

Name:

Key:

Done
In Progress
Possible based on prerequisites

2016-2017 Biochemical Engineering Curriculum

This chart was prepared by Freshman Engineering using the 2016-2017 catalog. It is designed to assist in advising and course selection; refer to the student's catalog requirement year for official requirements and to the student's degree audit for official progress.

Prerequisites	FEP		Math	1103	Fundamentals of Algebra	Prerequisite: Entrance requirements.	3	
	FEP		Math	1120	College Algebra	Prerequisite: By placement examination.	5	
	FEP		Math	1140	College Algebra	Prerequisite: By placement examination.	3	
	FEP		Math	1160	Trigonometry	Prerequisite: Math 1120 or 1140 with a grade of "C" or better; or by placement exam.	2	
Semester 1	FEP		Fr Eng	1100	Study & Careers in Engineering		1	
	FEP		Chem	1310	General Chemistry I	Prerequisite: Entrance requirements.	4	
	FEP		Chem	1319	General Chemistry Laboratory	Prerequisite: Preceded or accompanied by both Chem 1310 and Chem 1100.	1	
	FEP	<i>Hum/Soc Sci Requirement-English</i>	English	1120	Exposition and Argumentation		3	
	FEP	<i>Hum/Soc Sci Elective - History</i>	History/Pol Sci	one of these	1. History 1200 Modern Western Civilization 2. History 1300 American History to 1877 3. History 1310 American History Since 1877 4. Pol Sci 1200 American Government		3	
	FEP		Math	1214	Calculus for Engineers I	Prerequisites: A grade of "C" or better in both Math 1160 and one of Math 1120 or Math 1140; or by placement exam.	4	
	FEP		Chem	1100	Introduction to Laboratory Safety & Hazardous Materials		1	

Semester 2	FEP		Mech Eng	1720	Introduction to Engineering Design		3	
		<i>Comp Sci Elective - Lecture</i>	various	one of these	1. Chem Eng 1100 Computers and Chemical Engineering 2. Comp Sci 1970 Basic Scientific Programming 3. Comp Sci 1971 Introduction to Programming Methodology	1. Prerequisite: Entrance requirements. 3.	2	
		<i>Comp Sci Elective - Lab</i>	various	one of these	1. Chem Eng 1100 Computers and Chemical Engineering 2. Comp Sci 1980 Computer Programming Laboratory 3. Comp Sci 1981 Programming Methodology Laboratory	1. Prerequisite: Accompanied by Comp Sci 1970. 3. Prerequisite: Accompanied by Computer Science 1971.	1	
			Chem	1320	General Chemistry II	Prerequisites: Chem 1310 with a grade of "C" or better and Chem 1319.	3	
	FEP		Math	1215	Calculus for Engineers II	Prerequisites: Math 1160 and either Math 1208 or Math 1214 both with a grade of "C" or better; or by placement exam.	4	
	FEP		Physics	1135	Engineering Physics I	Prerequisite: Math 1208 or 1214.	4	
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Semester 3			Chem Eng	2100	Chemical Engineering Material & Energy Balances	Prerequisites: Chem 1320; Math 1215 (or 1221); preceded or accompanied by Phys 1135.	3	
			Chem	2210	Organic Chemistry I	Prerequisites: Chem 1310, 1319, 1320; or Chem 1351.	4	
			Math	2222	Calculus with Analytic Geometry III	Prerequisites: Math 1215 or Math 1221 with a grade of "C" or better.	4	
			Physics	2135	Engineering Physics II	Prerequisites: Physics 1135 or Physics 1111, Math 1221 or Math 1215.	4	
			Chem Eng	2300	Chemical Process Materials	Prerequisites: Physics 1135.	3	
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Semester 4			Chem Eng	2110	Chemical Engineering Thermodynamics I	Prerequisites: Preceded by Math 2222; Preceded or accompanied by Chem Eng 2100.	3	
			Stat	3113	Applied Engineering Statistics	Prerequisite: Math 1215 or 1221 with a grade of "C" or better.	3	
			Chem Eng	2310	Professional Practice and Ethics	Prerequisite: At least sophomore standing.	1	
		<i>Science Elective</i>	various	one of these	A minimum of 12 credit hours in Science Electives are required. Select three courses from Chem 2220, Chem 4610, Chem 4620, BioSci 2213, BioSci 3313, and BioSci 4323; and a minimum of two laboratory courses from Chem 2229 or Chem 2289, Chem 4619, BioSci 2219, BioSci 3319, and BioSci 4329.	Prerequisites vary.	4	

