

Biology I Honors Course Syllabus
SY 2011-2012

Biology I Honors standards are in **bold** print. Some standards are underlined. These are Biology I standards that are not in the Biology I Honors Curriculum. These are included in the syllabus because these are the additional standards that are going to be tested in the upcoming End of Course Exam in Biology at the end of the year.

| Semester 1 Term 1 | |
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| The Nature of Life and Ecology | NGSSS Benchmarks |
| <p>The Nature of Life</p> <p>The Science of Biology</p> <ul style="list-style-type: none"> • What is Science (1.1) • Science in Context (1.2) • Studying Life (1.3) <p>The Chemistry of Life</p> <ul style="list-style-type: none"> • Properties of Water (2.2) • Carbon Compounds(2.3) • Chemical Reactions and Enzymes(2.4) <p>Ecology</p> <p>The Biosphere</p> <ul style="list-style-type: none"> • Energy, Producers, and Consumers(3.2) • Energy Flow in Ecosystems (3.3) • Cycles of Matter(3.4) <p>Ecosystems and Communities</p> <ul style="list-style-type: none"> • Climate(4.1) • Niches and Community Interactions(4.2) • Succession(4.3) • Biomes(4.4) • Aquatic Ecosystems(4.5) <p>Populations</p> <ul style="list-style-type: none"> • How Populations Grow(5.1) • Limits to Growth(5.2) • Human Population Growth(5.3) <p>Humans in the Biosphere</p> <ul style="list-style-type: none"> • A Changing Landscape(6.1) • Using Resources Wisely(6.2) • Biodiversity(6.3) • Meeting Ecological Challenges(6.4) | <p>SC.912.N.1.1; SC.912.N.2.1; SC.912.N.2.2; SC.912.N.1.7; SC.912.L.14.1</p> <p>SC.912.L.18.12; <u>SC.912.L.18.1</u>; SC.912.L.18.2; SC.912.L.18.3; SC.912.L.18.4; SC.912.L.18.11; SC.912.P.8.7; SC.912.P.8.12</p> <p>SC.912.L.17.9; SC.912.L.17.10; <u>SC.912.E.7.1</u>; SC.912.P.10.1</p> <p>SC.912.L.17.4;SC.912.L.17.5; SC.912.L.17.2</p> <p>SC.912.L.17.5; SC.912.L.17.8;</p> <p>SC.912.L.17.8; SC.912.L.17.11; SC.912.L.17.20; SC.912.C.1.3; SC.912.L.17.4;<u>SC.912.L.17.13</u></p> |

| Semester 1 Term 2 | |
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| Cells | NGSSS Benchmarks |
| <p>Cell Structure and Function</p> <ul style="list-style-type: none"> • Life is Cellular(7.1) • Cell Structure(7.2) • Cell Transport(7.3) • Homeostasis and Cells(7.4) <p>Photosynthesis</p> <ul style="list-style-type: none"> • Energy and Life(8.1) • Photosynthesis: An Overview(8.2) • The Process of Photosynthesis(8.3) <p>Cellular Respiration and Fermentation</p> <ul style="list-style-type: none"> • Cellular Respiration(9.1) • The Process of Cellular Respiration(9.2) • Fermentation(9.3) <p>Cell Growth and Division</p> <ul style="list-style-type: none"> • Cell Growth, Division, and Reproduction(10.1) • The Process of Cell Division(10.2) • Regulating the Cell Cycle(10.3) • Cell Differentiation(10.4) | <p>SC.912.L.14.1; SC.912.L.14.3; <u>SC.912.L.14.4</u>; SC.912.L.14.2</p> <p>SC.912.L.18.7; SC.912.L.18.10;</p> <p>SC.912.L.18.6; SC.912.L.18.8, SCL.912.L.18.9; SC.912.L.18.10</p> <p>SC.912.L.16.14; SC.912.L.16.17; SC.912.L.14.6; SC.912.L.16.8; SC.912.L.16.10; SC.912.L.16.14; SC.912.L.16.15</p> |

| Semester 2 Term 3 | |
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| Genetics | NGSSS Benchmarks |
| <p>Introduction to Genetics</p> <ul style="list-style-type: none"> • The Work of Gregor Mendel(11.1) • Applying Mendel’s Principles(11.2) • Other Patterns of Inheritance(11.3) • Meiosis(11.4) <p>DNA</p> <ul style="list-style-type: none"> • Identifying the Substance of Genes(12.1) • The Structure of DNA(12.2) • DNA Replication(12.3) | <p>SC.912.L.16.1; SC.912.L.16.2; SC.912.L.16.16; SC.912.L.16.17</p> <p>SC.912.L.16.3; SC.912.N.1.6</p> |

