Syllabus for
PSC 101—Principles of Physical Science Laboratory
1 Credit Hour
Spring 2011

I. COURSE DESCRIPTION

Lab exercises to provide practice, manipulation, and visualization of principles that supplement PSC 101 Lecture.
Corequisite: PSC 101 Lecture.
Lab fee: $30.

General Physics 1 Laboratory provides practical hands-on experiments in beginning physics. The topics include are mechanics, heat and sound. The experiments that are done in this laboratory course compliment to topics under discussion in the requisite lecture course PHY 101.

II. COURSE GOALS

The major outcomes of this course are in the areas of problem solving, analysis, and social interaction. This course will enable the student to recognize critical factors in analytical problems and understand the process for solving them. The student will experience working together in a team situation, learning together collaboratively with a lab partner.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. As a result of successfully completing this course, the student will be able to do the following.
   1. Set up and use experimental apparatus.
   2. Carry out laboratory procedures as presented in each lab report.
   3. Collect data accurately.

B. List the technical terms and names of significant men in physical science as evidenced by the ability to do the following:
   1. Match a given statement with the appropriate term or name.
   2. Use the correct terms and names when writing responses to given questions or when writing general conclusions.

C. Discuss the basic concepts of physical science as evidenced by the ability to do the following:
   1. Write a brief conclusion of each lab experiment.
   2. Select from several choices the proper description of a given concept.

D. Discuss the basic laws of physical science as evidenced by the ability to do the following:
   1 Write the mathematical formulation of a given law.
   2. Identify a particular law when expressed by a given mathematical formula.

E. Apply the terms, concepts, and basic laws of physical science as evidenced by the ability to do the following:
   1. Answer questions, solve problems, and write brief conclusions as set forth on each lab report.
   2. Answer multiple choice questions as given on each lab report and on the results obtained in performing lab experiments.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

A. Required Material
Lab Manual is available in bookstore.

B. Other Required Materials
A calculator that adds, subtracts multiplies, divides, and takes square roots is sufficient for most calculations in the lab. However, a scientific calculator is preferred.

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 Whole Person Assessment (WPA) requirements. Students should consult the WPA handbooks for requirements regarding general education and the students' majors.
   a. The penalty for not submitting electronically or for incorrectly submitting an ePortfolio 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. Evaluation Procedures

a. Weekly Lab Score — Maximum Pts.

(1) Lab completion 5 pts. x 9 labs = 45
(2 lowest of 11 labs are dropped)

(2) Post-lab Quiz 5 pts. x 9 labs = 45
(2 lowest of 11 lab quizzes are dropped)

b. First Half Exam (covers first 5 labs) 75

c. Second Half Exam (covers last 6 lab) 90

d. Artifact Assignment 10

TOTAL 265

Bonus for 2 labs 5 pts. x 2 labs 10

Bonus for 1 lab 5

e. Course Grade**:** Students should divide their total points by 265 and convert to percentage.
Letter grades shall be assigned according to the following percentage ranges:

A	90 - 100%
B	80 - 89%
C	70 - 79%
D	60 - 69%
F	less than 60%

f. No makeup labs will be offered.

g. A quiz will be given at the end of each session. Students need to prepare ahead of time by **reading the lab before coming to class!**

h. Missed classes will result in the forfeiture of weekly score points for that week.

2 Laboratory Design

a. There are eleven two-hour laboratories, one every week. Each lab consists primarily of experimental work. There is also a quiz each week over lab work and material.

b. There are many lab sections, each section meeting at a different time. It is the responsibility of each student to determine which section he or she is enrolled in and to be present each week at the time **that** section is scheduled to meet. He or she **cannot** attend any other section.

c. Each student is expected to study the laboratory material for each week's laboratory **before** he or she comes to the laboratory. This advance preparation is necessary because the experimental work must be performed efficiently and with understanding, and because the lab quiz covers both the explanatory material and the experimental work.

d. Each experiment will be performed with small groups, each working with its set of equipment. Although cooperation is essential in performing an experiment, each student is to do his or her own calculations and written work in the lab. Use of work other than his or her own will be dealt with severely. This includes using answers from old lab manuals.

e. Students are encouraged to bring their own calculators.

f. Loss, Damage, and Breakage Fees: Each student is responsible for the university materials that he or she uses during the laboratory period and will be assessed an appropriate fee for any items that are lost, damaged, or broken.

3. Whole Person Assessment
   a. In conjunction with laboratory #2, Acceleration of Gravity, a special assessment of the results of the exercise is required to be submitted as a Whole Person Assessment.
   b. Instructions for completing this assignment will be handed out in lab. They are also available on the eli website under the category "Whole Person Assessment" as part of the General Education Handbook.

VI. COURSE CALENDAR

WEEK	EXPERIMENT	LAB
Week 1	MEASUREMENT and UNITS	No. 1
Week 2	ACCELERATION OF GRAVITY	No. 2
Week 3	SPRING CONSTANT	No. 3
Week 4	HEAT TRANSFER	No. 4
Week 5	ELECTRICITY	No. 5
Week 6	Exam 1 Review	
Week 7	**FIRST HALF EXAM**	
Week 8	OPTICS	No. 8
Week 9	PROBABILITY/RADIOACTIVITY	No. 11
	SPRING BREAK	
Week 10	CHEMICAL CONCENTRATION	No. 13
Week 11	CHEMISTRY	No. 12
Week 11	SPECTRUM & ASTRONOMY	No.9 & No.10
Week 12	Exam 2 Review	
Week 13	**SECOND HALF EXAM**	
Week 14	Thanksgiving week - No LAB	

Course Inventory for ORU's Student Learning Outcomes

PSC 101—Principles of Physical Science Lab
Spring 2011

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			√	
1B	Sensitivity to the Holy Spirit			√	
1C	Evangelistic capability				√
1D	Ethical behavior			√	
2	**Outcome #2 – Intellectually Alert** Proficiencies/Capacities				
2A	Critical thinking	√			
2B	Information literacy			√	
2C	Global & historical perspectives			√	
2D	Aesthetic appreciation			√	
2E	Intellectual creativity			√	
3	**Outcome #3 – Physically Disciplined** Proficiencies/Capacities				
3A	Healthy lifestyle			√	
3B	Physically disciplined lifestyle			√	
4	**Outcome #4 – Socially Adept** Proficiencies/Capacities				
4A	Communication skills			√	
4B	Interpersonal skills			√	
4C	Appreciation of cultural & linguistic differences			√	
	Responsible citizenship			√	
4E	Leadership capacity			√	