

Syllabus for  
**PHY 101—General Physics I Lecture**  
3 Credit Hours  
Fall 2021

I. COURSE DESCRIPTION

An introduction to the laws and principles of physics including mechanics, heat, and sound. (Primarily for liberal arts and biological science students. Not applicable to a physics major or minor.)

Prerequisites: High school algebra.

Corequisite: PHY 101 Lab.

II. COURSE GOALS

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

A. Understand the principles of mechanics, sound, and heat.

B. Apply these concepts in other disciplines.

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. State or explain technical terms and names of significant individuals in physics:
  - a. Define or identify a given term or name.
  - b. Match a given statement with the appropriate term or name.
2. Discuss basic concept of classical physics (such as vectors and harmonic motion) and select from several choices the proper description of a given concept.
3. Explain the basic laws of classical physics (such as Newton's Laws of Motion, Law of Universal Gravitation, Archimedes' Principle, Laws of Thermodynamics, etc.):
  - a. Describe a given physical law.
  - b. Write the mathematical formulation of a given law.
  - c. Identify a particular law when expressed by a given mathematical formula.
4. Apply the terms, concepts, and basic laws of classical physics in solving typical problems.
5. Approach the learning of a subject in a consistent and disciplined manner:
  - a. Attend class sessions regularly and punctually.
  - b. Turn in homework assignments regularly and on time.
  - c. Participate in group activities and class discussions.

B. Objectives for students in Teacher Preparation Programs

These course goals for the Teacher Preparation Program meet the competency-based requirements established by the Oklahoma Commission on Teacher Preparation. This course meets the following competencies: Subject Competencies (SC) 7.c.2. and 7.c.3.

SC.7.c.2.: Is able to teach with broad understanding of all content areas and understands the reaction between the sciences and process skills as it applies to Physical Science Content: motion and force.

SC.3.c.3.: Is able to teach with broad understanding of all content areas and understands the interaction between the sciences and process skills as it applies to Physical Science Content: transfer of energy.

#### IV. TEXTBOOKS AND OTHER LEARNING RESOURCES

##### A. Required Materials

1. Textbooks  
Serway, Raymond A., and Chris Vuille. *College Physics. College Physics*. 11 ed.; Cengage, 2019 with Web Assign. ISBN: 978-1-305-95230-0
2. Other  
Scientific calculator

##### B. Optional Materials

1. Textbooks  
None
2. Other  
None

#### V. POLICIES AND PROCEDURES

##### A. University Policies and Procedures

1. 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.
2. 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.
3. Students are to be in compliance with University, school, and departmental policies regarding 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. School Policies and Procedures
1. Attendance at each class or laboratory is mandatory in the School of Engineering at Oral Roberts University. Excessive absences can reduce a student's grade or deny credit for the course.
  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 grading scale is as follows:  

A=90%	Excellent
B=80%	Above Average
C=70%	Average
D=60%	Below Average
F=59% and below	Fail
  2. Whole Person Assessment Requirements  
None
  3. Other Policies and/or Procedures
    - a. 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 three one hour exams, 25% is on homework problems, and 25% is on quizzes and lab exercises.
    - b. The first five absences (excused or unexcused) will result in no grade reduction. The numbers of absences allowed prior to grade reduction are designed to accommodate emergencies and illness. The final grade will be reduced by 2.5% if the amount of missed classes will reach 25% of all total sessions (10 classes). Perfect attendance will result in 2.5% increase in the final score. You can also earn extra credit by doing a special project and/or class participation. Students are responsible for keeping up with the rest of the class (even if they are absent); find out what we studied during the class they missed from another student.
    - c. Students are expected to be in class on time. Those who are 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.
    - d. In addition to lectures, some experiments will be conducted. Make-up assignments (for full credit) are given only in extremely unavoidable situations upon PRIOR ARRANGMENT WITH INSTRUCTOR or with valid medical excuse; otherwise, missed assignments will be graded with 25% penalty.
    - e. 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. Students should study before tackling the problems. Problems enable students to find out whether or not they understand the assigned material. This is a

good indicator of one's motivation, initiative, and reliability. Late work will be assessed 20% per week penalty.

- f. A short quiz will be given every week after finishing the chapter. Exams will cover several chapters. The final exam will be comprehensive. Partial credit applied. You could bring a formula sheet and submit it with your quiz or exam (handwritten, no copies, no work out problems). An illegal formula sheet will result in 0 score for the assignment. No calculator sharing! No cell phones!
- g. 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 will require a significant amount of your time. Form study groups. Learn from your mistakes: examine graded work carefully to understand your errors.
- h. Please, turn off your cell phones. No food in the classroom without valid medical reason. Show all work for the full credit. Messy papers (nontrimmed, nonstapled, and nonreadable) will result in a lower grade.
- i. **Instructor: Dr. Elena Gregg, Engineering Department**
- ii. **Office NEC 204A, ext. 6253 egregg@oru.edu**
- iii. **Admin. Secretary: Kerri Ophus, Office NEC 208, ext. 6531**
- j. Instructor may change the assignment schedule at any time by verbal or written notification to the class.

## VI. COURSE CALENDAR

Week	Topic
1	Chapter 1 Introduction
2	Chapter 2 Motion in One Direction
3	Chapter 3 Vectors and Two-Dimensional Motion
4	Chapter 4 Laws of Motion  <b>Exam 1: Ch. 1-4</b>
5	Chapter 5 Energy
6	Chapter 6 Momentum and Collisions
7	Chapter 7

Rotational Motion and Law  
of Gravity

- 8 Chapter 8  
Rotational Equilibrium  
and Rotational Dynamics

**Exam 2: Ch. 5-8**

- 9 Chapter 9  
Solids and Fluids

- 10 **Fall Break**

- 11 Chapter 10  
Thermal Physics

- 12 Chapter 11  
Energy in Thermal Processes

- 13 Chapter 12  
The Laws of Thermodynamics

**Exam 3: Ch. 9-12**

- 14 Chapter 13  
Vibrations and Waves

- 15 Chapter 14  
Sound

**Thanksgiving Break**

- 16 TBA

**Final Examination—Ch. 1-14**