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| <p>RNA and Protein Synthesis</p> <ul style="list-style-type: none"> • RNA(13.1) • Ribosomes and Protein Synthesis(13.2) • Mutations(13.3) • Gene Regulation and Expression(13.4) | <p>SC.912.L.16.5;SC.912.16.9; SC.912.L.14.6;SC.912.L.15.15; SC.912.L.16.4</p> |
| <p>Human Heredity</p> <ul style="list-style-type: none"> • Human Chromosomes(14.1) • Human Genetic Disorders(14.2) • Studying the Human Genome(14.3) | <p>SC.912.L.14.6; HE.912.C.1.4</p> |
| <p>Genetic Engineering</p> <ul style="list-style-type: none"> • Selective Breeding(15.1) • Recombinant DNA (15.2) • Applications of Genetic Engineering(15.3) • Ethics and Impacts of Biotechnology(15.4) | <p>SC.912.L.15.15; SC.912.L.16.10; HE.912.C.1.8</p> |
| <p>Evolution Unit Darwin’s Theory of Evolution</p> <ul style="list-style-type: none"> • Darwin’s Voyage of Discovery(16.1) • Ideas that Shaped Darwin’s Thinking(16.2) • Darwin Presents His Case(16.3) • Evidence for Evolution(16.4) | <p>SC.912.N.1.1; SC.912.L.15.1; SC.912.N.1.6; SC.912.L.15.13; SC.912.L.15.15; SC.912.L.16.9</p> |
| <p>Evolution of Populations</p> <ul style="list-style-type: none"> • Genes and Variation(17.1) • Evolution as Genetic Change in Populations(17.2) • The Process of Speciation(17.3) • Molecular Evolution(17.4) | <p>SC.912.L.15.1; SC.912.L.15.2; SC.912.L.15.3; SC.912.L.15.12; SC.912.L.15.13; SC.912.L.15.14; SC.912.L.15.15</p> |
| <p>Classification</p> <ul style="list-style-type: none"> • Finding Order in Diversity(18.1) • Modern Evolutionary Classification(18.2) • Building the Tree of Life(18.3) | <p>SC.912.L.15.4; SC.912.L.15.5; SC.912.L.15.6</p> |
| <p>History of Life</p> <ul style="list-style-type: none"> • The Fossil Record(19.1) • Patterns of Process and Inheritance(19.2) • Earth’s Early History(19.3) | <p>SC.912.N.1.6; SC.912.L.14.5; SC.912.L.15.1; SC.912.L.15.13; SC.912.L.17.8; SC.912.L.15.8</p> |

**Semester 2
Term 4**

| Organism Structure and Function | NGSSS Benchmarks |
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| Viruses and Prokaryotes <ul style="list-style-type: none"> • Prokaryotes (20.2) • Diseases Caused by Bacteria and Viruses(20.3) | SC.912.E.7.1; SC.912.L.15.6; SC.912.L.14.6; <u>HE.912.C.1.8</u> ; SC.912.L.14.52; SC.912.L.16.15 |
| Protists and Fungi <ul style="list-style-type: none"> • The Ecology of Protists(21.3) • Fungi(21.4) | SC.912.L.14.6;SC.912.L.14.6; <u>HE.912.C.1.8</u> |
| Introduction to Plants <ul style="list-style-type: none"> • What is a Plant(22.1) • Seedless Plants(22.2) • Seed Plants(22.3) • Flowering Plants(22.4) | SC.912.L.14.7; SC.912.L.14.53 |
| Plant Structure and Function <ul style="list-style-type: none"> • Specialized Tissues in Plants(23.1) • Roots(23.2) • Stems(23.3) • Leaves(23.4) • Transport in Plants(23.5) | SC.912.L.14.7; SC.912.L.14.2 |
| Plant Reproduction and Response <ul style="list-style-type: none"> • Reproduction in Flowering Plants(24.1) • Fruits and Seeds(24.2) | SC.912.14.7 |
| Animal Evolution and Diversity <ul style="list-style-type: none"> • Invertebrate Evolution and Diversity(26.1) • Chordate Evolution and Diversity(26.2) • Primate Evolution(27.2) | SC.912.L.15.1; SC.912.L.15.10 |
| The Digestive System(30.3) | SC.912.L.18.11 |
| Nervous System <ul style="list-style-type: none"> • Neuron(31.1) • The Central Nervous System(31.2) | SC.912.L.14.2; <u>SC.912.L.14.26</u> ; <u>HE.912.C.1.8</u> |

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| <p>Circulatory System</p> <ul style="list-style-type: none"> • The Circulatory System(33.1) • Blood and Lymphatic System(33.2) <p>Reproductive System</p> <ul style="list-style-type: none"> • The Reproductive System(34.3) • Fertilization and Development(34.4) <p>Immune System and Disease</p> <ul style="list-style-type: none"> • Infectious Disease(35.1) • Defenses Against Infection(35.2) • Fighting Infectious Disease(35.3) • Immune System Disorders(35.4) | <p><u>SC.912.L.14.36</u></p> <p>SC.912.L.16.13</p> <p>SC.912.L.14.6; <u>HE.912.C.1.8</u>; <u>SC.912.L.14.52</u>; HE.912.C.1.3</p> |
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This syllabus may be modified to fit time constraints.

Please refer to daily assignment page on website for actual dates and duration of topics.