

Syllabus for
PHY 111—Physics I Lecture
3 Credit Hours
Spring 2017

I. COURSE DESCRIPTION

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

II. COURSE GOALS

The purpose of this course is to enable the students to do the following:

- A. Learn the laws of mechanics and heat to see how they can be applied to explain many physical phenomena observed around us.
- B. Understand how the laws of mechanics and heat 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 Materials

- 1. Textbook
Serway, Raymond A., and John W. Jewett W. Jewett. Physics for Scientists and Engineers With Modern Physics, 9th edition Hybrid (With Enhanced Webassign Homework and Ebook Loe Printed Access Card for Multi Term Math and Science. City: Brooks/Cole Pub Co, 2013.
ISBN-13: 9781133953982
- 2. Scientific calculator

B.

Optional Materials

1. Textbooks
Serway, Raymond A., and John W. Jewett, Jr. *Study Guide for Physics for Scientists and Engineers*. Orlando, FL: Thompson/Brooks/Cole, 2013. ISBN-13: 9781285071688
2. Other
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 event 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 artifact is a zero for that assignment.
 - b. By submitting an assignment, the student gives permission for the assignment to be assessed electronically.

- B. Department Policies and Procedures
1. A fee of \$15.00 is assessed for all late exams. This policy applies to all exams taken without notifying the professor prior to the regularly scheduled exam time and to all exams taken late without an administrative excuse.
 2. Any student whose unexcused absences total 33% or more of the total number of class sessions receives an F for the course grade.
- C. Course Policies and Procedures
1. Evaluation Procedures
The final grade is a composite result of performance in exams, quizzes, homework problems, and class participation. The final exam constitutes approximately 25% of the final average, 25% of the final grade is based on 3 hour exams, 25% is based on homework problems, and 25% is based on quizzes.
Grading scale:

A=90-100%	Excellent
B=80-89	Above Average
C=70-79	Average
D=60-69	Below Average
F=59% and below	Fail
 2. Whole Person Assessment Requirements
The final grade is reduced by 5% for any WPA artifacts that are not submitted by the end of the semester (5% total, not per artifact).
 3. Other Policies and/or Procedures
 - a. A student may leave the class without the instructor's permission for reasons of personal necessity
 - b. The first five absences (excused or unexcused) do not result in a grade reduction. The numbers of absences allowed prior to grade reduction are designed to accommodate emergencies and illness. The final grade is reduced by 2.5% if the amount of missed classes reaches 25% of all total sessions (10 classes). Make-up assignments (for full credit) are given only in extremely unavoidable situations **upon prior arrangement with instructor** or with valid medical excuse; otherwise, missed assignments will be graded with a 25% penalty. Perfect attendance results in a 2.5% increase in final score. You can also earn extra credit by doing a special project and/or class participation.
 - c. Students are responsible for keeping up with the rest of the class (even if they are absent). Please find out what we studied during the class you missed from another student.
 - d. Solutions for assigned problems from sections covered in class are due in the next class—don't fall behind! Come to class with any questions you have from the homework. Come see me regularly; don't wait until you get in trouble. If you do get into trouble, get help immediately— don't wait!! Problem solving is much more than merely substituting numbers for the symbols in a formula or fitting together the pieces of a jigsaw puzzle. Merely thumbing through the book until you find a formula that seems to fit or a worked-out example that resembles the problem is a waste of time and effort. You should study before tackling the problems. Problems enable you to find out whether or not you understand the assigned material. This is a good indicator of your motivation, initiative, and reliability.

- e. Show all work for the full credit. Messy papers (nontrimmed, nonstapled, or nonreadable) will result in a lower grade.
- f. Late work is assessed a 20% per week penalty.
- g. An online quiz is given every week during each chapter.
- h. Exams cover several chapters.
- i. The final exam is comprehensive, partial credit applied.
- j. You could bring a formula sheet and submit it with your quiz or exam (handwritten, no copies, no work out problems). Illegal formula sheets result in a 0 score for the assignment. No calculator sharing! No cell phone!
- k. Students may elect to do an appropriate project as a bonus/extra credit.
- l. Students are expected to be in class on time. Those who would be late by more than 15 minutes should not enter the class unless the instructor was informed of the possible tardiness in advance. Also, please, let me know in advance that you need to leave early. I circulate an attendance sheet at the beginning of each class section. Students who are late cannot sign the attendance sheet once it is circulated.
- m. Chapters to be covered during a class period should be read before the class. There is a direct relationship between the amount of time you invest in a course and how much you learn. In keeping with my goal to maximizing your learning, this course requires a significant amount of your time. Form study groups. Learn from your mistakes: examine graded work carefully to understand your errors.
- n. Please turn off your cell phones.
- o. No food in the classroom without valid medical reason.
- p. **Lecture LRC 113 F/Lab GC 1A18**
Instructor: Dr. Elena Gregg, Engineering Department
Office: GC 1D32, ext. 6253
egregg@oru.edu
Admin. Secretary: Kerri Ophus
Office LRC 181, ext. 6531

VI. COURSE CALENDAR

Chapter	Topic
N/A	Physics, initial assessment test
1	Kinematics
1	Intro to Course and Problem Solving Strategy
1	Physics and Measurement
2	Position, Velocity and Speed
2	Acceleration and Objects in Free Fall
3	Vectors
4	Projectile Motion
1-4	Exam 1, Chapter 1-4
	Conservation Of Momentum
9	Momentum and 1-D Collisions
9	Center of Mass and 2-D Collisions
10	Angular Motion and Torque
10	Moments of Inertia and Rotational Energy
11	Angular Momentum
12	Static Equilibrium and Elasticity
9-12	Exam 3, Chapter 9-12
	Universal Gravitation, Fluids and Heat, Work and Heat in Thermodynamics
13	Newton's Law of Universal Gravitation
13	Kepler's Laws and Planetary Motion
19	Temperature and Thermal Expansion
20	1st Law of Thermodynamics
21	Kinetic Theory of Gases
21	Adiabatic Processes and Molecular Speeds
22	Heat Engines and the 2nd Law of Thermodynamics, Entropy
13, 14,19-22	Exam 4, Chapter 13, 14, 19-22

FINAL

Instructor may change the assignment schedule AT ANY TIME by verbal or written notification to the class.

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