		Math	3304	Elementary Differential Equations	Prerequisite: Math 2222 with a grade of "C" or better.	3	
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Semester 5		Chem Eng	3120	Chemical Engineering Thermodynamics II	Prerequisites: Grade of "C" or better in Chem Eng 2100 and Chem Eng 2110; Chem Eng majors only.	3	
		Chem Eng	3101	Fundamentals of Transport in Chemical and Biochemical Engineering	Prerequisites: Math 3304 and Chem Eng 2110. Admitted to the Chemical Engineering Program.	4	
		<i>Hum/Soc Sci Elective</i>	various	one of these	(FEP) Course chosen from the <i>Approved List of Humanities and Social Science Courses for Engineering Degrees</i> at ugs.mst.edu .	3	
		<i>Science Elective</i>	various	one of these	A minimum of 12 credit hours in Science Electives are required. Select three courses from Chem 2220, Chem 4610, Chem 4620, BioSci 2213, BioSci 3313, and BioSci 4323; and a minimum of two laboratory courses from Chem 2229 or Chem 2289, Chem 4619, BioSci 2219, BioSci 3319, and BioSci 4329.	4	
		Chem Eng	3111	Numerical Computing in Chemical and Biochemical Engineering	Prerequisites: Math 3304 and both Comp Sci 1971 and Comp Sci 1981. Admitted to the Chemical Engineering Program.	3	

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Semester 6	FEP	<i>Hum/Soc Sci Elective - Econ</i>	Econ	one of these	1. Econ 1100 Principles of Microeconomics 2. Econ 1200 Principles of Macroeconomics	3		
		<i>Science Elective</i>	various	one of these	A minimum of 12 credit hours in Science Electives are required. Select three courses from Chem 2220, Chem 4610, Chem 4620, BioSci 2213, BioSci 3313, and BioSci 4323; and a minimum of two laboratory courses from Chem 2229 or Chem 2289, Chem 4619, BioSci 2219, BioSci 3319, and BioSci 4329.	4		
			Chem Eng	3141	Process Operations in Chemical and Biochemical Engineering	Prerequisites: Chem Eng 3101 and Chem Eng 3120. Admitted to the Chemical Engineering Program	2	
			Chem Eng	3131	Separations in Chemical and Biochemical Engineering	Prerequisites: Chem Eng 3101 and Chem Eng 3120. Admitted to the Chemical Engineering Program.	3	
		<i>Hum/Soc Sci Elective - English</i>	English	one of these	1. English 1160 Writing and Research 2. English 3560 Technical Writing	1. English 1120. 2. English 1120 and second-semester junior standing.	3	
			Chem Eng	3150	Chemical Engineering Reactor Design	Prerequisites: Preceded or accompanied by either Chem Eng 3140 or Chem Eng 3200 or preceded by both Chem Eng 3111 and Chem Eng 3101. Admitted to Chem Eng program.	3	

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Semester 7		Chem Eng	4110	Chemical Engineering Process Dynamics and Control	Generally offered fall semester only. Prerequisites: Preceded or accompanied by any one of Chem Eng 4100 or Chem Eng 4130 or Chem Eng 4200; or preceded by Chem Eng 3150, Chem Eng 3131 and Chem Eng 3141; or preceded by Chem Eng 3150 and preceded or accompanied by Chem Eng 5250.	3	
		<i>Hum/Soc Sci Elective - Upper Level</i>	various	one of these	<i>(FEP) Course, chosen from the Approved List of Humanities and Social Science Courses for Engineering Degrees at ugs.mst.edu, at the 2000-level or above which requires as a prerequisite the successful completion of a lower level humanities or social sciences course. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 level.</i>	3	
		Chem Eng	4091	Process Design I	Prerequisites: Either (Chem Eng 3150, Chem Eng 3131 and Chem Eng 3141) or (Chem Eng 3150 and preceded or accompanied by Chem Eng 5250).	3	
		Chem Eng	4220	Biochemical Reactor Laboratory	Prerequisites: Chem Eng 3200 and preceded or accompanied by either Chem Eng 4210 or Chem Eng 5250.	3	
		Chem Eng	5250	Isolation and Purification of Biologicals	Prerequisites: Chem Eng 3131 and Chem Eng 3141.	3	

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Semester 8		Chem Eng	4210	Biochemical Reactors	Prerequisites: Chem Eng 3150 or graduate standing.	3	
		Chem Eng	4097	Chemical Process Design	Prerequisites: Chem Eng 3130 and Chem Eng 3150; preceded or accompanied by Chem Eng 4110 and either Chem Eng 4096 or Chem Eng 4091.	3	
		<i>Hum/Soc Sci Elective</i>	various	one of these	<i>(FEP) Course chosen from the Approved List of Humanities and Social Science Courses for Engineering Degrees at ugs.mst.edu.</i>	3	
		Chem Eng	4201	Biochemical Separations and Control Laboratory	Prerequisites: Chem Eng 5250.	3	
		Chem Eng	4241	Process Safety in the Chemical and Biochemical Industries	Prerequisites: Preceded or accompanied by Chem Eng 4210.	3	

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Total = 131