

**Specimen Curriculum for Chemical Engineering for students interested in Biotechnology**  
*B.E. in Chemical Engineering with Minor in Chemistry*

		Semester hours	
		FALL	SPRING
<b>SOPHOMORE YEAR</b>			
Chem 2221	Organic Chemistry	3	–
Chem 2221L	Organic Chemistry Laboratory	1	–
Chem 2222	Organic Chemistry	–	3
Chem 2222L	Organic Chemistry Laboratory	–	1
Math 2300	Multivariable Calculus	3	–
Math 2420	Methods of Ordinary Differential Equations	–	3
Physics 1602	General Physics II	3	–
Physics 1602L	General Physics Laboratory II	1	–
ChBE 2100	Chemical Process Principles	3	–
ChBE 2200	Chemical Engineering Thermodynamics	–	3
ChBE 2250	Modeling and Simulation in Chemical Engineering	–	3
ChBE 2900W	Technical Communications for Chemical Engineers	–	1
	Liberal Arts Core	3	3
		<hr/>	<hr/>
		17	17
<b>JUNIOR YEAR</b>			
ChBE 2150 <sup>†</sup>	Molecular and Cell Biology for Engineers	3	–
BSCI 2201 OR	Introduction to Cell Biology OR	–	3
BSCI 2520	Biochemistry		
ChBE 3200	Phase Equilibria and Stage-Based Separations	3	–
ChBE 3250	Chemical Reaction Engineering	–	3
ChBE 3300	Fluid Mechanics and Heat Transfer	3	–
ChBE 3350	Mass Transfer and Rate-Based Separations	–	3
ChBE 3600	Chemical Process Control	3	–
ChBE 3900W	Chemical Engineering Laboratory I	–	3
	Technical elective	–	3
	Liberal Arts Core	3	–
		<hr/>	<hr/>
		15	15
<b>SENIOR YEAR</b>			
ChBE 4xxx*	Chemical and Biomolecular Engineering elective	3	3
ChBE 4900W	Chemical Engineering Laboratory II	3	–
ChBE 4950W	Chemical Engineering Process and Product Design	4	–
ChBE 4951W	Chemical Product Design Projects	–	3
ChBE 4959	Professional Practice of Safety in Chemical Eng Design	1	–
	Liberal Arts Core	3	3
	Technical elective	–	3
	Open electives	3	3
		<hr/>	<hr/>
		17	15

<sup>†</sup>May be replaced by BSCI 1510.

\*Selected from ChBE 4500 (Bioprocess Engineering), ChBE 4800 (The Molecular and Cellular Mechanome), ChBE 4805 (Biomolecular Engineering and Design), ChBE 4810 (Metabolic Engineering), ChBE 4820 (Immunoengineering), and bio-related ChBE 3890 courses.

YEAR 1		YEAR 2		YEAR 3		YEAR 4	
Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
General Chemistry Chem 1601 3 hours	General Chemistry Chem 1602 3 hours	Organic Chemistry Chem 2221 3 hours	Organic Chemistry Chem 2222 3 hours	Molecular and Cell Biology for Engineers ChBE 2150 3 hours	Introduction to Cell Biology OR Biochemistry BSCI 2201 OR BSCI 2520 3 hours	ChBE Elective: ChBE 4500, 4800, 4805, 4810, or 4820 3 hours	ChBE Elective: ChBE 4500, 4800, 4805, 4810, or 4820 3 hours
General Chemistry Laboratory Chem 1601L 1 hour	General Chemistry Laboratory Chem 1602L 1 hour	Organic Chemistry Laboratory Chem 2221L 1 hour	Organic Chemistry Laboratory Chem 2222L 1 hour	Phase Equilibria & Staged-based Separations ChBE 3200 3 hours	Chemical Reactor Engineering ChBE 3250 3 hours	Chemical Engineering Laboratory II ChBE 4900W 3 hours	Chemical Engineering Design Projects ChBE 4951W 3 hours
Accelerated Single-Variable Calculus I Math 1300 4 hours	Accelerated Single-Variable Calculus II Math 1301 4 hours	Multivariable Calculus Math 2300 3 hours	Methods of Ordinary Differential Eqs Math 2420 3 hours	Fluid Mechanics & Heat Transfer ChBE 3300 3 hours	Mass Transfer and Rate-based Separations ChBE 3350 3 hours	Chemical Engineering Process and Product Design ChBE 4950W 4 hours	Technical Elective 3 hours
Introduction to Engineering ES 1401, 1402, 1403 3 hours	General Physics I Phys 1601 3 hours	General Physics II Phys 1602 3 hours	Chemical Engineering Thermodynamics ChBE 2200 3 hours	Chemical Process Control ChBE 3600 3 hours	Chemical Engineering Laboratory I ChBE 3900W 3 hours	Professional Practice of Safety in ChE Design ChBE 4959 1 hour	Liberal Arts Core Elective 3 hours
Liberal Arts Core Elective 3 hours	General Physics Laboratory I Phys 1601L 1 hour	General Physics Laboratory II Phys 1602L 1 hour	Modeling and Simulation in Chem Eng ChBE 2250 3 hours	Liberal Arts Core Elective 3 hours	Technical Elective 3 hours	Liberal Arts Core Elective 3 hours	Open Elective 3 hours
	Computer Science Course CS 1100, 1101, 1103, or 1104 3 hours	Chemical Process Principles ChBE 2100 3 hours	Technical Communication for Chemical Engineers ChBE 2900W 1 hour			Open Elective 3 hours	
		Liberal Arts Core Elective 3 hours	Liberal Arts Core Elective 3 hours				
14 hours	15 hours	17 hours	17 hours	15 hours	15 hours	17 hours	15 hours
<b>Total</b> <b>125 hours</b>							