Syllabus for
PSC 101—Principles of Physical Science Laboratory
1 Credit Hour
Fall 2002

I. COURSE DESCRIPTION

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

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. COURSE OBJECTIVES

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. TEXTBOOK

Lab Manual available in bookstore.

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 ascribe to all laws addressing the ethical use of others' materials, whether it be in the form of print, video, multi-media, or computer software.
6. Final exams cannot be given before their schedule times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.

B. Course Policies and Procedures

1. Evaluation Procedures

		Maximum Pts.
a.	Weekly Lab Score	
(1.)	Preview Quiz 5 pts. x 9 labs = (2 lowest of 11 lab quizzes are dropped)	45
(2.)	Lab completion 5 pts. x 9 labs = (2 lowest of 11 labs are dropped)	45
b.	First Half Exam (covers first 5 labs)	75
c.	Second Half Exam (covers last 6 lab	90
	TOTAL	255
	Bonus for 2 labs 5 pts. x 2 labs	10
	Bonus for 1 lab	5

d. Course Grade**:** Students should divide their total points by 255 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%

e. No makeup labs will be offered.

f. 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!**

g. 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. 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.

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.

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	FIRST HALF EXAM	
Week 7	OPTICS	No. 8
Week 8	PROBABILITY/RADIOACTIVITY	No. 11
	FALL BREAK	
Week 9	CHEMICAL CONCENTRATION	No. 13
Week 10	CHEMISTRY	No. 12
Week 11	SPECTRUM	No. 9
Week 12	ASTRONOMY	No. 10
Week 13	SECOND HALF EXAM	
Week 14	NO LAB	

Dr. Stephen Herr and
Prof. Robin Akbar
Name of Instructor

PSC 101-61
Course No.

Principles of Physical Science Lab
Title of Course

Engineering and Physics
Name of Department

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 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

MAJOR OUTCOMES

Problem Solving/Analysis:
Student will be able to recognize critical factors in problems and understand the process for solving the problems.

Social Interaction:
Students learn to work together and cooperate as lab partners.

COURSE GOALS

Students will be able to see that physical relationships can be modeled by abstract formulas.

Students will experience using the scientific method.

Students will appreciate the predictability and repeatability of physical and chemical relationships.

Students will learn the skills of precise measurement.

ASSESSMENT OF COURSE GOALS

STIMULI:

Students are given credit for completing labs, and their corrected reports give them feedback for understanding concepts.

Weekly quizzes encourage students to keep up with terms and concepts.

Examinations require students to understand concepts and be able to solve problems.

Credit is given for museum trips where exceptional examples are demonstrated.

CRITERIA:

Standard percentage breaks (see syllabus), but students get bonus points for near-perfect attendance.