

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	BSC 2010C
COURSE TITLE:	Principles of Biology I
PREREQUISITE(S):	None
COREQUISITE(S):	None
CREDIT HOURS:	4
CONTACT HOURS/WEEK:	5
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	3
Laboratory:	2
Other _____:	
FACULTY WORKLOAD POINTS:	4.4
STANDARDIZED CLASS SIZE ALLOCATION:	24

CATALOG COURSE DESCRIPTION:

This course, an introduction to the principles of biology, includes studies of cellular organization, genetics and evolution. This course fulfills the General Education Requirements and the laboratory requirement needed by many students who plan to transfer to a four-year institution.

SUGGESTED TEXT(S):	Campbell: <u>Biology</u> , Benjamin/Cummings Publishing. Latest edition
	Johnson: <u>Biology</u> , W.C. Brown Publish Latest edition
	Villee, Solomon and Davis: <u>Biology</u> , Saunders College Publishing Company. Latest edition
	<u>Biology</u> , Solomon, Berg & Martin, Latest Edition, Books/Cole Publishers.

SUGGESTED TEXT(S): (continued)

Biology Laboratory Manual. Byres, Lloyd and Miller,
Pearson Publishing. Latest edition

Encounters with Life: Lab Manual. Hans F.E. Watchmeister
and Larry J. Scott. Latest Edition, Morton Publishers

IMPLEMENTATION DATE:

November 14, 1987

REVIEW OR MODIFICATION DATE:

Fall Term, 2002 (20031)

Fall Term 2006, (20071)

Fall Term, 2008 (20091) - Outline Review 2007

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
I. Inorganic Chemistry	5 Lecture 2 Lab
II. Organic Chemistry	5 Lecture 2 Lab
III. Cellular Organization	5 Lecture 4 Lab
A. Nucleus	
B. Cytoplasmic Organelles	
C. Cell Membrane	
D. Comparison: Prokaryotes vs. Eukaryotes	
IV. Energy Transformations	5 Lecture 4 Lab
A. Laws of Thermodynamics	
B. Cell Respirations	
C. Photosynthesis	
V. Cell Division	5 Lecture 2 Lab
A. Mitosis	
B. Meiosis	
C. Cytokinesis	
VI. Mendelian Genetics	5 Lecture 4 Lab
A. Monohybrid Crosses	
B. Dihybrid Crosses	
C. Test Crosses	
D. Sex Linkage	
VII. Molecular Genetics	5 Lecture 4 Lab
A. DNA and RNA Structure	
B. Replication	
C. Transcription	
D. Translation	
E. Genetic Engineering/Recombinant DNA	
F. Gene Expression and Cell Differentiation	

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

VIII. Origin of Life

5 Lecture

- A. Formation of Organic Chemicals
- B. Beginnings of Biological Information
- C. Origin of Cellular Organelles
- D. Heterotrophs & Autotrophs

IX. Other

5 Lecture

8 Lab

Total:

45 Lecture/30 Lab

Lab Topics
Recommended labs

1. Biochemistry lab - food tests : starch, monosaccharide, protein, reducing sugar
2. Microscope and cell lab
3. Metric system and measurement, and scientific method (plus optional molecular models)
4. Diffusion/osmosis
5. Human respiration: Phenolphthalein, Spiro meter, blood pressure
6. Photosynthesis: chromatography, elodea, plant cells
7. Mitosis/meiosis
8. Corn or other plant genetics
9. Human genetics including pedigree charts
10. Biotechnology - electrophoresis
11. Evolution : fossils, horse limbs, vertebrate skeleton, fossil human skulls
12. Outdoor field trip



**Florida State College
At Jacksonville**

**General Education Review Checksheet
and Learning Outcomes**

Course Prefix and Number: <u>BSC 2010C</u>	Semester Credit Hours: <u>4</u>
Course Title: <u>Principles of Biology I</u>	

