

Biology Curriculum Checklist

Fall 2017 – Spring 2018

<u>Completed</u>	<u>Course Number & Title</u>	<u>Credits</u>
<input type="checkbox"/>	BIOL 2000 Molecules & Cells (fall/spring)	3
<input type="checkbox"/>	BIOL 2010 Ecology & Evolution (fall/spring) <i>NOTE: there is no AP substitution for BIOL 2010 (Ecology & Evolution)</i>	3
<input type="checkbox"/>	BIOL 2040 Investigations in Molecular Cell Biology Lab (fall/spring) <i>NOTE: Taken after BIOL 2000</i>	3
<input type="checkbox"/>	Category A: Genes & Genomes <i>One from the following:</i> <ul style="list-style-type: none"> • BIOL 3150 Introduction to Genomics (fall/spring) • BIOL 3190 Genetics & Genomics (fall/spring) 	4
<input type="checkbox"/>	Category B: Organismal & Systems Biology <i>One from the following:</i> <ul style="list-style-type: none"> • BIOL 3030 Introduction to Physiology (fall/spring) • BIOL 3210 Plant Biology (spring) • BIOL 4320 Developmental Biology (fall) • BIOL 4340 Human Physiology with Lab (fall/spring) – 4 credits • BIOL 4590 Introduction to Neuroscience (fall) 	3-4
<input type="checkbox"/>	One Advanced Experience Course (see listing on reverse side) <i>NOTE: Undergraduate Research can also be used to satisfy the Advanced Experience requirement if the student completes two semesters. Regardless, at least two semesters must be completed to have a maximum of 3 credits applied towards the Biology major, although additional credits can be applied to the overall credits required to graduate.</i>	2-3
<input type="checkbox"/>	Additional Biology Electives (numbered 3000 and above – see listing on reverse) <i>Biology Majors are encouraged to take more electives than the required number for graduation.</i>	
	BS Majors – Total of 30 credits for all biology courses.	_____
	BA Majors – Total of 33 credits for all biology courses (9 credits can be from BA Elective List)	_____

Biology courses are 3 credits unless otherwise noted.

CO-REQUISITES

BS MAJORS

Chemistry (15-16 credits)

- General Chemistry 1 & 2 with Labs (CHEM 1109-1110; 1111-1112)
- Organic Chemistry 1 with Lab (CHEM 2231-2232)
- Organic Chemistry 2 with Lab (CHEM 2233-2234) or Biological Chemistry (BIOL 4350) or Biochemistry 1 (CHEM 4461)

NOTE: Biochemistry courses (BIOL 4350 or CHEM 4461) used to replace Organic Chemistry 2 cannot be applied as a biology elective.

Quantitative (4 course equivalents; 6-18 credits)

- Calculus 1 (MATH 1100) or AP or equivalent
- Calculus 2 (MATH 1101) or AP or Biostatistics (BIOL 2300 or ECON 1151)
- TWO Additional Courses from this list:
 - Intro Physics 1 (calculus-based) with Lab (PHYS 2100)
 - Intro Physics 2 (calculus-based) with Lab (PHYS 2101)
 - Biostatistics (BIOL 2300) or Statistics (ECON 1151; MATH 3353)
 - Computer Science 1 (CSCI 1101)
 - Computer Science 2 (CSCI 1102)
 - Calculus 2 (MATH 1101)
 - MATH courses numbered 2000 or higher

NOTE: Biology BS majors who are in the pre-med program should take Physics 1&2 with labs and consider adding statistics.

BA MAJORS

Chemistry (8 credits)

- General Chemistry 1 & 2 with Labs (CHEM 1109-1110; 1111-1112)

Quantitative (credits depend on math background)

- Calculus 1 (MATH 1100) or AP credit

Calculus Placement & Sequencing Notes

Calculus 1 requirement is satisfied by MATH 1100 or an AP score of 4 or 5 on the AB exam.

Calculus 1 & 2 can be satisfied by completing MATH 1101 or an AP score of 4 or 5 on the BC exam.

Calculus 1 & 2 can be taken concurrently with Physics 1 & 2. Biology majors typically begin and/or complete calculus during freshman year.

BIOLOGY ELECTIVES

Biology Electives are 3 credits each unless otherwise noted.

