Syllabus for
BIO 101—Principles of Biology Laboratory
1 Credit Hour
Fall 2012

I. COURSE DESCRIPTION

Lab exercises, experiments, and audiovisual presentations involving cells, respiration, photosynthesis, classical and molecular genetics, protein synthesis, enzyme action, reproduction, development, behavior, and ecology.
Corerequisite: BIO 101 Lecture
Lab Fee: $25.

II. COURSE GOALS

The laboratory is an opportunity for students to do science and personally experience some of the methods previously encountered only theoretically and passively. The laboratory is an excellent place for those who lack experience with the reality of the living world in which we function. Thus, many insights, concepts, and principles will become more apparent to students when they actually "see what they mean."

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. Terminal Objectives

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

1. Converse using terms related to the principles of life common to both plant and animal science.
2. Describe and demonstrate the scientific method in problem-solving situations as they occur in laboratory exercises.
3. Describe the various structures and function of each level of organization as demonstrated in laboratory presentations.
4. Demonstrate proficiency in the use of various types of laboratory apparatus such as the microscope, pollution test kits, spectroscope, and other equipment outlined in the weekly laboratory procedures.
5. Gain a command of the terms necessary to comprehend and discuss the biological concepts presented in the laboratory as evidenced by being able to use the terms correctly.
6. Exhibit mature, responsible attitude in 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.
7. Relate biology to modern problems (e.g., environmental pollution, world food problems) that are largely scientific in nature.

B. Unit Objectives

Specific objectives are listed at the beginning of each unit in the lab exercise. Deletions and additions to those lists will be announced in lab.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

Required Textbooks
None

V. POLICIES AND PROCEDURES

A. University Policies and Procedures

1. Attendance at each class or laboratory is mandatory at Oral Roberts University. Excessive absences can reduce a student's grade or deny credit for the course.
2. Students taking a late exam because of an unauthorized absence are charged a late exam fee.
3. Students and faculty at Oral Roberts University must adhere to all laws addressing the ethical use of others' materials, whether it is in the form of print, electronic, video, multimedia, or computer software. Plagiarism and other forms of cheating involve both lying and stealing and are violations of ORU's Honor Code: "I will not cheat or plagiarize; I will do my own academic work and will not inappropriately collaborate with other students on assignments." Plagiarism is usually defined as copying someone else's ideas, words, or sentence structure and submitting them as one's own. Other forms of academic dishonesty include (but are not limited to) the following:
   a. Submitting another's work as one's own or colluding with someone else and submitting that work as though it were his or hers;
   b. Failing to meet group assignment or project requirements while claiming to have done so;
   c. Failing to cite sources used in a paper;
   d. Creating results for experiments, observations, interviews, or projects that were not done;
   e. Receiving or giving unauthorized help on assignments.

   By submitting an assignment in any form, the student gives permission for the assignment to be checked for plagiarism, either by submitting the work for electronic verification or by other means. Penalties for any of the above infractions may result in disciplinary action including failing the assignment or failing the course or expulsion from the University, as determined by department and University guidelines.
4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.
5. Students are to be in compliance with University, school, and departmental policies regarding the Whole Person Assessment requirements. Students should consult the Whole Person Assessment handbooks for requirements regarding general education and the students' majors.
   a. The penalty for not submitting electronically or for incorrectly submitting an artifact is a zero for that assignment.
   b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

B. Course Policies and Procedures

1. Grading System
   a. Quizzes

      A short 20-point quiz is given at the beginning of each lab. This quiz consists mainly of material for the **previous week**. The remainder of the quiz consists of material from the **current week**. The second part of the quiz is to assure that students have prepared for lab ahead of time.
   b. Laboratory Participation—10 points/week

      This includes handling of equipment, neatness, completion of exercises, and clean up of lab station.

