



<b>Date</b>		<b>Credits</b>	3
<b>Course Title</b>	General Biology	<b>Course Number</b>	BSC 1005
<b>Pre-requisite (s)</b>	None	<b>Co-requisite (s)</b>	None
<b>Hours</b>	45		

### *Place and Time of Class Meeting*

**San Ignacio University**  
**3905 NW 107 Avenue, Suite 301**  
**Miami, FL 33178**

### *Name and Contact Information of Instructor*

### *Book required*

*(San Ignacio University recognizes the use of the textbook in the classroom as part of the educational methodology and strategy applied in diverse materials. The textbook is part of the curriculum and is used to reach the student in an effective manner in the classroom. Every student is expected to acquire and use the textbook.)*

Biology, Concepts & Connections, 7/E  
Reece, Taylor, Simon & Dickey  
©2012 | Pearson | Published: 2/19/2011  
ISBN-10: 0321696816 | ISBN-13: 9780321696816

## **Classroom expectations for students**

### *Attendance Policy*

Students are expected to attend all scheduled university classes for the courses that they are registered for and to achieve the goals set forth by each class instructor. Attendance is taken daily. Enrolled students are permitted no more than **2** “free” absences in one semester. Students missing **3-5** classes over the course of the semester will receive a one-letter grade deduction from their final course grade; missing more than **6** classes will result in failure of the course regardless of grade average. It is the student's responsibility to arrange to make up work missed because of an absence.

### *Student Tardiness Policy*

A student is considered tardy/late if he/she comes to class 15 minutes late. With three tardies the student accumulates one full absence. If the student misses half of the class period, it is a full absence. When a student has more than 6 tardies, the instructor will contact the San Ignacio University Coordinator of Student Affairs and Academic Department and request an intervention session with the student. The goal of the intervention session is to develop and implement an intervention program to help students learn new ways to save and manage time.

**NOTE:** Plagiarism is defined as the use, without proper acknowledgment, of the ideas, phrases, sentences, or larger units of discourse from another writer or speaker. Plagiarism includes the unauthorized copying of software and the violation of copyright laws. Students who commit plagiarism will obtain a grade of “Failure” on their exam or assignment.

### *Course Description (must correspond exactly to Catalog description)*

The purpose of this course is to provide students with the basic knowledge in Biology; topics will include: cell structure and function, evolution, genetics and ecology. The students are expected to use the scientific method of thinking to analyze and relate concepts to the environment.

### *Learning Objectives*

At the end of this course student will be able to:

- Describe the process of science as a way to understand the natural world.
- Define the cell as the basic unit of life.
- Understand the structure and expression of the genetic material in living organisms
- Summarize the process of cellular division.
- Evaluate the mechanics of passing characteristics from parent to offspring.
- Recognize the mechanism of organic evolution and adaptation.
- Describe the major events that occurred on early Earth, and the origin of life

### *Topical Outline and Schedule*

DATE	WEEK 1
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Recognize the seven properties and process that are related with life</li> <li>• Determine how living things are distinguished from nonliving things</li> <li>• Define the hierarchy of organization of life</li> <li>• Analyze why cell has a significant place in the hierarchy of biological organization</li> </ul>

