## Biology (15 Credits; 9 upper-level)

<table>
<thead>
<tr>
<th>Course</th>
<th>Pre-Requisites</th>
<th>Credits</th>
<th>Semesters Offered</th>
<th>Semester Taken</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 100 - Concepts of Biology*</td>
<td>None</td>
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<tr>
<td>BIOL 100L - Concepts of Bio Lab*</td>
<td>BIOL 100 (pre- or co- req)</td>
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<tr>
<td>BIOL 302 - Molecular &amp; General Genetics*</td>
<td>BIOL 100, CHEM 101, CHEM 102 (pre- or co-req), sophomore</td>
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<tr>
<td>BIOL 303 - Cell Biology</td>
<td>BIOL 302, CHEM 102</td>
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<tr>
<td>BIOL 302L - Genetics Lab OR BIOL 303L - Cell Biology Lab</td>
<td>100L, 302, 100L, 303</td>
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## Chemistry (27-28 credits; 17-18 upper-level)

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<th>Course</th>
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<th>Credits</th>
<th>Semesters Offered</th>
<th>Semester Taken</th>
<th>Grade</th>
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<tbody>
<tr>
<td>CHEM 101 - Principles of Chemistry I*</td>
<td>MATH 150</td>
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<td>CHEM 102 - Principles of Chemistry II*</td>
<td>CHEM 101</td>
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<tr>
<td>CHEM 102L - Intro Chemistry Lab I*</td>
<td>CHEM 101; CHEM 102 (pre- or co-req)</td>
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<td>CHEM 300 - Analytical Chemistry</td>
<td>CHEM 102, CHEM 102L</td>
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<tr>
<td>CHEM 301 - Physical Chemistry I OR</td>
<td>CHEM 102, MATH 152; PHYS 122 (pre-/co-req)</td>
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<td>CHEM 303 - Phys Chem for the Biochem Sci</td>
<td>CHEM 102, CHEM 351, MATH 152; PHYS 112/122 (pre-/co-req) or instr perm</td>
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<tr>
<td>CHEM 351 - Organic Chemistry I*</td>
<td>CHEM 101, CHEM 102</td>
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<td>CHEM 351L - Organic Chemistry Lab I*</td>
<td>CHEM 102L; CHEM 351 (pre- or co-req)</td>
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<tr>
<td>CHEM 352 - Organic Chemistry II*</td>
<td>CHEM 351</td>
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<tr>
<td>CHEM 352L - Organic Chemistry Lab II*</td>
<td>CHEM 351L; CHEM 352 (pre- or co-req)</td>
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## Biochemistry (12 credits; all upper-level)

<table>
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<tr>
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<th>Pre-Requisites</th>
<th>Credits</th>
<th>Semesters Offered</th>
<th>Semester Taken</th>
<th>Grade</th>
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<tbody>
<tr>
<td>CHEM 437 - Comprehensive Biochem I*</td>
<td>BIOL 100, CHEM 352</td>
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<tr>
<td>CHEM 437L - Biochemistry Laboratory*</td>
<td>CHEM 352L; 437 (pre- or co-req)</td>
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<tr>
<td>CHEM 438 - Comprehensive Biochem II*</td>
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## Upper-Level Electives (list on reverse side of this sheet) (6-8 credits; all upper-level)

<table>
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<tr>
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## Mathematics and Physics (16 credits)

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<tr>
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<th>Semester Taken</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 151 - Calculus &amp; Analytical Geom I*</td>
<td>MATH 150</td>
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<tr>
<td>MATH 152 - Calculus &amp; Analytical Geom II*</td>
<td>MATH 151</td>
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<tr>
<td>PHYS 121 - Introductory Physics I*</td>
<td>MATH 151</td>
<td>4</td>
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<tr>
<td>PHYS 122 - Introductory Physics II</td>
<td>PHYS 121, MATH 152</td>
<td>4</td>
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</table>

## Individual lab research 1-4 credits (recommended)

Students have the opportunity to integrate what they have learned by doing research with participating faculty. Those working with a Biological Sciences faculty member may register for BIOL 399 or 499. Those working in a Chemistry and Biochemistry departmental faculty laboratory may register for CHEM 399 or 499.

* These courses must be completed with a grade of C or better. All courses that students take as pre-requisites for other courses must be passed with a C or better. An overall C average must be maintained in required major courses.

F = Fall / S = Spring - Courses marked with a "Z" have been taught in the Summer in recent years; there is no guarantee that they will be offered every Summer.
Electives List (from the 2004-2006 General Catalog with additional approved courses):

BIOL 411 - Bacterial Physiology
BIOL 414 - Eukaryotic Genetics & Molecular Biology
BIOL 418 - Human Molecular Biology
BIOL 420 - Advanced Topics in Cell Biology
BIOL 425 - Immunology
BIOL 426 - Approaches to Molecular Biology
BIOL 428 - Computer Applications in Molecular Biology
BIOL 434 - Microbial Molecular Genetics
BIOL 443 - Advanced Topics in Developmental Biology
BIOL 444 - Development and Cancer
BIOL 445 - Signal Transduction
BIOL 451 - Neurobiology
BIOL 454 - Vision Science
BIOL 456 - Plant Molecular Biology
BIOL 476 - Antibiotics: Origin, Mechanism, Resistance
BIOL 483 - Evolution: From Genes to Genomes
BIOL 486 - Genome Science
CHEM 406 - Bioinorganic Chemistry
CHEM 431 - Chemistry of Proteins
CHEM 432 - Advanced Biochemistry
CHEM 433 - Biochemistry of Nucleic Acids
CHEM 435/635 - Biochemistry of Complex Carbohydrates
CHEM 441 - Physical Chemistry of Macromolecules
CHEM 442 - Physical Biochemistry
CHEM 443 - Spectroscopy of Biopolymers
CHEM 444 - Molecular Modeling
CHEM 450 - Chemistry of Heterocyclic Compounds
CHEM 451 - Mechanisms of Organic Reactions
CHEM 453 - Organic Chemistry of Nucleic Acids
CHEM 455 - Biomedical Chemistry
CHEM 457 - Total Synthesis of Natural Products
CHEM 461 - Advanced Instrumental Methods of Analysis
CHEM 470 - Toxicological Chemistry
CHEM 472 - Enzyme Reaction Mechanisms
CHEM 490A - Special Topics in Chemistry**
CHEM 601 - Special Topics in Chemistry**
CHEM 601 - Special Topics in Chemistry: Advanced NMR Spectroscopy**
CHEM 635 - Biochemistry of Complex Carbohydrates
CHEM 640 - Special Topics in Molecular Structure
CHEM 670 - Special Topics in Dynamics and Mechanism**
CHEM 680 - Seminar in Biophysical Chemistry
CHEM 682 - Current Topics in Biochemistry
CHEM 684 - Special Topics in Chemistry**
CHEM 684A - Special Topic: Organic Spectroscopy**

**Special Topics courses that may be approved as electives in those years when their topic is appropriate (subject to confirmation by the Biochemistry Undergraduate Committee)