



**EFFECTIVE: MAY 2007**

If Revision, Section(s) \_\_\_\_\_  
 Revised:  
 Date of Previous Revision:  
 Date of Current Revision:

Subject & Course No.	Descriptive Title	Semester Credits
<b>F:</b> Calendar Description:  This course is an introduction to the biosphere, the diversity of life, biochemistry, cell biology and ecological interactions. Mechanisms of genetic inheritance and evolution are also studied.		
<b>G:</b> Allocation of Contact Hours to Type of Instruction / Learning Settings or of W	<b>H:</b> Course Prerequisites:  <b>BIOL 1109 and BIOL 1209 or permission of the instructor</b>	
	<b>I:</b> Course Corequisites:  none	
	<b>J:</b> Course for which this Course is a Prerequisite:  BIOL 2321 and BIOL 3205 and BIOL 3305 and BIOL 3500 and BIOL 3600 and BIOL 3700	

Weeks per Semester:

**15 weeks**

**K:** Maximum Class Size

**M:** Course Objectives / Learning Outcomes

Upon completion of this cour

4. Molecular and Cellular Basis of Life
  - 4.1. chemistry of amino acids
  - 4.2. formation of primary, secondary, tertiary and quaternary structure of proteins.
  - 4.3. functions and mechanisms of action of enzymes
  - 4.4. functions and structures of DNA and RNA
  - 4.5. replication of DNA
  - 4.6. protein synthesis
  - 4.7. molecular and chromosomal basis of mutations
  - 4.8. structure and function of cellular organelles
  - 4.9. structure and function of biologically-important lipids & carbohydrates
  - 4.10. models of membrane structure and membrane transport
  
5. Conversion and Use of Energy by Cells
  - 5.1. location and process of cellular respiration
  - 5.2. catabolic pathways and interrelationships for carbohydrates, fats and proteins
  - 5.3. significance of ATP
  - 5.4. location and process of photosynthesis
  - 5.5. light dependent reactions & light independent reaction
  
6. Plant and Animal Growth and Development
  - 6.1. mechanisms by which seed plants reproduce
  - 6.2. process of double fertilization
  - 6.3. results of fertilization and growth of seeds
  - 6.4. role of soil in plant growth and development, including impact of acid rain
  - 6.5. role of plant hormones and the photoreceptor phytochrome on plant growth and development
  - 6.6. process of animal fertilization
  - 6.7. embryological development following fertilization
  - 6.8. significance of primary germ layers
  
7. Introduction to Ecological Systems
  - 7.1. organization of biomes
  - 7.2. succession in terrestrial and aquatic habitats
  - 7.3. population dynamics and community interactions
  - 7.4. energy flow and nutrient cycling
  
8. Laboratory Techniques
  - 8.1. techniques required for the use of common laboratory equipment
  - 8.2. use of compound and stereomicroscopes
  - 8.3. preparation of various wet mounts for microscope work
  - 8.4. introduction to experimental methods

c. **Critical and Creative Thinking**

Students will learn critical and creative thinking through the course content and instructional

**Q: Means of Assessment**

<u>TYPE OF EVALUATION</u>	<u>POINTS</u>
Class Tests and Assignments	20
Laboratory Reviews (see note 1 below)	(up to -20)
Laboratory Examination - final	15
Comprehensive Examinations - midterm	30
- final	<u>35</u>
<b>TOTAL</b>	<b>100</b>

<b>GRADES:</b>	<b>A+ 95 – 100</b>	<b>A 90 – 94</b>	<b>A- 85 - 89</b>	<b>B+ 80 – 84</b>	<b>B 75 – 79</b>
	<b>B- 70 – 74</b>	<b>C+ 65 – 69</b>	<b>C 60 – 64</b>	<b>C- 55 – 59</b>	<b>P 50 – 54</b>