Syllabus for
BIO 111L—Introductory Biology I Laboratory
1.0 Credit Hour
Fall 2017

I. COURSE DESCRIPTION

A course designed to complement and supplement BIO 111 Lecture. Student learns by handling glassware, chemicals, organisms, and equipment; by observing, forming hypotheses, conducting experiments, analyzing data, and making conclusions; and by working in a more individualized atmosphere than is possible in the classroom. Includes dissection of a fetal pig. (Honors sections are available for this course.)
Corequisite: BIO 111 Lecture.
Lab Fee: $50.00

II. COURSE GOALS

It is an established educational principle that learning and retention of that learned is greatest when a maximum number of the human senses are utilized in the learning process. Stated another way, we learn best and retain most when we utilize all our learning senses (sight, sound, touch, taste, and smell). Students in BIO 111 Lab have the opportunity of using some of the tools and methods of science. They handle test tubes, beakers, pipettes, graduated cylinders, microscopes and other equipment, many chemical solutions of varying types, and assorted living materials, both plants and animals. Before the semester is over, every student will have conducted numerous tests and experiments, observed demonstrations, analyzed data and situations from which to draw conclusions, and will have had many other varied learning experiences designed to enhance and promote learning.

BIO 111 Lab is a laboratory course designed to familiarize the beginning biology major with the well ordered and "grand design" of organisms at all levels of organization.

This course enables the student to have a more in-depth understanding of the complexity of life at the cellular and organismic levels of organization. This understanding will be brought about by the 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, and the various organ systems.

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. Discuss the principles and concepts of life common to both plants and animals.
2. Apply a basic, elementary, biologically oriented background in chemical and physical principles by performing specified laboratory procedures to directions given.
3. Use the scientific method in problem-solving situations.
4. Describe the various structures and function of each level of organization as specified in laboratory situations.
5. Demonstrate proficiency in making scientific observations and in using scientific

instruments and techniques.

6. Relate the principles of biology to problems in modern life within a Christian perspective.
7. Have a command of the terms necessary to comprehend and discuss the biological concepts presented in the course.
8. Exhibit a mature, responsible attitude toward their work by being prepared, present, and punctual for the training inherent in the discipline of science and in the development of consistent Christian character.
9. Express an appreciation of life, God's greatest creation.

B. Unit Objectives are stated in the laboratory manual for each exercise.

C. Objectives for Students in Teacher Preparation Program:
The Teacher Preparation Program meets the competency-based requirements established by the Oklahoma Commission on Teacher Preparation. This course meets the following competencies: Subject Competencies (SC) 7.b.1, 7.b.6, 7.b.7, 7.b.10.
This course is designed to help students meet subject competencies:
SC 7.b.1: Structure and function in living systems.
SC 7.b.6: The cell.
SC 7.b.7: The molecular basis of heredity.
SC 7.b.10: Matter, energy, and organization in living systems.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Textbook
Vodopich, D.S. & Moore, R. 2016. Biology Laboratory Manual, 11th edition. McGraw Hill Higher Education. ISBN: 9781259706110. With Connect Plus.

B. Optional Textbook
Van de Graaff, K.M. & Cranley, J.L. 2005. A Photographic Atlas for the Biology Laboratory, 5th ed., Englewood, Colorado: Morton Publishing Company. ISBN: 0-89582-314-4.

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. Makeups in freshman biology labs are not possible once the lab has been completed, supplies discarded, and equipment stored away for the semester. Thus, it is the student's responsibility to attend a different lab section during the same week if agreed to by the instructor to make up the week's lab and quiz. Therefore, the following represents the policy for absences from freshman biology labs.
   a. Excused Absences--Awarded for academically excused absences; and at the discretion of the instructor for legitimate reasons such as serious, severe illness, or emergency situations, which, in the opinion of the instructor, could not have been avoided by the student. It is the responsibility of the student to contact the instructor and provide note from a doctor/nurse. Advanced arrangements are always best, but if not before, then as soon as possible after the absence. Makeups can usually be arranged if the lab remains "set up", (in same week). Otherwise, an "E" (excused absence) will be assigned for that lab (both attendance points and for the quiz on that lab information). The "E" implies the attendance and quiz scores missed because of the absence will not count for or against the student's final grade. On the other hand, it does not excuse the student from knowing the information missed by the time the final lab exam is administered. The missed quiz(zes) may be made up with no penalty assessed if agreed to by the instructor and student.
   b. Unexcused Absences--Zeros will be assigned for unexcused absences

from labs, and the student is not excused for the information covered during the absence(s). Zeros will be assigned for quizzes missed. If the instructor agrees to do so, unexcused late "makeup" quizzes may be administered, but with a 30% penalty for the first time, 40% for the second time, etc.

c. More than three (3) absences during a semester results in an "F" being assigned for a course grade. Incompletes (I's) are not an option!

2. Evaluation Procedure

Credit for laboratory performance will come from the three sources listed below. Total possible points in this course equal 500.

a.	Connect Post-lab assignments should be completed for studying; 20 points per week for 12 weeks are earned for attendance and lab book exercises and lab notebook completed on the current unit of study	240 points
b.	Written quizzes at the beginning of each lab period; 20 points per week for 10 weeks	200 points
c.	Written lab report	60 points
d.	Laboratory Practical	200 points
		700 points

Final Grade Evaluation:	>90%	=	A
	80 -89%	=	B
	70 -79%	=	C
	60 -69%	=	D
	<59%	=	F

3. Whole Person Assessment Requirements

The Yeast Experiment lab report from this lab course will be used for Outcome 2 of your departmental Whole Person Assessment requirements.

VI. COURSE CALENDAR

Week	Title	Exercises
1	The Scientific Method Measurements in Biology	Exercise 1 Exercise 2
2	The Scientific Method Measurements in Biology	Exercise 1 Exercise 2
3	The Microscope The Cell	Exercise 3 Exercise 4
4	Diffusion and Osmosis Cellular Membranes	Exercise 9 Exercise 10
5	Enzyme	Exercise 11
6	Cellular Respiration	Exercise 12
7	Photosynthesis	Exercise 13
8	Chromosomes, Mitosis, Meiosis	Exercise 14, 15 & Handouts
9	Genetics	Exercise 17
10	DNA and Protein Synthesis	Exercise 16 & Handouts
11	Development in Animals	Exercise 50
12	Vertebrate animal tissues Human Biology-skeletal Human Biology-muscles	Exercise 41 Exercise 42 Exercise 43
13	Fetal Pig: External Anatomy Skin, Bones, Muscles, Digestive System	deGraaff/Crawley Exercise 47, 48 & Appendix I
14	Fetal Pig: Circulatory, Respiratory and Urogenital Systems	deGraaff/Crawley Exercise 49 & Appendix I
15	Laboratory Practical Exam	Comprehensive

Course Inventory for ORU's Student Learning Outcomes

Introductory Biology I Laboratory – BIO 111L
Fall 2017

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		