

MAJOR IN BIOTECHNOLOGY, CONCENTRATION IN PRE-MEDICINE

This concentration is intended for Biotechnology majors who aspire to attend medical school, dental school, or veterinary school after completing their undergraduate degree. The concentration is a means to ensure that students have the best possible academic preparation and advising as they prepare for these post-graduate programs. The Pre-Medical Concentration requirements include courses that are not part of the Biotechnology major but are designated as core prerequisites for these professional schools, as well as some additional courses that are not part of the core prerequisites but are strongly recommended. The concentration curriculum also includes a one-credit seminar taken during the sophomore or junior year that is designed to familiarize students with the requirements for admission to medical, dental, and veterinary schools. The seminar helps students develop personal plans for fulfilling these requirements so that they have the best possible chance of admission to post-graduate study. A first-year seminar targeted at pre-medical students is offered, but not required, for completion of the concentration.

Requirements for a Major in Biotechnology, Concentration in Pre-Medicine

Requirements for a Major in Biotechnology

Code	Title	Credits
BI-141	Intro to Cellular and Molecular Biology	4
BI-204	Microbiology	4
BT-375	Tissue Culture	4
BT-376	Biotechnology	4
BT-410	Biotechnology Seminar	1
CH-120 & CH-121	General Chemistry I and General Chemistry II	8
CH-201 & CH-203	Organic Chemistry I (lecture) and Organic Chemistry Laboratory I	5
CH-210	Chemical Analysis: an Introduction to Modern Methods	5
CH-410	Biochemistry I	4
Major Electives		(8 credits)
Select 8 credits from the following electives:		8
BI-313	Histology	
BI-398	Cancer Biology	
BI-372	Immunology	
BI-371	Advanced Topics in Cell and Molecular Biology	
BI-375	Virology	
CH-350	Medicinal Chemistry	
CH-202 & CH-204	Organic Chemistry II (lecture) and Organic Chemistry Laboratory II (5)	
PY-310	Modern Physics	
CH-411	Biochemistry II	
BT-377	Fermentation Technology	
BT-378	Bioinformatics	
BT-450	Internship in Biotechnology	
CH-335	Green Chemistry	
CH-450	Computational Chemistry	
CH-455	Special Topics in Chemistry (Organometallics in Organic Synthesis)	

And certain other BI-300, CH-300 and PY-300 level courses with Biotech coordinator approval.

Ancillary courses		(26 credits)
MA-150	Statistics I	3
MA-190	Pre-calculus (may be waived)	4
MA-200	Calculus I	4
MA-201 or BI-203	Calculus II Genetics	4
Select one of the following:		3
EN-252	Technical Writing	
EN-253	Business Communications	
CS-120	Microcomputer Applications	
Select one of the following:		8
PY-221 & PY-222	General Physics I and General Physics II (8)	
PY-241 & PY-242	Physics I (Mechanics) and Physics II (Electricity, Magnetism and Optics) (8)	
Total Credits		73

Pre-Medical Concentration Requirements

In addition to the requirements of the Biotechnology major, the following are required:

Code	Title	Credits
BI-140	Introduction to Organismal Biology	4
BI-203	Genetics	4
BI-211	Pre-Medical Seminar: Preparing for a Career in Medicine	1
CH-202	Organic Chemistry II (lecture)	3
CH-204	Organic Chemistry Laboratory II	2
Total Credits		14

Sample Timeline for Completion of Degree

Year One		Credits
Semester One		
EN-101	College Writing I ¹	3
CH-120	General Chemistry I	4
MA-190	Pre-calculus ²	4
BI-140	Introduction to Organismal Biology	4
LASC	First Year Seminar (FYS)	3
Credits		18
Semester Two		
EN-102	College Writing II ¹	3
CH-121	General Chemistry II	4
MA-200	Calculus I	4
BI-141	Intro to Cellular and Molecular Biology	4
LASC	Elective (HBS) ³	3
Credits		18
Year Two		
Semester Three		
BI-204	Microbiology	4
CH-201	Organic Chemistry I (lecture)	3
CH-203	Organic Chemistry Laboratory I	2
PY-221 or PY-241	General Physics I or Physics I (Mechanics)	4

LASC	Elective (ICW) ³	3
Credits		16
Semester Four		
BI-211	Pre-Medical Seminar: Preparing for a Career in Medicine	1
PY-222 or PY-242	General Physics II or Physics II (Electricity, Magnetism and Optics)	4
CH-202	Organic Chemistry II (lecture)	3
CH-204	Organic Chemistry Laboratory II	2
MA-150	Statistics I ⁴	3
Credits		13
Year Three		
Semester Five		
CH-410	Biochemistry I	4
BI-203	Genetics	4
LASC	Elective (CON) ³	3
Select one of the following:		3
EN-252	Technical Writing	
EN-253	Business Communications	
CS-120	Microcomputer Applications	
Credits		14
Semester Six		
CH-210	Chemical Analysis: an Introduction to Modern Methods	5
BI/BT-3XX+	BI or BT Upper Level Elective	4
LASC	Elective (TLC) ³	3
LASC	Elective (USW) ³	3
Credits		15
Year Four		
Semester Seven		
BT-376	Biotechnology	4
BT-240 or BT-440	Research Experience for Undergraduates or Advanced Research Experience	1-6
BI/BT-3XX+	BI or BT Upper Level Elective	4
LASC	Elective (GP) ³	3
LASC	Elective (CA) ³	3
Credits		15-20
Semester Eight		
BT-375	Tissue Culture	4
BT-240 or BT-440	Research Experience for Undergraduates ⁵ or Advanced Research Experience	1-6
BT-410	Biotechnology Seminar	1
SELECT	Free Elective	3
SELECT	Free Elective	3
Credits		12-17
Total Credits		121-131

suggestion but serves as a reminder that LASC designated courses must be taken to satisfy the LASC requirements. A course that satisfies the LASC DAC requirement must be taken, but may also count toward one of the LASC content areas; LASC WAC and QAC requirements are satisfied within the major requirements.

⁴ MA-150 requires an Accuplacer score of 4 or higher.

⁵ BT-240 (Research Experience for Undergraduates) is recommended research experience for majors. BT-440 (Advanced Research Experience) requires completion of BI-205 (Research Techniques and Experimental Design) and counts for the "Honors in Biotechnology" program.

¹ EN-101 and EN-102 satisfies LASC writing.

² MA-190 requires Accuplacer score of 6 or higher, or pass MA-180 with a C- or higher.

³ Pre-Medical and Pre-Dental students should take either PS-101 (General Psychology) or SO-100 (Introduction to Sociology) to fulfill the LASC HBS requirement. The sequence of LASC courses marked with ³ is a