

Recommended course plan for BSE students graduating in 2019 and interested in careers in
BIOMOLECULAR ENGINEERING
 (132 credits)

Fall 1st Year 16 cr.	Chem 1035 (3) General Chemistry ⁵	Chem 1045 (1) General Chemistry Lab ⁵	MATH 1225 (4) Calculus for Science ⁵	ENGE 1215 (2) Foundations of Engineering	ENGL 1105 (3) First-Year Writing ⁵	CLE (3)
Spring 1st Year 17 cr.	CHEM 1036 (3) General Chem ⁵ Pre: CHEM 1035 Spring, Summer 1 & 2	ENGL 1106 (3) Freshman English ⁵ Pre: ENGL 1105	PHYS 2305 (4) Found of Physics ⁵ Pre: MATH 1225 Co: MATH 1226	MATH 1226 (4) Calculus for Science ⁵ Pre: MATH 1225	ENGE 1216 (2) Exploration of Engineering Design Pre: ENGE 1215	CLE (1)
Fall 2nd Year 17 cr.	CHEM 2535/CHEM 2565 (3) O-Chem ^{2,4} /Principles O-Chem ^{2,4} Pre: CHEM 1036 Fall, Summer 1/ Fall ONLY	MATH 2114 (3) Intro to Linear Algebra	MATH 2204 or 2224 (3) Multivariable Calculus Pre: Math 1225 & 1226 (Old sequence: 1205 & 1206)	ESM 2104 (3) Statics Co: MATH 2114, MATH 2224	BIOL 1105 (3) Principles of Biology ⁵ Fall, Summer 1	BSE 2004 (2) Intro to BSE Pre: ENGE 1215 Fall, Spring
Spring 2nd Year 18 cr.	MATH 2214 (3) Differential Equations Pre: MATH 2114 & 1226 (Old sequence: 1206)	ESM 2304 (3) Dynamics Pre: ESM 2104, MATH 2224; Co: MATH 2214	BIOL 1106 (3) Prin Biology ⁵ Spring, Summer 2	BSE 3144 (2) Engr Analysis Biol Systems Co: MATH 2214 Spring Only	PHYS 2306 (4) Foundations of Physics ⁵ Pre: MATH 1225, PHYS 2305	CHEM 2536/CHEM 2566 (3) O-Chem ^{2,4} /Prin O-Chem ^{2,4} Pre: CHEM 2535/2565 Spring, Summer 2/ Spring Only
Fall 3rd Year 15 cr.	ESM 3024 (3) Intro Fluid Mechanics Pre: ESM 2304, MATH 2224 Fall, Summer 2, Winter	BSE 3154 (3) Thermo of Bio Syst Pre: MATH 2204/2224, ESM 2304 Fall Only	BSE 3134 (1) BSE Seminar Pre: BSE 2004 Fall Only	STAT 3704 (2) Statistics for Engineering Applications Pre: MATH 2224/2204	CHEM 3615/CHEM 4615 (3) Physical Chemistry ^{2,4} /Physical Chem for Life Sciences ^{2,4} Pre: CHEM 1036 or 1056, MATH 2224, PHYS 2306 Pre: CHEM 1036 or 1056, MATH 1026 or 2015, PHYS 2206 or 2306 Fall, Spring, Summer 1/ Fall, Summer 1, Winter	CLE (3)
Spring 3rd Year 16 cr.	BIOL 2604 (3) General Microbiology Pre: BIOL 1105, 1106, CHEM 1035, 1036	BSE 3504 (3) Transport Processes in BSE Pre: BSE 3154, ESM 3024 Spring Only	BSE 3524 (3) Unit Operations ¹ Spring Only Co: BSE 3504	BIOL 2614 (1) General Microbiology Lab ⁴ Fall, Spring, Summer 1	BSE 3534 (3) Bioprocess Engineering ¹ Co: BSE 3504 & BIOL 2604 Spring Only	CLE (3)
Fall 4th Year 16 cr.	ISE 2014 (2) Engineering Economy Pre: ENGE 1215	BSE 4125 (2) Comp Design Project Pre: BSE 3334 or 3524 Fall Only	BSE 4204 (3) Instrumentation for Biosystems Pre: PHYS 2306, ESM 3024 Fall Only	BSE 4544 (3) Protein Separation Eng ¹ Pre: BSE 3504 or CHE 3144 Fall Only	BSE 4524 (3) Bioprocessing Plant Design ¹ Pre: BSE 3534 Fall Only	BCHM 3114 (3) Bchem for Biotech ⁴ Pre: CHEM 2536 Fall Only
Spring 4th Year 17 cr.	BSE 4126 (3) Comprehensive Design Project Pre: BSE 4125 Spring Only	BSE 4564 (3) Metabolic Engineering ^{1,3,4} Pre: BSE 3534 Spring Only	CLE (6)	Engineering Topics Elective (3)	Technical Elective (2)	

¹ BSE Elective; ² Chemistry Elective; ³ Engineering Elective; ⁴ Technical Elective; ⁵ CLE