BIOLOGY MAJOR, CONCENTRATION IN PRE-MEDICINE

This concentration is intended for Biology 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-Medicine Concentration requirements include courses that are not part of the Biology 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.

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

Requirements for a Major in Biology

Code	Title	Credits
Required Biology courses		**(38 credits)**
BI-140	Introduction to Organismal Biology	4
BI-141	Intro to Cellular and Molecular Biology	4
BI-200	Human Biology (OR BI-161 AND BI-162 (Human Anatomy & Physiology I & II)	4
BI-202	Principles of Ecology	4
BI-203	Genetics	4
BI-204	Microbiology	4
BI-404	Biology Seminar	2
3 Upper Division Electives (300 or 400 level lab courses)		12
Ancillary Requirements		**(29 credits)**
MA-150	Statistics I	3
MA-190	Pre-calculus (or Higher)	4
CH-120 & CH-121	General Chemistry I and General Chemistry II	8
CH-201 & CH-202	Organic Chemistry I (lecture) and Organic Chemistry II (lecture)	6
PY-221 & PY-222	General Physics I and General Physics II	8
or PY-241 & PY-242	Physics I (Mechanics) and Physics II (Electricity, Magnetism and Optics)	
Total Credits		**67**

Students who also complete CH-203 and CH-204, and 3 additional credits in 200-level or higher chemistry courses can earn a chemistry minor.

Biology Upper-Level Electives

Code	Title	Credits
Cellular & Molecular Pathways		
BI-303	Parasitology	4
BI-306	Developmental Biology	4
BI-315	Comparative Neurobiology	4
BI-324	Endocrinology	4
BI-341	Mycology	4
BI-342	Plant Physiology	4
BI-354	Systematics and Evolution	4
BI-371	Advanced Topics in Cell and Molecular Biology	4
BI-372	Immunology	4
BI-375	Virology	4
BI-398	Cancer Biology	4
BT-375	Tissue Culture	4
BT-376	Biotechnology	4
BT-378	Bioinformatics	4
BI-410	Biochemistry I	4
BI-411	Biochemistry II	4

Code	Title	Credits
Organismal & Ecological Systems		
BI-301	Topics in Invertebrate Zoology	4
BI-303	Parasitology	4
BI-304	Comparative Vertebrate Anatomy	4
BI-306	Developmental Biology	4
BI-307	Human Movement and Perception	4
BI-315	Comparative Neurobiology	4
BI-321	Comparative Physiology	4
BI-324	Endocrinology	4
BI-331	Marine Biology	4
BI-333	Topics in Vertebrate Zoology	4
BI-334	Wildlife Biology	4
BI-340	Plant Sciences	4
BI-341	Mycology	4
BI-342	Plant Physiology	4
BI-354	Systematics and Evolution	4
BI-360	Animal Behavior	4
BI-370	Lakes & Environmental Change,Darwinian Revolution	4, 3
BI-380	Biodiversity and Conservation Biology	4
BI-430	Field Biology for Majors	4

(Note: Pre-med and graduate school candidates should also take CH-203 & CH-204 in addition to CH-201 and CH-202)

A minimum of three upper division laboratory courses (BI 300- or BI 400-level) are to be selected. Students must take at least one course from each category. Additional upper level elective courses or graduate research/internships are strongly encouraged. The courses should be selected with the advice and consent of the faculty advisor. A grade point average of 2.0 must be maintained in biology courses and in the ancillary science and mathematics courses. Students considering graduate and professional work should take, as a recommended minimum, calculus and introduction to computer science.

Pre-Medical Concentration Requirements

Code	Title	Credits
MA-200	Calculus I	4
CH-203	Organic Chemistry Laboratory I	2
CH-204	Organic Chemistry Laboratory II	2
CH-410	Biochemistry I	4

BI-211	Pre-Medical Seminar: Preparing for a Career in Medicine	1
Total Credits		**13**

Note: Only Biology majors will be eligible for this concentration. The 13 credits specified for the concentration include the courses required for the concentration that are not required for the Biology major. Students will still have to complete all of the credits required for the major as well.

Sample Timeline for Completion of Degree

Year One		
Semester One		**Credits**
BI-140	Introduction to Organismal Biology	4
CH-120	General Chemistry I	4
EN-101	College Writing I [2]	3
MA-190	Pre-calculus [3]	4
LASC	First Year Seminar (FYS)	3
	Credits	**18**
Semester Two		
BI-141	Intro to Cellular and Molecular Biology	4
CH-121	General Chemistry II	4
EN-102	College Writing II [2]	3
MA-200	Calculus I	4
LASC	Elective (HBS) [4]	3
	Credits	**18**
Year Two		
Semester Three		
BI-204	Microbiology [6]	4
CH-201	Organic Chemistry I (lecture)	3
CH-203	Organic Chemistry Laboratory I	2
PY-221 or PY-241	General Physics I [7,8] or Physics I (Mechanics)	4
MA-150	Statistics I	3
	Credits	**16**
Semester Four		
BI-203	Genetics [6]	4
CH-202	Organic Chemistry II (lecture)	3
CH-204	Organic Chemistry Laboratory II	2
PY-222 or PY-242	General Physics II [7,8] or Physics II (Electricity, Magnetism and Optics)	4
LASC	Elective (ICW) [5]	3
BI-211	Pre-Medical Seminar: Preparing for a Career in Medicine	1
	Credits	**17**
Year Three		
Semester Five		
BI-200	Human Biology [6,8]	4
CH-410	Biochemistry I [9]	4
LASC	Elective (CON)	3
LASC	Elective (TLC)	3
	Credits	**14**
Semester Six		
BI-202	Principles of Ecology [6]	4
BI-3XX+	300 or 400 Major Elective	4
LASC	Elective (USW) [5]	3
LASC	Elective (GP)	3
	Credits	**14**
Year Four		
Semester Seven		
BI-3XX+	300 or 400 Major Elective Lab	4
LASC	Elective (CA) [5]	3
SELECT	Additional Science or Math	3-4
SELECT	General Elective	3
	Credits	**13-14**
Semester Eight		
BI-404	Biology Seminar [10]	2
SELECT	Additional Science or Math	4
SELECT	General Elective	3
SELECT	General Elective	3
	Credits	**12**
	Total Credits	**122-123**

1 This timeline should be followed by all students who intend to enter medical/dental/vet school the fall after graduation. Many students take a least a year between completion of their undergraduate degree and entry into one of these programs. In this case, the two physics courses can be taken in Year 3 instead of Year 2.

2 EN-101 and EN-102 satisfy LASC Writing.

3 MA-190 requires an Accuplacer score of 6 or higher.

4 Pre-medical and pre-dental students should take either PY-101 (General Psychology) or SO-100 (Introduction to Sociology) to fulfill the HBS LASC requirement.

5 After the HBS course, other LASC courses can be taken in any order, but the listed serves as a reminder that LASC designated courses must be taken to satisfy each of the LASC requirements. Biology major courses satisfy the WAC and QAC categories. A DAC course must be taken outside of the major but can also count for a LASC content area.

6 This sequence of 200-level Biology core courses is suggested, but can be taken in any order.

7 Physics Requirements: PY-221 & PY-222 OR PY-241 & PY-242 satisfies LASC NSP.

8 BI-161/BI-162 cannot substitute for BI-200.

9 CH-410 counts as one of the 300/400-level Biology electives in the Cell and Molecular category.

10 All biology core courses must be completed before taking BI-404 (BI-140, BI-141,BI-200, BI-202, BI-203, BI-204).