Discipline Area for the Course:

<input type="checkbox"/> Communication	<input type="checkbox"/> Mathematics	<input type="checkbox"/> Social & Behavioral Sciences
<input type="checkbox"/> Humanities & Visual/Performing Arts	<input checked="" type="checkbox"/> Natural Sciences	<input type="checkbox"/> Other-Designated Option

INTELLECTUAL COMPETENCIES:

<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input checked="" type="checkbox"/> Scientific Method of Inquiry
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input checked="" type="checkbox"/> Information Literacy	<input checked="" type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively

Learning Outcomes

Method Of Assessment

1	Explain and apply major concepts in biological chemistry, cell structure and physiology, cell division, Mendelian and molecular genetics, and evolution.	Written tests, reports and/or use of equipment to demonstrate student competency in field.
2	Demonstrate knowledge of scientific method.	Formulate problem, make observations, derive and test hypothesis and make conclusions.
3	Communicate scientific ideas through oral or written assignments.	Written reports and/or oral presentations demonstrate ability to communicate scientific ideas.
4	Interpret scientific models such as formulas, graphs, tables and schematics, draw inferences from them and recognize their limitations.	Written reports of lab experiments and/or written tests demonstrate student competency in the application of scientific knowledge.
5	Demonstrate problem solving methods in situations that are encountered outside of the classroom.	Students use demonstrations, group discussions, written tests, laboratory reports, research projects and/or field experiences to illustrate competence in recognizing and evaluating various scientific processes.
6	Demonstrate proper laboratory technique including safety in the use and care of laboratory equipment and materials.	Results from laboratory work and experiments demonstrate student competency in laboratory technique.

Name of Person Completing This Form: David Byres

Signature: _____ Date: 11/19/2007



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KNOWLEDGE	Primary	Secondary	N/A	VALUE	Primary	Secondary	N/A
A. Global and Historical Knowledge & Understanding				Intellectual honesty	<input checked="" type="checkbox"/>		
• Comprehends a general knowledge of the nature, origins and contributions of major civilizations			<input checked="" type="checkbox"/>	Curiosity and openness to new ideas	<input checked="" type="checkbox"/>		
• Comprehends the workings and interrelations of personal, business and government economies			<input checked="" type="checkbox"/>	Recognition of one's own creative potential	<input checked="" type="checkbox"/>		
• Comprehends political, social and economic systems and their effects upon society		<input checked="" type="checkbox"/>		Acceptance of and respect for differences among people and cultures	<input checked="" type="checkbox"/>		
B. Cultural and Aesthetic Knowledge and Understanding							
• Comprehends the contributions of the arts and humanities to the human experience on a personal, national or global level			<input checked="" type="checkbox"/>	Civic Engagement		<input checked="" type="checkbox"/>	
• Comprehends the historical development of the arts and sciences		<input checked="" type="checkbox"/>		Lifelong Learning	<input checked="" type="checkbox"/>		
• Comprehends religious and cultural systems and their effects upon society		<input checked="" type="checkbox"/>					
C. Human Awareness and Understanding							
• Comprehends the dynamics of human behavior and the process of increasing self-awareness, growth and development	<input checked="" type="checkbox"/>						
• Comprehends the stages of human development and the dynamics of human relationships in diverse cultures		<input checked="" type="checkbox"/>					
• Comprehends the factors that promote physical, mental and social well-being		<input checked="" type="checkbox"/>					
D. Mathematics, Science and Technology							
• Comprehends the basic concepts and investigative processes of the natural sciences	<input checked="" type="checkbox"/>						
• Comprehends the breadth, significance and development of the mathematical sciences	<input checked="" type="checkbox"/>						
• Comprehends the ways science and technology have shaped and continue to reshape human cultures and the environment	<input checked="" type="checkbox"/>						

Name of Person Completing This Form: David Byres

Signature: _____ Date: 11/17/2007