      The criteria for grading the exercises are as follows:

(1) Writing or printing is legible.
(2) **All** questions are answered, data are determined and analyzed, etc., for the **entire exercise**.
(3) A demonstrated understanding of principles being studied as evidenced by **subjective** evaluation via an oral quiz at the conclusion of the lab.
(4) Points are deducted for failure to complete any of the above.
(5) Anyone who fails to checkout through the instructor or lab assistant receives a zero for lab performance.

c. Laboratory Practical—100 points
A lab practical on live and preserved specimens, models, microslides, and other study materials covers the whole course.

d. Final Graduate Evaluation

Quizzes	20 x 7 weeks	=	140 points
Lab Participation	10 x 8 weeks	=	80 points
Germination Study		=	25 points
Lab Final		=	100 points
		=	345 Total

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Percent	Grade
90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
<59%	F

2. Absences
a. Excused
(1) Seldom is there a legitimate reason for failure to attend an assigned laboratory period or complete assignments. Absences may be excused but only for legitimate reasons. Legitimate reasons include administrative excuses and grave illness.
(2) It is the student's responsibility to contact the lab instructor immediately concerning absences and arrange to make up the work during another scheduled laboratory period that week. A written explanation is mandatory. The instructor then determines whether or not the absence is excused and, if applicable, make arrangements for makeup. The student should contact the instructor as soon as any anticipated absence is known. This advance planning makes makeup much easier and improves faculty-student relations.
(3) Failure to submit the absence form may result in forfeiting the privilege of any makeup. Failure to complete makeup work when scheduled will result in reduced credit.

b. Unexcused
(1) Unexcused absences result in lowering of the semester average. Examples of unexcused absences include early departure and late return from vacations.
(2) There are no free cuts in lab! More than three lab absences, whether excused or unexcused, result in an "F" or an "I" (incomplete) for the course, depending upon completeness of other work. "I's" must be satisfactorily completed the following semester by completing the missed labs. Every unexcused lab absence will lower the semester average five percent (5%).

3. Whole Person Assessment Requirements
The long term experiment - Sunflower seed germination exercise satisfies Whole Person Assessment requirement 2A – Critical Thinking.

4. Other Policies and/or Procedures
This course involves experimental and observational 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. Principles of Biology Laboratory is a one-semester course designed for non-majors as the recommended life science course to accompany BIO 101 for the general education requirement.

VI. COURSE CALENDAR

WEEK	**TOPIC**
Week 1	MINDWALK VIDEO
Week 2	JUNK SCIENCE VIDEO and Powers of observation exercise
Week 3	Characteristics of Life. Microscopic Analysis of Pond Water Metric Measurement
Week 4	Scientific Method – Seed Germination Experiment
Week 5	Ecological Relationships, Predator-Prey Model
Week 6	Plant and Animal Cell Structure and Function
Week 7	Environmental Relationships and Problems
Week 8	Diffusion
Week 9	DNA Structure & Replication
Week 10	Cell Division A. Mitosis B. Meiosis
Week 11	Genetics I Mendelian Inheritance and Probability
Week 12	Human Genetics
Week 13	Reproduction and Development
Week 14	Review
Week 15	Laboratory Practical Exam

Course Inventory for ORU's Student Learning Outcomes

Principles of Biology Laboratory – BIO 101
Fall 2012

This course contributes to the ORU student learning outcomes as indicated below:
Significant Contribution – Addresses the outcome directly and includes targeted assessment.
Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.
Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.
No Contribution – Does not address the outcome.

The Student Learning Glossary at http://ir.oru.edu/doc/glossary.pdf defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities	Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
1 **Outcome #1 – Spiritually Alive** Proficiencies/Capacities				
1A Biblical knowledge				X
1B Sensitivity to the Holy Spirit				X
1C Evangelistic capability				X
1D Ethical behavior			X	
2 **Outcome #2 – Intellectually Alert** Proficiencies/Capacities				
2A Critical thinking	X			
2B Information literacy	X			
2C Global & historical perspectives		X		
2D Aesthetic appreciation			X	
2E Intellectual creativity		X		
3 **Outcome #3 – Physically Disciplined** Proficiencies/Capacities				
3A Healthy lifestyle		X		
3B Physically disciplined lifestyle		X		
4 **Outcome #4 – Socially Adept** Proficiencies/Capacities				
4A Communication skills		X		
4B Interpersonal skills			X	
4C Appreciation of cultural & linguistic differences				X
4D Responsible citizenship			X	
4E Leadership capacity			X	