Specimen Curriculum for Double Major in Chemical Engineering and Chemistry

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
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
		17	17
JUNIOR YEAR			
Chem 2100	Introduction to Analytical Chemistry	3	–
Chem 2100L	Analytical Chemistry Laboratory	1	–
Chem 3300	Physical Chemistry: Quantum Mechanics	3	–
Chem 3315	Physical Chemistry Laboratory	–	1
ChBE 2150†	Molecular and Cell Biology for Engineers	3	–
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 4xxx	Chemical and Biomolecular Engineering elective	–	3
BSCI 2520	Biochemistry	–	3
	Liberal Arts Core	-	3
		16	16
SENIOR YEAR			
Chem 3010	Inorganic Chemistry	3	–
Chem 4965/4966*	Advanced Integrated Laboratory	3	3
ChBE 3600	Chemical Process Control	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	Senior Engineering Design Seminar	1	–
ChBE 4xxx	Chemical and Biomolecular Engineering elective	–	3
	Engineering elective	–	3
	Liberal Arts Core	–	6
		17	18

†May be replaced by BSCI 1510.
*May be replaced by 6 hours of Chem 3980/4980/499 total over last three semesters.

Specimen Curriculum for Double Major in Chemical Engineering and Chemistry
For students with AP Credit for Math 1300, 1301, Chem 1601, 1601L, 1602, 1602L (see schedule on last page)

		Semester hours	
		FALL	SPRING
SOPHOMORE YEAR			
Chem 2100	Introduction to Analytical Chemistry	3	–
Chem 2100L	Analytical Chemistry Laboratory	1	–
BSCI 2520	Biochemistry	–	3
Physics 1602	General Physics II	3	–
Physics 1602L	General Physics Laboratory II	1	–
ChBE 2100	Chemical Process Principles	3	–
ChBE 2150†	Molecular and Cell Biology for Engineers	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
		14	13

		FALL	SPRING
JUNIOR YEAR			
Chem 3010	Inorganic Chemistry	3	–
Chem 3300	Physical Chemistry: Quantum Mechanics	3	–
Chem 3315	Physical Chemistry Laboratory	–	1
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 OR ChBE 4830	Chemical Process Control OR Molecular Simulation	3	–
ChBE 4xxx	Chemical and Biomolecular Engineering elective	–	3
	Liberal Arts Core	–	6
		15	16

		FALL	SPRING
SENIOR YEAR			
Chem 4965	Advanced Integrated Laboratory	3	–
Chem 4966	Advanced Integrated Laboratory	–	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	Senior Engineering Design Seminar	1	–
ChBE 4xxx	Chemical and Biomolecular Engineering elective	–	3
	Engineering elective	–	3
	Liberal Arts Core	3	3
		14	15

†May be replaced by BSCI 1510.

	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	Intro to Analytical Chemistry Chem 2100 3 hours	Physical Chemistry Laboratory Chem 3315 1 hour	Inorganic Chemistry Chem 3010 3 hours	Advanced Integrated Laboratory* Chem 4966 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	Analytical Chemistry Lab Chem 2100L 1 hour	Biochemistry BSCI 2520 3 hours	Advanced Integrated Laboratory* Chem 4965 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	Physical Chemistry Chem 3300 3 hours	Chemical Reactor Engineering ChBE 3250 3 hours	Chemical Process Control ChBE 3600 3 hours	ChBE 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	Molecular and Cell Biology for Engineers ChBE 2150 3 hours	Mass Transfer and Rate-based Separations ChBE 3350 3 hours	Chemical Engineering Laboratory II ChBE 4900W 3 hours	Engineering 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	Phase Equilibria & Staged-based Separations ChBE 3200 3 hours	ChBE Elective 3 hours	Chemical Engineering Process and Product Design ChBE 4950W 4 hours	Liberal Arts Core Elective 3 hours
		Computer Science Course CS 1100, 1101, 1103, or 1104 3 hours	Chemical Process Principles ChBE 2100 3 hours	Technical Communications in Chemical Engineering ChBE 2900W 1 hour	Fluid Mechanics & Heat Transfer ChBE 3300 3 hours	Liberal Arts Core Elective 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	Liberal Arts Core Elective 3 hours				
	14 hours	15 hours	17 hours	17 hours	16 hours	16 hours	17 hours	18 hours

Total

130 hours

*May be replaced by 6 hours of Chem 3980/4980/499 total over last three semesters

AP Credit		YEAR 1		YEAR 2		YEAR 3		YEAR 4	
		Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
General Chemistry Chem 1601 3 hours		Organic Chemistry for AP Students Chem 2211 3 hours	Organic Chemistry for AP Students Chem 2211 3 hours	Intro to Analytical Chemistry Chem 2100 3 hours	Biochemistry BSCI 2520 3 hours	Inorganic Chemistry Chem 3010 3 hours	Physical Chemistry Laboratory Chem 3315 1 hour	Advanced Integrated Laboratory* Chem 4965 3 hours	Advanced Integrated Laboratory* Chem 4966 3 hours
General Chemistry Laboratory Chem 1601L 1 hour		Organic Chemistry Laboratory Chem 2221L 1 hour	Organic Chemistry Laboratory Chem 2222L 1 hour	Analytical Chemistry Lab Chem 2100L 1 hour	Chemical Engineering Thermodynamics ChBE 2200 3 hours	Physical Chemistry Chem 3300 3 hours	Chemical Reactor Engineering ChBE 3250 3 hours	Process Control ChBE 3600 3 hours	Chemical Engineering Design Projects ChBE 4951W 3 hours
General Chemistry Chem 1602 3 hours		Multivariable Calculus Math 2300 3 hours	Methods of Ordinary Differential Eqs Math 2420 3 hours	Chemical Process Principles ChBE 2100 3 hours	Modeling and Simulation in Chem Eng ChBE 2250 3 hours	Phase Equilibria & Staged-based Separations ChBE 3200 3 hours	Mass Transfer and Rate-based Separations ChBE 3350 3 hours	Chemical Engineering Laboratory II ChBE 4900W 3 hours	ChBE Elective 3 hours
General Chemistry Laboratory Chem 1602L 1 hour		Introduction to Engineering ES 1401, 1402, 1403 3 hours	Computer Science Course CS 1100, 1101, 1103, or 1104 3 hours	Molecular and Cell Biology for Engineers ChBE 2150 3 hours	Technical Communications in Chemical Engineering ChBE 2900W 1 hour	Fluid Mechanics & Heat Transfer ChBE 3300 3 hours	ChBE Elective 3 hours	Chemical Engineering Process and Product Design ChBE 4950W 4 hours	Engineering Elective 3 hours
Accelerated Single-Variable Calculus I Math 1300 4 hours		Liberal Arts Core Elective 3 hours	General Physics I Phys 1601 3 hours	General Physics II Phys 1602 3 hours	Liberal Arts Core Elective 3 hours	Liberal Arts Core Elective 3 hours	Liberal Arts Core Elective 3 hours	Professional Practice of Safety in ChE Design ChBE 4959 1 hour	Liberal Arts Core Elective 3 hours
Accelerated Single-Variable Calculus II Math 1301 4 hours			General Physics Laboratory I Phys 1601L 1 hour	General Physics Laboratory II Phys 1602L 1 hour			Liberal Arts Core Elective 3 hours		
16 hours		13 hours	14 hours	14 hours	13 hours	15 hours	16 hours	14 hours	15 hours

	Total		*May be replaced by 6 hours of Chem 3980/4980/499 total over last three semesters
	130 hours		