**Electives for the Major in Biological Sciences**

(24 credits total, including at least 18 credits at the 300-400 level, 3 labs and one 3-credit course from each of the following departments: 146, 447, 694/115 and 216)

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**Cell Biology and Neuroscience 01:146...**

- 146:245 Fundamentals of Neurobiology (3)(F/S)
- 146:270 Fundamentals of Cell & Developmental Biology (3) (F/S)
- 146:295 Essentials of Cell Biology & Neuroscience (3)(F/S)
- 146:310 Physiological Adaptation: Heart, Stress and Exercise (3) (S)
- 146:322 Human Histology (4)(S) **Lab**
- 146:328 Human Parasitology (3)(F/S)**
- 146:329 Human Parasitology Lab (1) (F/S)
- 146:356 Systems Physiology (3)(F/S)**
- 146:357 Systems Physiology Lab (1)(F/S)**
- 146:445 Advanced Neurobiology 1 (4)(F)
- 146:446 Advanced Neurobiology Lab 1 (1) (S)
- 146:447 Advanced Neurobiology II (3)(S)
- 146:448 Advanced Neurobiology II Lab (3)(S)
- 146:450 Endocrinology (3) (F)
- 146:456 Advanced Physiology (3) (F)
- 146:464 Topics in Cell Biology & Neuroscience (3)(F)
- 146:470 Advanced Cell Biology (3)(F)
- 146:471 Advanced Cell Biology Lab (3)(S)
- 146:472 Advanced Developmental Biology (3)(S)
- 146:474 Immunology (3)(F)
- 146:475 Immunology Lab (1)(S)
- 146:478 Molecular Biology (3)(S)**

**Genetics, 01:447...**

- 447:203 Honors Computational Genetics (3) (F)
- 447:216 Analysis of Scientific Literature (3)(S)
- 447:245 Intro to Cancer (3)(F/S) (credit not given for this and 447:495)
- 447:302 Quantitative Biology & Bioinformatics (3)(S)
- 447:303 Computational Genetics of Big Data (3) (S)
- 447:315 Intro to Research in Genetics (3)(S) Lab(694/447)
- 447:352 Genome Evolution (3) (S)
- 447:354 Social, Legal and Ethical Implications of the New Genetics (3)(F)
- 447:356 Evolutionary Medicine (3) (S)
- 447:370 Developmental Genetics (3) (S)
- **447:380 Genetics (4)(F/S) Elective for Biology minors only**
- 447:382 Genetics Lab (1)(F/S)
- 447:384 & 385 Genetic Analysis I (F) & II (S) (4)
- 447:390 General Microbiology (4)(F/S) Lab**
- 447:392 Pathogenic Microbiology (3) (F)
- 447:430 Effective Communication Skills in Genetics (3)(F/S)
- 447:451 Genomes (3) (F/S)**
- 447:460 Genetics of Compulsive Behavior (3)(S)
- 447:465 Mutant Isolation and Analysis (3)(F)
- 447:478 and 479 Special Topics in Genetics (3)(F)
- 447:480 Topics in Molecular Genetics (3)(F)
- 447:481 Topics in Human Genetics (3)(F)
- 447:484 Behavioral and Neural Genetics (3) (S)
- 447:486 Evolutionary Genetics (3) (S)

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**Molecular Biology and Biochemistry 01:694...**

- 694:216 Restoration Ecology (4)
- 694:421 Wetland Ecology (3) (F) odd year only
- 694:423 Conversational Mathematical Modeling of Bio. Systems (3) (Fall)
- 694:428 Molecular Evolution (3) (F)
- 694:451 Global Change and Ecology (3) (F)
- 694:454 Molecular Ecology (3) (F)
- 694:469 Wildlife Diseases (3) (S)
- 694:486 Principles of Evolution (3) (S)
- 694:487 Urban Ecology (3) (S)
- 694:488 Restoration Ecology (4) Lab (S)

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**Courses Offered through the Division of Life Sciences:**

- **146, 447, 694/115 and 216**

**Updated October 2018**
**Exercise Science**
01:377:213 Functional Human Anatomy (4) **
01:377:370 Exercise Physiology (3)
01:377:371 Exercise Physiology Lab (1)

**Animal Science**
11:067:300 Integrative Physiology (4)** Lab (effective Spring 2017)
11:067:300 Integrative Physiology (4)**
11:067:301 Integrative Physiology Lab (1) ** (no longer offered effective Spring 2017)
11:067:327 Animal Reproduction (3)
11:067:391 Comparative Mammalian Anatomy (3) **
11:067:404 Animal Diseases (3) **
11:067:410 Neuroendocrinology (3)
11:067:430 Animal Microtechniques and Tissue Culture (4) Lab
11:067:450 Endocrinology (4)
11:067:490 Pathophysiology (3)
11:067:492 Molecular and Cellular Physiology (3)

**Biotechnology**
11:126:383 Nucleotide Sequence Analysis (3)
11:126:405 Microbial Technology (3)
11:126:406 Plant Gene Transfer (2.5) Lab
11:126:407 Comparative Virology (3)
11:126:413 Plant Molecular Biology (3)
11:126:420 Trends in Biotechnology (3)
11:126:427 Methods and Applications in Molecular Biology (4) Lab
11:126:444 Advanced Technologies in Biosciences (3)
11:126:481 Molecular Genetics (3)**
11:126:482 Molecular Genetics Lab (4)
11:126:483 Nucleotide Sequence Analysis (3)
11:126:486 Analytical Microbiology (3) Lab

**Criminal Justice**
01:202:351 Forensic Science I (4)
01:202:352 Forensic Science II (4) Lab

**Entomology**
11:370:381 Insect Biology (4) Lab
11:370:402 Aquatic Entomology (4)
11:370:403,404 Insect Structure and Function I, II (4, 3) Lab

**Environmental Science**
11:375:312 Environmental Microbiology Lab (2)
11:375:411 Environmental Microbiology (3)
11:375:453 Soil Ecology (3)

**Marine Science**
11:628:321 Ichthyology (4) Lab
11:628:404 Fungi and Ecosystems (3)
11:628:462 Ocean Ecology (3)

**Microbiology**
11:680:390 General Microbiology (4) Lab**(fulfills 447 subject area requirement)
11:680:480 Microbial Genetics and Genomics (3)**
11:680:491 Microbial Ecology and Diversity (3)
11:680:492 Microbial Ecology and Diversity Lab (3)
11:680:494 Applied Microbiology (4) Lab

**Nutrition**
11:709:400 Advanced Nutrition I: Regulation of Macronutrient Metabolism (3)
11:709:401 Advanced Nutrition II: Energy and Micronutrient Metabolism (3)

**Plant Biology and Pathology**
11:776:302 General Plant Pathology (3) (formerly 11:770:301)
11:776:311 General Plant Pathology Lab (1) (formerly 11:770:311)
11:776:382 Plant Physiology (4) Lab
11:776:405 Plant Biosecurity (3)
11:776:452 Plant Tissue Culture (3) Lab

**Course Conflicts**
Credit not given for more than one of the following courses in each group:

**Biochemistry**

**Biochemistry Lab**
11:115:313 and 01:694:313

**Molecular Biology**
01:146:478, 01:694:408 or 11:126:481

**Microbiology**
01:447:390 or 11:680:390

**Endocrinology**
01:146:450 or 11:067:450

**Physiology**
01:146:356, 11:067:300 or labs 01:146:357 & 11:067:301

**Anatomy**
01:377:213, 01:377:424 or 11:067:391

**Parasitology**
01:146:328 or 11:067:404

**Genomes**
01:447:451 or 11:680:480 or 11:216:423