BS in Biochemistry and Biotechnology

Degree Requirements

Bachelor of Science in Biochemistry and Biotechnology

General Education Requirements

Students must satisfy the university and college general education requirements. Some math or science courses required for the major may be used to meet the science and mathematics requirement of the university. There is no foreign language requirement for the degree.

All Biochemistry & Biotechnology majors are required to take a capstone seminar (either CHEM 4797 or BIOL 4797) during the semester in which they plan to graduate (the winter semester for students graduating in the summer). Students may not receive credit for both CHEM 4797 and BIOL 4797).

Satisfactory/Unsatisfactory Option

Up to 18 credit hours may be taken on a satisfactory /unsatisfactory (s/u). Excluded from this option are required courses in biology, chemistry, physics, and mathematics.

Non-major Biology or Chemistry courses

Courses in Biology with a number less than 1800 and courses in Chemistry with a number less than 1100 do not count toward the credit hours required for a major in biochemistry and biotechnology.

Research for Credit

A maximum of 3 credit hours from any combination of BIOL 4905 and CHEM 3905 may be applied toward the Biochemistry & Biotechnology program.

Transfer of Credit from Saint Louis Community Colleges

Students transferring BIO 219 and BIO 220 from Saint Louis Community Colleges will not have to complete BIOL 4614. However, they will have to take an additional 3 credit hours of Biochemistry and Biotechnology Elective coursework.

Biology Core Courses		
BIOL 1831	Introductory Biology: From Molecules To Organisms	5
BIOL 2012	Genetics	3
BIOL 2013	Genetics Laboratory	2
BIOL 2482	Microbiology	3
BIOL 2483	Microbiology Laboratory	2
BIOL 3622	Cell Biology	3
Chemistry Core Courses		
CHEM 1111	Introductory Chemistry I	5
CHEM 1121	Introductory Chemistry II	5
CHEM 2223	Quantitative Analysis	3
CHEM 2612	Organic Chemistry I	3
CHEM 2622	Organic Chemistry II	3
CHEM 2633	Organic Chemistry Laboratory	2
CHEM 3302	Physical Chemistry For The Life Sciences	3
Math and Physics Core Courses		
MATH 1030	College Algebra	3
MATH 1035	Trigonometry	2
MATH 1100	Basic Calculus	3
or MATH 1800	Analytic Geometry And Calculus I	
PHYSICS 1011	Basic Physics I	4
PHYSICS 1012	Basic Physics II	4
Biochemistry and Biotechnology Core Courses		
BIOL 4602	Molecular Biology (if both courses are taken, one can be used as an elective)	3

or BIOL 4612	Molecular Genetics Of Bacteria	
BIOL 4614	Biotechnology Laboratory I (if both courses are taken , one can be used as an elective)	4
or BIOL 4615	Biotechnology Laboratory II	
BIOL/CHEM	Biochemistry	3
CHEM 4733	Biochemistry Laboratory	2
CHEM 4722	Advanced Biochemistry	3
BIOL 4797	Biochemistry and Biotechnology Seminar (Students may not receive credit for both BIOL 4797 and CHEM 4797)	1
or CHEM 4797	Biochemistry and Biotechnology Seminar	
Biochemistry and Biotechnology Elective Courses		
Select two of the following:		6
BIOL 4550	Bacterial Pathogenesis	
BIOL 4602	Molecular Biology	
BIOL 4612	Molecular Genetics Of Bacteria	
BIOL 4614	Biotechnology Laboratory I	
BIOL 4615	Biotechnology Laboratory II	
BIOL 4622	Cellular Basis of Disease	
BIOL 4632	Nucleic Acid Structure And Function	
BIOL 4642	Plant Molecular Biology and Genetic Engineering	
BIOL 4652	Virology	
BIOL 4842	Immunobiology	
BIOL 4905	Research (up to 3 credit hours)	
BIOL 4920	Selected Topics in Biology (when relevant)	
CHEM 3643	Advanced Organic Chemistry Laboratory	
CHEM 3905	Chemical Research	

CHEM 4772	Physical Biochemistry	
Total Hours		**80**

Electives

Recommendations include basic statistics (MATH 1310 or MATH 1320), computer science, public speaking (COMM 1040), foreign language, ethics, and undergraduate research.

Sign-offs from other departments affected by this proposal

Department	Contact Person	Phone #	Objections
S002850	Wendy Olivas	x4241	No
S003000	Chris Spilling	x5437	No

Rationale	Research: The original intention was that a student could apply up to three credit hours of research toward the BS requirement, but the original language permitted up to 6 hours. The edit is more precise and consistent with our intent. Transfer: This new statement states our current practice regarding biotechnology lab courses taken at Saint Louis Community College with respect to BIOL 4614.