

BSChBE (Biotechnology Option)

The suggested program for the BSChBE Biotechnology Option is below. This program retains the entire core of chemical engineering courses from the Standard Program. However, it requires a different set of chemistry courses, and uses the technical and chemical engineering elective courses from the Standard Program to provide background in biology, and instruction in bioprocess engineering. The chart below summarizes the differences between the two programs of study.

<u>Course-Biotechnology Option</u>	<u>Semester Hours</u>	<u>Course</u>	<u>Adjustment. to Standard Program</u>
Biochemistry I	3	CHEM 4511	-3 Chemistry Elective
Biochemistry II	3	CHEM 4512	-3 PChem II
Cell Biology	3	BIOL 3340	-3 Tech Electives
Bioprocessing	3	ChBE 4310	-3 ChBE Elective
Eng. Materials (Bio Section)	3	MSE 2001	-3 MSE Eng. Matls
Bio-UOp Lab	3	ChBE 4210	-3 Substitute UOp Lab
Bioprocess Design/Econ. Elective, See List	3	ChBE 4525 Biotech Elective	-3 Substitute ProDesign/Econ -3 Tech Elective
Total Semester Hours	24		-24

Program of Study

Biotechnology Option for the BSChBE

Year/Sem	Course ID	Course Name	Sem Hrs	Total Sem Hrs	Cum Total Hrs
1/Fall	CHEM 1310	General Chemistry	4		
	MATH 1501	Calculus I	4		
	ENGL 1101	English Comp I	3		
	BIOL 1510	Biological Principles	4		
	HPS 1040/1062		2	17	17
1/Spring	CHEM 1311	Inorganic Chem I	3		
	CHEM 1312	Inorganic Chem Lab	1		
	MATH 1502	Calculus II	4		
	PHYS 2211	Physics I	4		
	CS 1371	Computing for Engineers	3		
	ENGL 1102	English Comp II	3	18	35
2/Fall	ChBE 2100	Chem Proc Principles	3		
	CHEM 2311	Organic Chem I	3		
	MATH 2401	Calculus III	4		
	PHYS 2212	Physics II	4		
	HIST/GOV	Required Soc Sci	3	17	52
2/Spring	ChBE 2110	ChE Thermodynamics I	3		
	ChBE 2120	Comp. Methods in ChE	3		
	CHEM 2312	Organic Chem II	3		
	SS ELECT		3		
	MATH 2403	Differential Eqns	4	16	68

3/Fall	ChBE 3110	ChE Thermodynamics II	3		
	ChBE 3200	Transport Processes I	3		
	CHEM 2380	Synthesis Lab I	2		
	MSE 2001 (Bio Section)	Engineering Biomaterials	3		
	CHEM 4511	Biochemistry I	3		
	SS ELECT		3	17	85
3/Spring	ChBE 3210	Transport Processes II	3		
	ChBE 4300	Kinetics & Reactor Design	3		
	ECON 2100	Economics & Policy	3		
	BIOL 3340	Cell Biology	3		
	CHEM 4512	Biochemistry II	3	15	100
4/Fall	ChBE 3225	Separation Processes	3		
	ChBE 4400	Process Control	4		
	ChBE 4515	Process Safety	1		
	ChBE 4310	Bioprocess Engineering	3		
	HUM ELECT		3		
	FREE ELECT		3	17	117
4/Spring	ChBE 4210	BioTrans Phen/Unit Ops Lab	3		
	ChBE 4525	Bioprocess Design & Economics	3		
	BIOTECH ELECT	Select from limited list	3		
	HUM ELECT		3		
	FREE ELECT		3	15	132

Biotechnology Electives are: ChBE 2699/4699 Undergrad Research in ChBE., ChBE 4803 Special Topics in Biocatalysis, ChBE 6794 Tissue Engineering, ChBE 4757 Biofluid Mechanics, BIOL 3380 Microbiology, BIOL 4469 Molecular Biology, BIOL 4478 Biophysics, CS4710 Bioinformatics, MATH 4755 Mathematical Biology.