	<ul style="list-style-type: none"> <li>• Compare and contrast inductive reasoning from deductive reasoning</li> <li>• Comprehend how evolutionary theory can help individuals in everyday lives</li> <li>• Identify what main elements organisms are composed of</li> <li>• Summarize the advantages and disadvantages of radioactive isotopes</li> <li>• Evaluate why carbon atoms are the main basis in the chemistry of life</li> <li>• List six important chemical groups of organic compounds</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Syllabus</li> <li>• Discuss Library Orientation Course, Instructor to verify completion</li> <li>• Compare and contrast consumers and decomposers in the ecosystem</li> <li>• Identify the molecular structure of DNA</li> <li>• Recognize the three higher levels of the organization of life</li> <li>• Discuss the theory of evolution and natural selection according to Charles Darwin</li> <li>• Analyze how water has a solid resistance to temperature change due to hydrogen bonding</li> <li>• Examine the composition of an atom</li> <li>• Identify why water is an essential part of the research of extraterrestrial life</li> <li>• Recognize the chemical groups that do not contain carbon</li> <li>• Identify the four main classes of molecules in all living things</li> <li>• Discuss how HFCS is made and examine the impact HFCS has had on the topic of obesity</li> <li>• Differentiate the structure of a monounsaturated fat from a polyunsaturated fat</li> <li>• Recognize the four levels of structure of protein</li> <li>• Identify the two types of nucleic acids</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Discussion of Syllabus</li> <li>• Analysis of examples brought up in class</li> <li>• Visuals aids and/or video</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<ul style="list-style-type: none"> <li>• Review the Syllabus</li> <li>• <b>Complete the Library Orientation Course.</b> Instructor to verify completion.</li> <li>• <b>Homework:</b> Read Chapters 1-3 pp.1-49</li> <li>• Testing Your Knowledge p.14</li> <li>• Applying the Concepts p.31</li> <li>• <b>Testing Your Knowledge p.49</b></li> </ul>
<b>DATE</b>	<b>WEEK 2</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Define how microscopes assist in evaluating the structures of cells</li> <li>• Examine how the cell's surface controls the movement of molecules across it</li> </ul>



	<ul style="list-style-type: none"> <li>• Define the two kinds of cells</li> <li>• List the common characteristics and differences found between prokaryotic cells and eukaryotic cells</li> <li>• Recognize the four basic functional groups found in the structure of eukaryotic cells</li> <li>• List the six types of functions that proteins may perform in a plasma membrane</li> <li>• Identify the relationship between photosynthesis and cellular respiration provide energy for life</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Discuss Final Class Project &amp; Presentation,</li> <li>• Define the major functions of the nucleus</li> <li>• Recognize how the smooth endoplasmic reticulum of many cell types performs in a range of metabolic processes</li> <li>• Identify the three types of cell connections that are found in animal tissue</li> <li>• Illustrate some of the structures found in plant cells not found in animal cells and vice versa</li> <li>• Discuss how diffusion impacts the movement of substances into or out of a cell</li> <li>• Define the two basic forms of energy and discuss their differences</li> <li>• Name the types of chemical reactions and discuss some examples</li> <li>• Examine how breathing is closely related to the cellular respiration process</li> <li>• Understand how cells extract energy from glucose</li> <li>• Define the three main stages that cellular respiration consists of</li> <li>• Identify how fermentations serve as a way of producing chemical energy where oxygen is not required</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Participate in a forum.</li> <li>• Visual aids and/or video</li> <li>• Group activity led by instructor</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p><b>Homework:</b> Read Chapters 4-6 pp.51-105 Describing, Comparing and Explaining p. 71 Applying the Concepts p.87 Questions 15 and 15</p>
<b>DATE</b>	<b>WEEK 3</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Recognize what autotrophs require in order to sustain themselves</li> <li>• Discuss the process of photosynthesis and what plants do with the sugar they produce</li> <li>• Identify how chlorophyll plays a major role in the conversion of solar energy to chemical energy</li> <li>• Examine how scientists use isotopes to outline the process of photosynthesis</li> </ul>

	<ul style="list-style-type: none"> <li>• Evaluate the consequences that may arise from the alterations of chromosome number and structure</li> <li>• Discuss how Mendel’s law of segregation depicts the inheritance of a single character</li> <li>• Identify how Mendel’s laws imitate the rules of probability</li> <li>• Examine incomplete dominance results and how the genotype does not dictate phenotypes as Mendel’s law describes</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Compare and contrast the two redox processes of photosynthesis and cellular respiration</li> <li>• Describe the two stages of photosynthesis that include various steps</li> <li>• Examine the two types of photosystems</li> <li>• Define the Calvin Cycle and its four steps</li> <li>• Discuss how photosynthesis may assist in slowing down the process of global climate change</li> <li>• Recognize the role of cell division in the lives of organisms</li> <li>• Compare and contrast cytokinesis in plants and animals</li> <li>• Discuss Cancer cells and how it is determined when they are malignant or benign</li> <li>• Evaluate when determines the sex of offspring in the fertilization of different species</li> <li>• Discuss several human sex-linked disorders, some that affect mostly males</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Participate in a forum.</li> <li>• Analysis of examples brought up in class</li> <li>• Group activity led by instructor</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<ul style="list-style-type: none"> <li>• Investigate concepts and kinds of objectives.</li> <li>• Library Research. Develop Tentative Bibliography</li> <li>• <b>Due: Project Topic</b></li> <li>• <b>Due: Tentative Bibliography</b></li> <li>• <b>Homework:</b> Read Chapters 7-9 pp.107-179</li> </ul>
<b>DATE</b>	<b>WEEK 4</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Identify the structure of genetic material and discuss in detail the Hershey-Chase experiment and what it demonstrated</li> <li>• Differentiate DNA and RNA polynucleotides</li> <li>• Analyze the Watson-Crick model and how it indicates molecular explanation for generic inheritance</li> <li>• Recognize how a chemical modification of DNA can result in epigenetic inheritance</li> <li>• Identify the relation between proto-oncogenes to oncogenes</li> </ul>

