Syllabus for
BIO 101—Principles of Biology Lecture
3.0 Credit Hours
Fall 2002

I. COURSE DESCRIPTION

A study of the main principles of life common to both plants and animals, including scientific methods, levels of organization, cell structure and function, photosynthesis, respiration, molecular and Mendelian genetics, reproduction, development, evolution, classification, behavior, and ecology and their appropriate applications for solving current biological problems. (Open to biology majors by permission. BIO 101 and BIO 111 may not both be taken for credit.)
Corequisite: BIO 101 Lab.

II. COURSE GOALS

In adapting this course to meet the needs of non-majors more adequately, emphasis is made on the understanding and appropriate application of basic biological principles to many problems of biological science in society. We believe that even this brief involvement with the philosophy, methods, findings and concepts of biology, and its interrelations with other areas of life will make a noticeable contribution toward becoming a scientifically literate citizen who will function more effectively in solving science-related problems.

III. COURSE OBJECTIVES

As a result of successfully completing this course, the student will be able to do the following:

A. Converse using conversant with the principles of life common to both plant and animal science.
B. Use the scientific method in problem solving, including world hunger, population, and environmental stewardship.
C. Recall terms necessary to comprehend and discuss the biological concepts presented in the course as evidenced by being able to use the terms correctly.
D. Exhibit a mature, responsible attitude toward your work, as part of the training inherent in the discipline of science and development of consistent Christian character by being prepared, present, and punctual.
E. Apply the principles of biology to modern problems (e.g., environmental pollution, world food problems) within Christian perspective.
F. Read science periodicals such as **Science**, **Scientific American**, and **Science News** with interest and understanding.

IV. TEXTBOOKS

Required Textbooks
Campbell, N.A. and Reece, J.B. 2002. Essential Biology, customized edition, Shawnee: Pearson Custom Publishing

Thurman, D. L. 1978. How to Think About Evolution, Tulsa: ORU.

V. POLICIES AND PROCEDURES

A. University Policies and Procedures
   1. Attendance at each class or laboratory is mandatory at Oral Roberts University.

2. Double cuts will be assessed for absences immediately preceding or following holidays.
3. Excessive absences can reduce a student's grade or deny credit for the course.
4. Students taking a late exam because of an unauthorized absence will be charged a late exam fee.
5. Students and faculty at Oral Roberts University adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, video, multimedia, or computer software.
6. Final exams cannot be given before their scheduled time. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.

B. Course Procedures

Evaluation Procedures

1. Problem-solving activities to test perspective and ability in problem solving or critiques of current science articles is assigned as in-class exercises or homework.
2. **Hour Exams**: Four in-class exams consist of all materials since the previous hour exam. Tests are primarily multiple choice questions that involve much recall, but also include several synthesis and analysis questions. Matching, True-False, and completion questions may also be used.
3. **Late exams:** If the instructor is not contacted upon a student's return to class after a missed exam, the makeup is treated as an **unexcused late exam**. **Unexcused late exams** may be taken but will cost the student 30% of his or her potential maximum makeup exam grade the first time, 40% the second time, 50% the third time, etc.
4. **Final Examination**: Students may expect a 200-point, two-hour comprehensive exam that covers the entire course. The final examination is administered as scheduled by the Registrar's Office.
5. Letter Grade Assignment for the Course

   The course score is determined as follows:

a.	Problem-solving activities quizzes or science article critiques	100
b.	Hour exams (4 x 100 points each)	400
c.	Final Exam	200
	TOTAL POSSIBLE POINTS	700

6. The course letter grade is assigned as follows:

Letter Grade	Points	Percent
A	630+	90-100
B	560-629	80-89
C	490-559	70-79
D	420-489	60-69
F	419 and below	59 and below

7. **Credit by Examination and Incompletes**: The student should refer to the ORU Catalog.

VI. COURSE CALENDAR

WEEK	TOPICS	TEXT
1	The Nature of Biological Science, Pseudoscience, and Religion	Ch. 1, Handouts
2	Introduction to Ecology and Population Ecology	Ch 17 , 18

3	Community Ecology	Ch. 19
4	Ecosystems Organization and Energy Flow **EXAM NO. 1 _____**	Ch. 20
5	Environmental Stewardship	Ch 20, Handouts
6	Behavioral Ecology	Ch. 37
7	The Chemistry of Life	Ch. 2, 3
8	Cell Structure and Function **EXAM NO. 2 _____**	Ch. 4
9	DNA-RNA: the Molecular basis of heredity Mitosis--The Cell-Copying Process	Ch. 9, 11 Ch. 7
10	Meiosis and Sex Cell Formation Reproduction and Development	Ch. 7 Ch. 27
11	Mendelian Genetics **EXAM NO. 3 _____**	Ch. 8
12	Biological Diversity	Ch. 13-16
13	Variation, Natural Selection, and Microevolution	Ch. 12, 13
14	Speciation and Macroevolution	Ch. 13, 14 Thurman Ch. 1-4
15	Origins and Creation/Evolution Models **EXAM NO. 4 _____**	Ch. 13, 14 Thurman Ch. 5-7

VII. ASSESSMENT SUMMARY

Dr. Hal Reed
Name of Instructor

MISSION

The lifestyle at ORU is rooted in the word "Wholeness." ORU seeks to educate the whole person, with balanced emphasis placed on the development of the mind, spirit, and body.

GENERAL OUTCOMES

1. Spiritual Development
2. Physical Development
3. Communication
4. Analysis
5. Problem Solving
6. Valuing in Decision-making
7. Social Interaction
8. Global Perspectives
9. Effective Citizenship
10. Aesthetic Responsiveness

Biology 101
Course No.

MAJOR OUTCOMES

Analysis/Problem Solving:

Be proficient in biology by acquisition of a broad-based knowledge in biology and by the development of scientific skills.

Be equipped to do independent investigation, analysis, and evaluation of a scientific nature.

Communication:

Be able to effectively communicate science in written and oral format.

Global Perspective/Spiritual Development:

Be able to develop a scientific worldview consistent with Biblical truth.

Principles of Biology Lecture
Title of Course

COURSE OUTCOMES

To understand the principles of life common to plants and animals.

To use the scientific method in analyzing and solving problems such as world hunger, population, and environmental stewardship.

Apply biological principles to contemporary biological problems.

Biology
Name of Department

ASSESSMENT OF COURSE OUTCOMES

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Examinations on knowledge of common life principles.

Problem-solving exercises that apply basic biological and problem-solving principles.

CRITERIA

Correctly answer exam questions over scientific method, biological principles, and contemporary problems of biological nature.

Correctly analyze problems in problem-solving exercises.