BS in Chemical Engineering with Emphasis in Biochemical

Degree Program Description

The biochemical emphasis builds on the core Chemical Engineering curriculum (http://catalog.missouri.edu/collegeofengineering/chemicalengineering/bs-chemical-engineering/) to create expertise in chemical reactions associated with biological processes. Students achieving this emphasis area will be exposed to basic concepts of living systems, metabolism, biological polymers, hormones, and basic genetics through courses in biology and biochemistry, as well as biomass, enzyme, yeast, and other biochemical processes, including the associated industrial operations. Students completing this emphasis will be well-poised for careers in biomedical engineering, human or veterinary medicine, pharmaceuticals, and agricultural/food engineering. Students will also be in a strong position to pursue graduate degrees in biological or biomedical engineering, dentistry, or human or veterinary medicine.

Major Program Requirements

Students must complete all BSChE requirements (http://catalog.missouri.edu/collegeofengineering/chemicalengineering/bs-chemical-engineering/), including the emphasis area requirements below.

Emphasis Area Requirements		
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIOCHM 4270	Biochemistry (I) *	3
BIOCHM 4272	Biochemistry (II)	3
Two courses from the following list		
CH_ENG 4315	Principles of Biochemical Engineering	
CH_ENG 4316	Biomass Refinery Operations	
CH_ENG 4160	Food Process Engineering	
CH_ENG 4360	Biomanufacturing Technologies	

* Satisfies the chemistry elective

Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year					
Fall	**CR**		**Spring**	**CR**	
MATH 1500	5		MATH 1700	5	
CHEM 1320	4		CHEM 1330	4	
CH_ENG 1000	2		PHYSCS 2750	5	
ENGLSH 1000	3		CH_ENG 2225	3	
Approved history/poli. sci. elective	3				
	17				**17**
Second Year					
Fall	**CR**		**Spring**	**CR**	
MATH 2300	3		MATH 4100	3	
CHEM 2100	3		CHEM 2110	3	
PHYSCS 2760	5		CHEM 2130	2	
CH_ENG 2226	3		CH_ENG 3262	3	
CH_ENG 3261	3		Humanities or social/behavioral sciences	3	
	17				**14**
Third Year					
Fall	**CR**		**Spring**	**CR**	
STAT 4710	3		CH_ENG 3234	3	
CH_ENG 3233	3		CH_ENG 4370	3	
CH_ENG 3235	3		BIOCHM 4272	3	
BIO_SC 1500	5		Economics elective	3	
BIOCHM 4270	3		Humanities or social/behavioral sciences	3	
	17				**15**
Fourth Year					
Fall	**CR**		**Spring**	**CR**	
CH_ENG 3243	3		CH_ENG 4315	3	
CH_ENG 4360	3		CH_ENG 4980	3	
CH_ENG 4363	3		Chemical engineering elective	3	
CH_ENG 4385	3		Engineering technical elective	3	
Humanities or social/behavioral sciences	3		Humanities or social/behavioral sciences	3	
	15				**15**

Total Credits: 127