

# Chemical & Biological Engineering

Fall			Spring		
CHME-1010	Intro to Chemical Engineering <sup>2</sup>	1	BIOL-1010	Intro to Biology	3
CHEM-1110	Chemistry I with Advanced Lab	4	ENGR-1100	Intro to Eng. Analysis	4
MATH-1010	Calculus I	4	ENGR-1400 OR ENGR 1200	Engineering Communications <sup>2</sup> OR Engineering Graphics & CAD <sup>2</sup>	1
PHYS-1100	Physics I <sup>2</sup>	4	MATH-1020	Calculus II	4
	Hum., Arts or Soc. Sci. El.	4		Hum., Arts or Soc. Sci. El.	4
Fall			Spring		
CHME-2010	Material, Energy, & Entropy Balances	4	CHME-2020	Energy, Entropy, & Equilibrium <sup>3</sup>	4
CHEM-2250	Organic Chemistry I	3	CHEM-2260	Organic Chemistry II	3
CSCI-1190	Beginning C Programming for Engineers	1	ENGR-2600	Modeling & Analysis of Uncertainty	3
MATH-2400	Intro to Differential Equations	4		Hum., Arts or Soc. Sci. El.	4
PHYS-1200	Physics II	4		Free Elective	4
Summer Arch Semester			Fall or Spring		
CHME-4010	Transport Phenomena I	4	CHME-4020	Transport Phenomena II	4
CHME-4030	Chemical Process Dynamics & Control	4	CHEM-4420	Microscopic Physical Chemistry	3
	Free Elective	4	CHEM-4530	Modern Techniques in Chemistry	4
	Hum., Arts or Soc. Sci. El.	4		Hum., Arts or Soc. Sci. El.	4
				Professional Development II <sup>4</sup>	2
Fall			Spring		
CHME-4040	Chemical Engineering Separations	3	CHME-4050	Chemical Process Design	4
CHME-4150	Chemical Engineering Lab I	3	CHME-4160/4170	Chemical Engineering Lab II OR Bioprocessing Lab	3
CHME-4500	Chemical Reactor Design	3	ENGR-4010	Professional Development III	1
CHME	Chemical Engineering Elective	3	ENGR	Engineering Elective	4
	Free Elective	4	CHEM	Chemistry Elective	3
<b>Electives</b>	<i>The chemistry elective must be in advanced chemistry or advanced chemistry-related subject. This elective cannot be CHEM-4410 or CHEM-2440.</i>		<b>Footnote<sup>1</sup></b>	<i>May be replaced by ENGR 1300, although CHME 1010 is recommended.</i>	
	<i>The chemical engineering elective must be in chemical engineering or in an approved, advanced chem eng subject.</i>		<b>Footnote<sup>2</sup></b>	<i>These required courses may be taken in either order.</i>	
			<b>Footnote<sup>3</sup></b>	<i>Satisfies PD I requirement.</i>	
	<i>The engineering elective cannot be a chemical engineering course; it must be at least 2000-level and contain four credits of engineering topics.</i>		<b>Footnote<sup>4</sup></b>	<i>Choice of courses from the list of approved course published each year.</i>	
	<i>The engineering elective cannot be ENVE 2110 or ENGR 2250</i>				
	<i>The curriculum clearance officer, who maintains a list of appropriate courses, must approve selection of these three constrained electives. The three free electives are completely unconstrained.</i>				