	<ul style="list-style-type: none"> <li>• Compare and contrast the behavior of an oncogene and a cancer-causing mutation in a tumor-suppressor gene</li> <li>• Examine how the exposure to carcinogens can be heavily reduced by the lifestyle choices</li> <li>• Understand the advantages and disadvantages of gene cloning</li> <li>• Identify how enzymes cut and paste DNA</li> <li>• Recognize the primary advantage of bacterial artificial chromosomes</li> <li>• Define methods used by researchers to identify clones that contain a desired gene</li> <li>• Discuss the advantages of the use of bacteria</li> <li>• State the ethical issues that arise with the use of gene therapy</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Examine what makes the replication of DNA possible</li> <li>• Understand the role of DNA polymerase in DNA replication</li> <li>• Examine the nucleotide sequence referred to as a promoter</li> <li>• Identify the function of an anticodon</li> <li>• Analyze the lysogenic cycle and discuss how DNA replication takes place without obliterating the host cell</li> <li>• Recognize the seven steps in the replication cycle</li> <li>• Understand why HIV is categorized as a retrovirus</li> <li>• Explain what differentiates prions from all other known infectious agents</li> <li>• Describe the use of DNA technology in order to produce medicines and to diagnose diseases</li> <li>• Analyze the use of genetically modified organisms and how it is impacting the industry of agriculture</li> <li>• Discuss how GMO raises concern in regards to human health and the environment</li> <li>• Examine the many ways DNA profiling is used</li> <li>• Analyze the benefits of the Human Genome Project</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Analysis of examples of brought up in class</li> <li>• Group discussion</li> <li>• Think-pair-share</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<b>Homework:</b> Read Chapters 10-12 pp. 181-252 5 Page Paper – Professor will provide instructions
<b>DATE</b>	<b>WEEK 5</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Understand the theory of evolution as proposed by Charles Darwin and discuss how he came to his scientific explanation</li> <li>• Discuss what the phrase “descent with modification” meant according to Darwin</li> <li>• Compare and contrast artificial selection and natural selection</li> </ul>

	<ul style="list-style-type: none"> <li>• Examine how paleontologists have provided substantiation for evolution</li> <li>• Examine the factors that leads to genetic variation, which makes evolution possible</li> <li>• Identify the different ways of defining a type of species</li> <li>• Recognize the ways in which mode of speciation, referred to as allopatric speciation, can occur</li> <li>• Examine the four factors that play a part in the formation of a hybrid zone</li> <li>• Identify the outcomes of the continental drift</li> <li>• Review the causes and consequences of mass extinctions</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Comprehend the three major points about evolution by natural selection</li> <li>• Define the reasons natural selection compares to an editing process more so than a creative mechanism</li> <li>• Explain how homology supports the theory of evolution</li> <li>• Identify the correlation between homology and molecular biology</li> <li>• Discuss the Hardy-Weinberg equation and the five conditions for a population that must be met to be in the equilibrium</li> <li>• Analyze the three ways in which natural selection can alter phenotypic variation</li> <li>• Define the use of antibiotics and the consequences of prematurely discontinuing a cycle of antibiotics</li> <li>• Compare and contrast microevolution and speciation</li> <li>• Identify the four main stages in which chemical and physical processes produced simple cells</li> <li>• Evaluate the study of macroevolution and the vital origin points in the history of life</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Small group activity</li> <li>• Analysis of examples brought up in class</li> <li>• Visuals aids and/or video</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p>Continue research and work on final project</p> <p><b>Homework:</b> Read Chapters 13-15 Testing Your Knowledge p.275 Describing, Comparing and Explain p.291 Applying the Concepts p.316</p>
<b>DATE</b>	<b>WEEK 6</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• EXAM I</li> <li>• Define the different ways in which evolutionary novelties may arise</li> <li>• Understand the two kinds of prokaryotes</li> </ul>

