Five Year BS/MS Program in CBE

1st YEAR	Session	Course	Chemical Engineering	SH	Pre-Requisite or /Co-Requisite
1st Semester	All	MATH:1550	Engineering Math I – Single Variable Calculus	4	P: H.S. Algebra & Trigonometry
	F	ENGR:1100	Engineering Problem Solving I	3	
	All	CHEM:1110	Principles of Chemistry I	4	
	All	RHET:1030	Accelerated Rhetoric	4	
	F	ENGR:1000	First-year Engineering Seminar	0	
			Total	**15**	
2nd Semester	All	MATH:1560	Engineering Math II – Multivariable Calculus	4	P: MATH:1550
	S	ENGR:1300	Engineering Problem Solving II	3	C: MATH:1550
	F/S	PHYS:1611	Introductory Physics I	4	C: MATH:1550
	All	MATH:2550	Engineering Math III – Matrix Algebra	2	C: MATH:1560
	All	CHEM:1120	Principles of Chemistry II	4	P: CHEM:1110
	S	CBE:1000	CBE Departmental Seminar	0	
2nd YEAR			**Total**	**17**	**(1-year total = 32)**
3rd Semester	All	MATH:2560	Engineering Math IV – Differential Equations	3	P: MATH:2550
	All		General Education Component #1	3	
	All	ENGR:2110	Fundamentals of Engineering I – Statics	2	P: MATH:1550; C: PHYS:1611
	All	ENGR:2120	Engineering Fundamentals II – Electrical Circuits	3	C: MATH:2560
	All	ENGR:2130	Engineering Fundamentals III – Thermodynamics	3	P: MATH:1550; CHEM:1110; C: PHYS:1611
	F	CBE:2105	Process Calculations	3	P: MATH:1550
			Total	**17**	
4th Semester	S	CBE:3105	ChE Thermodynamics	3	P: ENGR:2130; C: CBE:2105
	S	CBE:3110	Engineering Flow and Heat Exchange	3	C: CBE:2105
	All	CHEM:2210	Organic Chemistry I	3	P: CHEM:1120
	All		General Education Component #2	3	
	All		General Education Component #3	3	
	F/S	CBE:3000	CBE Professional Seminar	0	P: CBE:2105
3rd YEAR			**Total**	**15**	**(2 year total = 64)**
5th Semester	F	CBE:3115	Mass Transfer and Separations	3	P: CBE:3105, CBE:3110
	F	CBE:3150	Thermodynamics/Transport Laboratory	3	P: CBE:3105; CBE:3110; C: CBE:3115
	All	CHEM:2220	Organic Chemistry II	3	P: CHEM:1110; C: MATH:1550
	All	CHEM:2410	Organic Chemistry Laboratory	3	P:CBE:2105
	All		Elective #1: Statistics Elective	3	
	F/S	CBE:3000	CBE Professional Seminar	0	P: CBE:2105
			Total	**15**	
6th Semester	S	CBE:3120	Chemical Reaction Engineering	3	P: CBE:3115
	S	CBE:3155	Chemical Reaction Engineering/Separation Lab.	2	P: CBE:3115; CBE:3150; C: CBE:3120
	S	CBE:3125	Chemical Process Safety	3	P: CBE:3110; CBE:3115; C: CBE:3120
	All		Elective #2: Additional Elective	3	
	All		Elective #3: Additional Elective	3	
	All		General Education Component #4	3	
	F/S	CBE:3000	CBE Professional Seminar	0	P: CBE:2105
4th YEAR			**Total**	**17**	**(3 year total = 96)**
7th Semester	F	CBE:4105	Process Dynamics & Control	3	P: CBE:3120
	F		Advanced Chemical Science Elective #1	3	
	F	CBE:4109	Chemical Engineering Process Design I	2	P: CBE:3120, CBE:3115
	F (odd)	CBE:5110	Intermediate Thermo *(CBE:5152 in even yrs)*	3	
	F	CBE:5205	Introduction to Biochemical Engineering	3	P: CBE:3120
	All	ENGR:2720	Material Sciences	3	P: CHEM:1110; C:MATH:1550
	F/S	CBE:3000	CBE Professional Seminar	0	P: CBE:2105
			Total	**17**	
8th Semester	S	CBE:4110	Chemical Engineering Process Design II	3	P: CBE:4109; R: CBE:4105, CBE:3125
	S		Advanced Chemical Science Elective #2	3	
	S		Advanced Chemical Science Elective #3: Lab	3	
	S		Elective #5: Additional Elective	3	
	All		General Education Component #5	3	
	S	CBE:4195	Enriching Activities Seminar	0	C: CBE:4110
5th YEAR			**Total**	**15**	**(4 year total = 128)**
9th Semester	F (even)	CBE:5152	Transport Phen *(CBE:5110 in odd yrs)*	3	
	All		Advanced Graduate Elective (Breadth Requirement)	3	
	All		MS Research or Adv Grad Elective	3	P: CBE:3155
			Total	**9**	
10th Semester	All	CBE:5104	Intro to Lit Review & Technical Writing	3	P: CBE:4105, CBE:3125
	S		Advanced Graduate Elective	3	
	S		MS Research or Adv Grad Elective	3	
			Total	**9**	**(4 year total = 146)**

Note: Items in red are cross credited to the BS and the MS degree.

June 2013