

# Chemical Engineering- Biochemical

1st YEAR	Session	Course	Chemical Engineering - Biochemical	SH	Pre-Requisite or/Co-Requisite	
Fall Semester	All	22M:031	Engineering Math I – Single Variable Calculus	4	P: H.S. Algebra & Trigonometry	
	F	059:005	Engineering Problem Solving I	3		
	All	004:011	Principles of Chemistry I	4		
	All	010:003	Accelerated Rhetoric (or 010:001 & 010:002)	4		
	F	052:090	First-year Engineering Seminar	0		P: First Semester Standing
<b>Total</b>				<b>15</b>		
Spring Semester	All	22M:032	Engineering Math II – Multivariable Calculus	4	P: 22M:031	
	S	059:006	Engineering Problem Solving II	3	C: 22M:031	
	F/S	029:081	Introductory Physics I	4	C: 22M:031	
	All	22M:033	Engineering Math III – Matrix Algebra	2	C: 22M:032	
	All	004:012	Principles of Chemistry II	4	P: 004:011	
	S	052:090	CBE Departmental Seminar	0		
<b>Total</b>				<b>17</b>	<b>(1-year total = 32)</b>	
2nd YEAR	Fall Semester	All	22M:034	Engineering Math IV – Differential Equations	3	P: 22M:033
		All		General Education Component #1	3	
		All	059:007	Fundamentals of Engineering I – Statics	2	P: 22M:031; C: 029:081, 22M:032
		All	059:008	Engineering Fundamentals II – Electrical Circuits	3	C: 22M:034
		All	059:009	Engineering Fundamentals III – Thermodynamics		P: 22M:032, 004:011, 029:081
		F	052:041	Process Calculations	3	P: 22M:031
<b>Total</b>				<b>17</b>		
Spring Semester	S	052:103	Chemical Engineering Thermodynamics	3	P: 052:041; 059:009	
	S	052:151	Engineering Flow and Heat Exchange	3	P: 052:041	
	All	004:121	Organic Chemistry I	3	P: 004:012	
	All		General Education Component #2	3		
	All		General Education Component #3	3		
	F/S	052:091	Professional Seminar: Chemical Engineering	0	P: 52:041, Professional Seminar	
<b>Total</b>				<b>15</b>	<b>(2 year total = 64)</b>	
3rd YEAR	Fall Semester	F	052:161	Mass Transfer and Separations	3	P: 052:103, 052:151
		F	052:171	Thermodynamics/Transport Laboratory	3	P: 052:103; 052:151; C: 052:161
		All	004:122	Organic Chemistry II	3	P: 004:121
		All	004:141	Organic Chemistry Laboratory	3	P: 004:121; C: 004:122
		All		Elective #1: Additional Elective	3	
		F/S	052:091	Professional Seminar: Chemical Engineering	0	P: 052:041, Sophomore Standing
<b>Total</b>				<b>15</b>		
Spring Semester	S	052:105	Chemical Reaction Engineering	3	P: 052:161	
	S	052:172	Chemical Reaction Engineering/Separation Lab.	2	P: 052:161; 052:171; C: 052:105	
	S	052:187	Chemical Process Safety	3	P: 052:151; 052:161; C: 052:105	
	All		Elective #2: Statistics Elective	3		
	All		Elective #3: Additional Elective	3		
	All		General Education Component #4	3		
	F/S	052:091	Professional Seminar: Chemical Engineering	0	P: 052:041, Sophomore Standing	
<b>Total</b>				<b>17</b>	<b>(3 year total = 96)</b>	
4th YEAR	Fall Semester	F	052:185	Process Dynamics & Control in Design	3	P: 052:105
		F		Advanced Chemical Science Elective #1	3	
		F	052:173	Senior Laboratory Experience	2	P: 052:172
		All	057:015	Materials Science	3	P: 004:011; C: 22M:031
		F		Elective #4: Biochemical Engineering Elective	3	
		All		Elective #5: Additional Elective	3	
		F/S	052:091	Professional Seminar: Chemical Engineering	0	P: 052:041, Sophomore Standing
<b>Total</b>				<b>17</b>		
Spring Semester	S	052:186	Chemical Engineering Process Design	3	P: 052:185, 052:187	
	S		Advanced Chemical Science Elective #2	3		
	S		Advanced Chemical Science Elective #3: Lab	3		
	All		Elective #6: Additional Elective	3		
	All		General Education Component #5	3		
	F/S	052:092	Senior Enriching Activities Seminar	0	C: 052:186	
<b>Total</b>				<b>15</b>	<b>(4 year total = 128)</b>	