	<ul style="list-style-type: none"> <li>• Identify the differences found between bacteria, archaea and eukarya</li> <li>• Understand biofilm formation and discuss why biofilms are complex to eradicate</li> <li>• Differentiate the nutritional modes of Euglena and Trichomonas</li> <li>• Define the ways in which multicellular organisms essentially differ from unicellular organisms</li> <li>• Comprehend the adaptation plants have on land</li> <li>• Identify the key events in the evolutionary history of the plant kingdom</li> <li>• Analyze how plant diversity plays an essential role in the future of the world's supply of food</li> <li>• Explain the five groups that fungi are classified into</li> <li>• Identify the practical uses of fungi</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Define the two sources of energy used by prokaryotes</li> <li>• Identify the four modes of nutrition and how it organizes the diversity of prokaryotes</li> <li>• Examine the different groups of archaea and discuss what environments it thrives in</li> <li>• Recognize the five groups of domain bacteria and how they differ from one another</li> <li>• Understand the process in which pathogenic bacteria causes illness</li> <li>• Discuss the ways in which protists obtain their nutrition and identify the complexity of protists.</li> <li>• Study the differences found between the moss and fern cycles</li> <li>• Define the life cycle of an angiosperm and examine how pollination differs from fertilization</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Analysis of examples brought up in class</li> <li>• Open discussion</li> <li>• Small group activity led by instructor</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<ul style="list-style-type: none"> <li>• Homework: Read Chapters 16 and 17</li> <li>• Describing, Comparing and Explaining</li> <li>• Applying the Concepts p.363</li> </ul>
<b>DATE</b>	<b>WEEK 7</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Name the distinctive characteristics of animals and how they differ from humans</li> <li>• Understand how the distinct body plans of animals assists biologists assume the phylogenetic correction between animal groups</li> <li>• Discuss why sponges are considered, by biologists, to embody the earliest branch of multicellular organisms</li> <li>• Recognize the main characteristics that define the major clades of</li> </ul>



	<p>chordates</p> <ul style="list-style-type: none"> <li>• Define the three groups of living primates</li> <li>• Identify the classification that human beings fall into</li> <li>• Discuss biological hierarchy of the animal body</li> <li>• Examine how tissue differs from a cell and an organ</li> <li>• Recognize the four main types of tissues a human body is built on</li> <li>• Identify the three types of vertebrate muscle tissue</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Recognize the three major groups of flatworms and discuss their similarities and differences</li> <li>• Identify the three main groups of annelids and which of them are used in the field of medicine</li> <li>• Define the characteristics that all arthropods species have in common</li> <li>• Compare and contrast complete and incomplete metamorphosis</li> <li>• Discuss how human skin color variations is a possible consequence from natural selection</li> <li>• Identify the different organ systems that make up the functional organism</li> <li>• Recognize how the circulatory system contributes to homeostasis</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Engage in instructor led group activity</li> <li>• Textbook activity in small group activity</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p>Continue research and work on final project  <b>Homework:</b> Read Chapters 18-20 pp.365-426          Connecting the Concepts p.387          Applying the Concepts p. 410          Testing Your Knowledge p.427</p>
<b>DATE</b>	<b>WEEK 8</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Identify the three dietary categories that animals fall into</li> <li>• Recognize the four main stages of food processing</li> <li>• Contrast the alimentary canal from the gastrovascular cavity</li> <li>• Define the enzymatic digestion in the small intestine</li> <li>• Identify the four classes of essential nutrients and their function</li> <li>• Discuss the vitamin and mineral requirements of humans</li> <li>• Recognize the three phases of oxygen and how oxygen is necessary for human survival</li> <li>• Understand how the gas exchange in insects differs from that in humans</li> <li>• Discuss the human respiratory system and its major branches</li> </ul>

