 302 with a C or better.	3		BME 384 Biomech Lab - <b>S</b>	BME 302, MECH 236, BME 321, (MATH 279 or MATH 333), and BME 210	3		Poster Presentation
*Sci or Eng Elective	Please see Catalog & confirm w/ advisor.	3		BME 478 Intro CAD for Biomech - <b>S</b>	BME 302 and (MECH 320 or BME 321)	4		
COM 319 Technical, Professional and Scientific Writing for Publication	VARIOUS	3						
				Dana Knox Showcase				
				Regional Conference				
		<b>14</b>				<b>13</b>		
<b>4th Year (Fall)</b>				<b>4th Year (Spring)</b>				
BME 491 Research and Independent Study I	Advisor Permission	3		BME 496 Capstone Design II	BME 495	3		
IE 492 (Management GER)	Junior or Senior Standing	3		HSS 404 Disease, Health, and Social Justice	Senior Standing	3		
BME 383 Meas Lab Phys Sys	BME 302, (BME 210 or BME 310), (MATH 279 or MATH 333)	3		BME 492 Research and Independent Study II	Advisor Permission	3		
BME 451 Biomechanics I - <b>F</b>	MECH 236 and BME321	3		BME 452 Mech. B&P of Biomat. - <b>S</b>	BME 302, BME 304, MATH 222, (MATH 279 or MATH 333), and BME 321.	3		
BME 495 Capstone Design I	BME 372 or MTEN 201 or (MECH 236 and BME 321) or BME 386. Restrictions: Senior	2						
		<b>14</b>		Dana Knox Showcase				
				National Conference				
				<b>TOTAL DEGREE CREDITS</b>		<b>12</b>		Defend Thesis
						<b>120</b>		
<b>Additional Coursework</b>	<b>Prerequisite</b>	<b>Cr</b>	<b>Semester</b>	<b>Additional Coursework</b>	<b>Prerequisite</b>	<b>Cr</b>	<b>Semester</b>	

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>