<i>Fall</i>	<i>Spring</i>
<p>Introduction to Physiology (BIOL 3030) Cell Biology (BIOL 3040) Introduction to Genomics (BIOL 3150) – 4 credits Genetics & Genomics (BIOL 3190) – 4 credits Human Anatomy with Lab (BIOL 4260) – 4 credits Human Physiology with Lab (BIOL 4340) – 4 credits Developmental Biology (BIOL 4320) Biological Chemistry (BIOL 4350) Molecular & Cell Physiology of Exercise (BIOL 4520) Introduction to Neuroscience (BIOL 4590) Biochemistry 1 (CHEM 4461) Behavioral Neuroscience (PSYC 2285)* Human Metabolism/Dis & Entrepreneurship (CHEM 5511)</p>	<p>Introduction to Physiology (BIOL 3030) Cell Biology (BIOL 3040) Introduction to Genomics (BIOL 3150) – 4 credits Genetics & Genomics (BIOL 3190) – 4 credits Plant Biology (BIOL 3210) Microbiology (BIOL 4140) – 4 credits if taken with BIOL 4150 Lab Introduction to Bioinformatics (BIOL 4200) Human Anatomy with Lab (BIOL 4260) – 4 credits Human Physiology with Lab (BIOL 4340) – 4 credits Biological Chemistry (BIOL 4350) Behavioral Ecology (BIOL 4450) Molecular Biology (BIOL 4400) Cancer Biology (BIOL 4510) Principles of Immunology (BIOL 4570) Biochemistry 2 (CHEM 4462) Behavioral Neuroscience (PSYC 2285)* Introduction to Paleobiology (EESC 3330)* Introduction to Computational Chemistry (CHEM 5522)</p>

***Only two of these electives outside the department may be counted toward the Biology B.S. major.**

ADVANCED EXPERIENCE COURSES

<i>Fall</i>	<i>Spring</i>
<p>Seminars (3 credits) Genetics in Contemporary Society (BIOL 4041) Vaccine Development & Public Health (BIOL 5150) Inflammation in Health & Disease (BIOL 5160) Virus Infections & Cellular Transport (BIOL 5330) Literature for Neurological Diseases (BIOL 5370) Cancer as a Metabolic Disease (BIOL 5420) Biology of the Nucleus (BIOL 5700)</p>	<p>Seminars (3 credits) Recombinant DNA Technology (BIOL 5060) Microbial Community Ecology (BIOL 5071)—2 credits Environmental Disruptors of Development (BIOL 5130) Immunity & Infectious Disease (BIOL 5230) Literature for Neurological Diseases (BIOL 5370) Topics in Biomechanics (BIOL 5380) Cancer as a Metabolic Disease (BIOL 5420) Genomics and Personalized Medicine (BIOL5430) Synthetic Biology (BIOL 5440)—2 credits Topics in Microbial Pathogens (BIOL5460) DNA Viruses and Cancer (BIOL 5630)</p>
<p>Advanced Labs (3 credits) Research in Evolutionary Genomics (BIOL 4802) Research in Molecular Microbiology Lab (BIOL 4810) Research in Molecular Biology Lab (BIOL 4830) Investigations in Cellular Re-Programming (BIOL4890) Advanced Lab in Cell Imaging (BIOL 5450)—2 credits</p>	<p>Advanced Labs (3 credits) Research in Molecular Biology Lab (BIOL 4830) Research in Molecular Genetics Lab (BIOL 4870) Advanced Lab in Cell Imaging (BIOL 5450)—2 credits</p>

Approved Biology BA Electives

<i>Fall</i>	<i>Spring</i>
<p>Philosophy of Science (PHIL 5593) Neurobiology of Eating & Eating Disorders (PSYC3388) HIV, AIDS & Ethics (THEO 5498) Metaphysics (PHIL 5529)</p>	<p>Cognitive Neuroscience: Exploring Mind & Brain (PSYC 3371) Environmental Law & Policy (ENVS 2256) Sustainable Agriculture (ENVS 3315) Neurobiology of Motivation & Emotion (PSYC 3385)</p>

University Core Requirements

<input type="checkbox"/> Arts (1 course) <input type="checkbox"/> Literature (1 course) <input type="checkbox"/> Philosophy (2 courses) <input type="checkbox"/> Writing (1 course)	<input type="checkbox"/> Cultural Diversity (1 course) <input type="checkbox"/> Math (1 course) <input type="checkbox"/> Social Science (2 courses)	<input type="checkbox"/> History (2 courses) <input type="checkbox"/> Natural Science (2 courses) <input type="checkbox"/> Theology (2 courses)
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