	<ul style="list-style-type: none"> <li>• Examine how the human fetus exchanges gases with mother's blood</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Examine the human digestive system and how the alimentary canal functions alongside the accessory glands</li> <li>• Discuss the mechanical and chemical digestion phases</li> <li>• Define the structure of the esophagus and how it related to peristalsis</li> <li>• Discuss the Heimlich maneuver and identify the steps in performing the technique</li> <li>• Comprehend the circulatory systems and how they facilitate the functions with all body tissues</li> <li>• Compare and contrast the open circulatory and closed circulatory systems</li> <li>• Define the human cardiovascular system and discuss the cardiac cycle</li> <li>• State the structure and function of blood cells and what their functions are</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Discussion</li> <li>• Pair-share activity</li> <li>• Analysis of examples brought up in class</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	Continue research and work on final project <b>Homework:</b> Read Chapters 21-23 pp.429-481
<b>DATE</b>	<b>WEEK 9</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Compare and contrast invertebrate innate immunity and vertebrate innate immunity and their respective components</li> <li>• Define the major function of the inflammatory response and discuss the chain of events</li> <li>• Recognize the major functions of the lymphatic system</li> <li>• Identify the five initial phases of adaptive immunity referred to as primary immune response</li> <li>• Define the various mechanisms that permit animals to make exchanges while preserving homeostasis</li> <li>• Study the kinds of chemical signals that regulate the activities in the body of an animal</li> <li>• Understand the vertebrate endocrine system and the major human endocrine glands and their respective hormones</li> <li>• Recognize the thyroid gland and how its hormones perform several essential homeostatic functions</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Examine the differences between active immunity and passive immunity and discuss specific examples of each</li> <li>• Define the two types of adaptive immunity: cell-mediated immune response and humoral immune response</li> <li>• Study various autoimmune diseases and what factors influence</li> </ul>

	<p>vulnerability to them</p> <ul style="list-style-type: none"> <li>• Recognize the two-stage reaction sequence that leads to the symptoms of an allergy</li> <li>• Identify the five general categories of adaptations that help animals thermoregulate</li> <li>• Discuss the various ways in which animals dispose of nitrogenous wastes</li> <li>• Discuss how the urinary system plays a major role in homeostasis and examine the key processes of the urinary system</li> <li>• Identify the role of hormones in the functioning of the urinary system</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Analysis of the examples raised in class.</li> <li>• Panel discussion</li> <li>• Discussion of chapter topics</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p>Continue research and work on final project <b>Homework:</b> Read Chapter 24-26 pp. 485-531</p>
<b>DATE</b>	<b>WEEK 10</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Study the two principal modes of reproduction: asexual and sexual</li> <li>• Understand the anatomical features of the reproductive system of the human male and female</li> <li>• Define the common STDS in the United States and discuss their symptoms and treatments</li> <li>• Review contraceptive methods used and the main difference between barrier methods and oral contraceptives</li> <li>• Examine how the appearance of bilateral symmetry marks a vital brand point in the evolution of animals and their nervous systems</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Comprehend the principles of embryonic development and its first two major phases</li> <li>• Discuss the major developmental events in human gestation</li> <li>• Define the three stages of childbirth and what hormones play key roles in the process</li> <li>• Study the nervous system and its two main anatomical divisions</li> <li>• Examine the main structures of the human brain</li> <li>• Recognize the general categories of group sensory receptors</li> <li>• Discuss the structure and function of the human ear, which is actually two separate organs</li> <li>• Recognize how the olfactory receptor and taste receptors interact</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Visual aids and/or video</li> <li>• Engage in a group activity led by instructor</li> <li>• Read article and do a small group analysis</li> </ul>
<b>HOMEWORK</b>	Continue research and work on final project

