

Syllabus for
PHY 111-Physics I Lecture
3 Credit hours
Spring 2007

I. COURSE DESCRIPTION

Introduction of vector algebra: calculus-based studies of mechanics, heat, and thermodynamics.
Prerequisite or corequisite: MAT 201.
Corequisite: Physics 111 Lab.

II. COURSE GOALS

The purpose of this course is to enable the student to learn the laws of mechanics and heat, to see how they can be applied to explain many physical phenomena observed around us; and understand how they can be applied to build or improve devices that are beneficial to people.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

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

- A. Demonstrate concepts of physics performing satisfactorily on homework and tests;
- B. Solve problems by applying the laws of physics and the tool of mathematics;
- C. Demonstrate communication skills by answering questions in class, writing reports and journals, and turning in homework assignments;
- D. Show design and team-work capabilities by working on a project;
- E. Apply the scientific method in analyzing natural physical phenomena in written reports;
- F. Demonstrate professional and ethical responsibility through punctual class attendance and stewardship of resources.

IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

- A. Required Textbook
Serway, Raymond A. and John W. Jewett, Jr., Physics for Scientists and Engineers, 6th Edition, Philadelphia: Thompson/Brooks/Cole, 2004.
- B. Optional Materials
Serway, Raymond A. and John W. Jewett, Jr., Study Guide for Physics for Scientists and Engineers, Thompson/Brooks/Cole, Orlando, 2004.

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.

Last Revision: Fall 2006

- 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, video, multimedia, or computer software. By Submitting an assignment of 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.
4. Final exams cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other event at the end of the semester.
5. Students are to be in compliance with University, school and departmental policies regarding ePortfolio requirements. Students should consult the ePortfolio 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. Four one-hour exams are given during the semester. These account for

percent of the final course grade. Students may elect to do an

project and partially replace the lowest test grade with the project grade, or count the project as a bonus/extra credit.
- b. Homework assignments are due at the beginning of the next class. Homework grade constitutes 15 percent of the final grade.
- c. During the semester, one or two group projects will be completed by the student. Projects will collectively count 10% of the semester grade.
- d. The final exam accounts for 15 percent of the final course grade.

2. Unexcused Absences

- a. If a test is missed, the student should make a petition to the instructor for makeup either before the test date or the day the student comes back to school. If the reason for absence is valid, the instructor may give a makeup test and impose a penalty of up to 25 percent. A late exam fee

\$10 will be levied.
- b. The final average of the semester will be reduced by one point for each unexcused absence above the first three.

3. Tardiness and leaving classroom—A student may leave the class without the instructor's permission for reasons of personal necessity. If students are tardy, they must clear with the instructor at the end of the class. **Three tardies equal an absence. Students who would be more than 15 minutes late are not allowed in the class unless they have cleared it with the instructor in advance.**
4. ePortfolio Requirements: The final grade will be reduced by 5% for any ePortfolio artifacts that are not submitted by the end of the semester. (5% total, not per artifact)

60

appropriate

of

VI. COURSE CALENDAR

Week	Day	CH	Topic	Homework
1	1 TH	1	Intro to Physics	3,5,11,15,17,23,31,39,47
	2 TU	2	Review Problems 1 Dim Motion	3,5,9,12,14,19,24
2	3 TH		Continue 1 Dim	21,27,29,34,41,42,47
		3	Vectors	
	4 TU	4	Continue Vectors 2 Dim Motion	3,5,9,15,22,26,31,35,43 2,3,4,7,8
3	5 TH		Continue 2 Dim	11,16,19,27,32,43
	6 TU		EXAM 1 (Chapters 1-4)	
		5	Laws of Motion	1,3,4,7,11,15
4	7 TH		Continue Laws of Motion	20,29,32,41,44,51
	8 TU		Review Problems	
		6	Circular Motion	2,4,13, 17,19,21,23,25
5	9 TH	7	Work-Kinetic Energy	2,9,13,16,25,29,32
	10 TU		Continue Work-Kinetic Energy Review Problems	36, 43,47,
6	11 TH	8	Potential Energy/Conservation	2,5,9,11,21,30,31,38,43
	12 TU		Review Problems/Discussion	
7	13 TH		EXAM 2 (Chapters 5-8)	
		9	Linear Momentum	2,7,9,12,15,18
	14 TU		Continue Linear Momentum Review Problems	23,26,29,34,39 40,45,47
8	15 TH	10	Rotation of Extended Bodies	2,5,9,13,20,25
	16 TU		Continue Rotation of Ext. Bodies	29,30,33,38,41,43,46
9	17 TH	11	Angular Motion	2,7,11,16,21,25,31,36,39
	18 TU	12	Statics/Elasticity	3,6,17,21,26,31,35,41
10	19 TH	13	Universal Gravitation	4,9,15,20,29,34
			Review Problems	
	20 TU		EXAM 3 (Chapters 9-13)	
		14	Fluid Mechanics	4,5,11,14
11	21 TH		Continue Fluid Mechanics	25,28,31,35
	22 TU		Continue Fluid Mechanics	
		19	Temperature	3,9,18,27,37,41

12	23 TH	20	Continue Temperature Heat/Thermodynamics	2,7,17,21,24,29,31
	24 TU		Continue Heat/Thermodynamics	
13	25 TH	21	Review Problems/Discussion	3,9,17,20,25,39
	26 TU		Kinetic Theory	
14	25 TH	22	Continue Kinetic Theory	9,15,16
	26 TU		Engines/Entropy	
15	27 TH		EXAM 4 (Chapters 14,15,19-22)	
			FINAL	

Course Inventory for ORU's Student Learning Outcomes
PHY 111-Physics I Lecture

Spring 2007

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
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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			√	
4D	Responsible citizenship				√
4E	Leadership capacity			√	