CHEMICAL ENGINEERING CURRICULUM

(for students entering UW Fall 2011 or later)

FALL				Grade	SPRING				Grade
FRESHMAN YEAR									
ES	1000	Orientation to Engr (I, L, O)	1				US & Wyo Const (V)	3	
MATH	2200	Calculus I (QB)	4		MATH	2205	Calculus II	4	
CHEM	1050	Adv Gen Chemistry I (SP)	4		CHEM	1060	Adv Gen Chemistry II (SP)	4	
ES	1060	Intro Eng Problem Solving	3		PHYS	1210	Engr Physics I* (SP)	4	
LIFE	1010	General Biology I (SB)	4		ENGL	1010	Coll Comp & Rhet (WA)	3	
PEAC	1001	Phys Act & Your Health (P)	1						
			17					18	
SOPHOMORE YEAR									
MATH	2210	Calculus III	4		MATH	2310	Applied Differential Eqns I	3	
CHEM	2420	Organic Chemistry I	4		CHE	2060	Intro CHE Computing	3	
CHE	2005	Chem Process Analysis	3		CHEM	2440	Organic Chemistry II	4	
PHYS	1220	Engr Physics II (SP)	4		ES	2310	Thermodynamics I	3	
					ES	2330	Fluid Dynamics	3	
			15					16	
JUNIOR YEAR									
CHE	3015	Multicomponent Thermo	3		CHE	3030	Unit Operations	3	
CHE	3025	Transport Phenomena	3		CHE	3070	Process Simul & Econ	3	
CHEM	4507	Physical Chemistry I	3		CHE	4060	Reaction Engineering	3	
		Cultural Context	3				Elective**	3	
		Elective**	3				Elective**	3	
			15					15	
SENIOR YEAR									
CHE	3040	Unit Ops Lab I (WB)	3		CHE	4050	Unit Ops Lab II (O)	3	
CHE	4070	Process Design I	3		CHE	4080	Process Design II (WC, O)	5	
CHE	4090	Process Dyn & Control	3				Cultural Context	3	
		Cultural Context	3				Elective**	3	
		Elective**	3				Elective**	3	
			15					17	

Total Hours: 128

Cultural context courses must meet the following requirements: 1) 1-CH, 1-CS, 1-CA 2) 1-G, 1-D

* The ES 2110/2120 sequence can be substituted for PHYS 1210

** Electives -- Chemical Curriculum allows for Elective Concentrations.
Six electives are required based on two options:

Option A: 2 CHE, 1 Departmental (CHE or PETE), 3 flexible technical electives chosen with advisor approval.

Option B: 1 CHE & Remainder chosen to satisfy a departmental concentration.

Concentration Areas: (Consult with your advisor for the definitions of the concentrations.)

Biological engineering
Biological engineering - pre-med sequence
Chemistry
Environmental
International
Math
Petroleum
Self-directed

Department of Chemical and Petroleum Engineering
Concentration Areas
Revised January 27, 2012

Biological Engineering – MOLB 2021 General Microbiology (4), CHE 4100 Biochemical Engineering (3), CHE 4160 Biomedical Engineering (3) + approved electives.

Biological Engineering Pre-medicine Sequence (satisfies pre-med requirements) - MOLB 2021 (4) General Microbiology (4), MOLB 3610 (4); [Alternative: [MOLB 4600 (3) and MOLB 4610 (3)], BIOL 3050 Genetics (4), BIOL 3600 Cell Biology (3) + CHE 4160 Biomedical Engineering (3). Students should contact the Preprofessional Advising Office for pre-med and pre-dental advising.

Chemistry -

- *Concurrent/Double Chemistry Major (Plan-1BS)*

CHEM 4000 Seminar (1) + CHEM 4110 Introduction to Inorganic Chemistry (3) + CHEM 4100 Inorganic Chemistry Lab (2) + CHEM 4508 Physical Chemistry II (3) + CHEM 4530 Physical Chemistry Lab (1) + CHEM 4930 Undergraduate Research (2) + 3 credits of upper-division Chemistry electives. If the Advisor and Chemistry Department's Undergraduate Studies Committee approve a research plan, CHE 3900 (Undergraduate Research) can substitute for CHEM 4930.

- *Concurrent Chemistry Minor*

Environmental - MOLB 2021 General Microbiology (4) + CE 3400 Introduction to Environmental Engineering (3) + CHE 4110 Air Pollution for Chemical Engineers (3) + CHE 4100 Biochemical Engineering (3) or approved elective.

International - 15 hours of foreign language and a semester abroad, which satisfies 9 hrs of cultural context (CA, CH, CS, D, G). Hence 15 - 9 = 6 hrs are available for electives.

Math - *Math Minor*: MATH 2250 Elementary Linear Algebra (3) + MATH 2800 Math Seminar (2) or MATH 2850 Putnam Seminar (2) + programming class (for example, COSC 1010 or COSC 1030) + two MATH 3000-plus electives (for example, Math 3310 and CHE 5140/MATH 5310).

Petroleum Engineering Option - PETE 2050 Introduction to Petroleum Engineering (3), PETE 4010 Reservoir Mechanics (3), PETE 4060 Flow through Porous Media (3), GEOL 4190 Petroleum Geology (3) or approved elective.

Self-directed - Individual Elective plan approved by advisor.

The concentration definitions may change to reflect the most recent class offerings. Please consult them with your Advisor.

Course Selections for Biological Engineering Concentration

Required Courses:

MOLB 2021 General Microbiology (4)
CHE 4100 Biochemical Engineering (3)
CHE 4160 Biomedical Engineering (3)

Suggested Technical Electives (1 or more):

CHE 3900 Undergraduate Research (up to 6 credits)
CHE 4170 Polymeric Materials Synthesis (3)
CHE 4190 Polymeric Materials: Characterization & Properties (3)
BIOL 3050 Genetics (4)
BIOL 3600 Cell Biology (3)
MOLB 3000 Intro to Molecular Biology (3)
MOLB 3610 Principles of Biochemistry (4)
MOLB 4600 General Biochemistry I (3)
MOLB 4610 General Biochemistry II (3)
PHCY 4470 Fundamentals of Pharmacology (4)
PHCY 6110 Medicinal and Natural Products Chemistry (3)

Pre-medicine Sequence for the Biological Engineering Option *(satisfies pre-med requirements*

MOLB 2021 (4) General Microbiology (4)
MOLB 3610 (4); Alternative: [MOLB 4600 (3) and MOLB 4610 (3)]
BIOL 3050 Genetics (4)
BIOL 3600 Cell Biology (3)
CHE 4160 Biomedical Engineering (3)
CHE 4100 not required for pre-med students