<b>&amp; ASSIGNED READINGS</b>	<b>Homework:</b> Read Chapters 27-29 pp.533-601
<b>DATE</b> <span style="float: right;"><b>WEEK 11</b></span>	
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Examine how movements is noted as a distinctive characteristic of animals</li> <li>• Discuss how movement and locomotion is a result from the collaboration between muscles and a skeletal system</li> <li>• Demonstrate the role of calcium in muscle contraction</li> <li>• Review plant structure and function and identify the human progress of use of plants for several uses</li> <li>• Define the three basic organs found in a typical plant body and their particular functions</li> <li>• Define inorganic nutrients needed by plants and how they are used</li> <li>• Identify the three vital goals of soil conversation and how it is important to human life</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Identify the three main types of skeletons and their multiple functions</li> <li>• Study the skeletal muscle system, including structure and function, and the different levels of organization</li> <li>• Define the characteristics of muscle fibers and identify differences</li> <li>• Recognize the key stages in the angiosperm sexual life cycle</li> <li>• Examine how air, water and soil are all contributing nutrients to plant growth</li> </ul>
<b>LEARNING ACTIVITIES</b>	Small group activity Visual aids and/or video
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<b>Due: First Draft of Final Project</b> <b>Homework:</b> Read Chapters 30-32 pp.603-659
<b>DATE</b> <span style="float: right;"><b>WEEK 12</b></span>	
<b>SPECIFIC OBJECTIVES</b>	<p>MIDTERM EXAM II</p> <ul style="list-style-type: none"> <li>• Identify the five major types of hormones and how they regulate plant growth and development</li> <li>• Recognize the agricultural uses of plant hormones</li> <li>• Examine the two major types of variables that can affect organisms: biotic and abiotic factors</li> <li>• Define how ecology can provide an awareness that is necessary to resolve environmental problems</li> <li>• Describe the nine major types of terrestrial biomes</li> <li>• State how living organisms affect the global water cycle and discuss how the global water cycle links all parts of biosphere</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Compare and contrast gravitopism and thigmotropism</li> <li>• Discuss how ethylene triggers the ripening of fruit</li> <li>• Analyze how cytokinins stimulate cell division</li> </ul>

	<ul style="list-style-type: none"> <li>• Study the physical and chemical factors that impact life in the biosphere</li> <li>• Recognize the aquatic biomes and the characteristics they share and examine their differences</li> </ul>
<b>LEARNING ACTIVITIES</b>	<p>Analysis of examples brought up in class</p> <p>Panel discussion</p> <p>Discussion of chapter topics</p>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<b>Homework:</b> Read Chapters 33 & 34 pp.679-697
<b>DATE</b>	<b>WEEK 13</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Evaluate the scientific study of behavior and how the questions made by behavioral ecologists fall into two broad categories</li> <li>• Summarize the vitality of communication in the complex social organization of a species</li> <li>• Identify the three major categories of the animal mating systems</li> <li>• Examine how endocrine-disrupting chemicals are linked to abnormal behaviors</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Study the roles of genetic and environmental factors in behavior</li> <li>• Identify the different types of learning and their unique characteristics</li> <li>• Discuss how social behaviors are adaptive and how they have evolved by natural selection</li> <li>• Examine the impact of genetic and environmental factors on behavioral variations in humans</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Small group activity</li> <li>• Analysis of examples brought up in class</li> <li>• Visuals aids and/or video</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p>Editing &amp; Revision of Final Project</p> <p><b>Homework:</b> Read Chapter 35 pp. 699-721</p>
<b>DATE</b>	<b>WEEK 14</b>
<b>SPECIFIC OBJECTIVES</b>	<ul style="list-style-type: none"> <li>• Discuss population ecology and examine how human population growth is one of the most crucial environmental concerns</li> <li>• Identify how population ecologists examine the role of biotic and abiotic factors that result in variation in population sizes</li> <li>• Study the differences among the different kinds of density and dispersion patterns</li> <li>• Discuss how predations plays an important factor in the adaptive evolution of prey species</li> <li>• Identify the interconnection of food chains, which leads to the trophic structure of a community known as a food web</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Recognize the idealized models used by population ecologists the</li> </ul>

	<p>predict the probably size of a particular population and the different conditions it affects the population growth.</p> <ul style="list-style-type: none"> <li>• Examine the multiple factors that may limit population growth</li> <li>• Define the principles of population ecology that can be applied to conversation and management</li> <li>• Recognize the information that the demographic tool of age structures reveal about social and economic trends</li> <li>• Demonstrate examples of ecological succession and study the differences found between primary and secondary successions</li> <li>• Analyze how high levels of meat consumption leads to higher prices in grains</li> <li>• Identify the groups that are crucial to the functioning of an ecosystem</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Think-pair-share activity</li> <li>• Group discussion</li> <li>• Analysis of examples brought up in class</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p>Editing &amp; Revision of Final Project  <b>Homework:</b> Read Chapters 36 &amp; 37 pp. 723-759            5 Page Paper – Professor will provide instructions</p>
<b>DATE</b>	<b>WEEK 15</b>
<b>SPECIFIC OBJECTIVES</b>	<p>Final Project            Final Presentation            Final Exam</p> <ul style="list-style-type: none"> <li>• Study the loss of biodiversity and what consequences in can have on human well-being</li> <li>• Examine the four major factors that play a role in the threat to biodiversity</li> <li>• Discuss the ecological principles and strategies used by restoration ecology</li> <li>• Understand the causes and consequences of global climate change</li> </ul>
<b>TOPIC (S)</b>	<ul style="list-style-type: none"> <li>• Recognize the cause of increasing greenhouse gas emissions</li> <li>• Analyze the manner in which global climate change has direct impacts on biomes, ecosystems, communities and populations</li> <li>• Discuss how the evidence of evolutionary adaptation the global climate change</li> <li>• Define the focus of conversation biologists and the information they examine to design a plan to expand or protect resources</li> </ul>
<b>LEARNING ACTIVITIES</b>	<ul style="list-style-type: none"> <li>• Group discussion</li> <li>• Engage in a group activity led by instructor</li> <li>• Visual aids and/or video</li> </ul>
<b>HOMEWORK &amp; ASSIGNED READINGS</b>	<p><b>Homework:</b> Read Chapter 38 pp. 761-779</p>

### *Instructional Methods*

Lectures on the major concepts and theories in biology will be discussed. Labs, in which major biological principles, will be demonstrated by examination of specimens, conducting experiments and viewing videos. In addition, reading responses, fieldwork and reflections may be utilized as instructional methods in this course.

The following strategies may be used in this class:

1. A review of the questions at the end of each class.
2. Check of the reading.
3. Analysis of assigned readings.
4. Group discussions.
5. Individual and group discussions.
6. Preparation of reports.
7. Preparation of a didactic plan.
8. Carrying out a micro-class.

### *Additional Instructional Materials and References*

- Biology by Peter Raven (9<sup>th</sup> 11)
- Biology by Solomon, Berg and Martin (9<sup>th</sup> 11)
- Biology by Lawson (3<sup>rd</sup> 11)

### *Assessment Criteria and Methods of Evaluating Students*

96 – 100%	→ A
90 – 95%	→ A-
87 – 89%	→ B+
83 – 86%	→ B
80 – 82%	→ B-
77 – 79%	→ C+
73 – 76%	→ C
70 – 72%	→ C-
67 – 69%	→ D+
63 – 66%	→ D
60 – 62 %	→ D-
< 59%	→ F

**Do not count on a curve!**



Generally, the grades “A” through “C-” are considered passing grades. Grades "W" and "I" indicate that no grades were earned for the course. A "W" grade indicates that the student withdrew from the course. An "I" grade indicates that the student was passing the course, but failed to complete all the required course work. The instructor, in his/her discretion may grant an "I" grade instead of an "F", pending completion of the course work by the student within a specified time arranged by the instructor and told to the student. It is the student's responsibility to follow-up with the instructor to complete the course work. If the course work is not completed by the arranged time, the “I” grade becomes an “F”.

### *Distribution of Grade Elements*

Homework:	20%
Exams I, II, III:	30% (10% each)
Final Presentation:	25%
Final Research Project:	25%
Total:	100 %

Date Syllabus Was Last Reviewed: Date: 07-01-2012