

PHYS 2211
Principles of Physics I
Fall 2018

1. Instructor

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(When e-mailing, put "PHYS2211" in the subject line along with the subject of your message. Please do not use D2L or Web Assign to email me, you may not get a reply.)

2. Lectures and Recitations

Lectures: Tue Thu 2:00-3:15 pm, Academic Building Room 203

Recitations: Tue 12:30-1:20 pm, Mathematics Room 117 (Section I - 24 students)

Recitations: Tue 3:30-4:20 pm, Academic Building Room 250 (Section II - 24 students)

Recitations: Thu 12:30-1:20 pm, Academic Building Room 250 (Section III - 24 students)

Recitations: Thu 3:30-4:20 pm, Academic Building Room 250 (Section IV - 24 students)

3. Office hours:

Mon 10 am – 12 pm

Tue 4:30 pm-5:30 pm

Wed 10 am – 12 pm

Thu 4:30 pm – 5:30 pm

Fri – (by appointment)

4. Textbook and required materials

Physics for Scientists and Engineers with Modern Physics, Serway and Jewett, 10th ed. (Access to webassign will also provide access to ebook). Scientific calculator is also required.

5. Catalog course description

PHYS 2211. Principles of Physics I

6. Course Introduction

This course is an introductory calculus-based course on classical mechanics, waves, and special relativity. The students will be able to apply Newton's laws and conservation of energy and momentum to various problems in kinematics and dynamics, use the law of universal gravitation to analyze the behavior of falling objects and objects in orbital motion, describe simple harmonic motion, oscillations, and waves, and explain the basic ideas of special relativity.

7. Prerequisite

A grade of "C" or better in MATH 1190.

8. Course content

PHYS 2211 is a calculus-based course on classical mechanics and related topics. Problem solving will be emphasized. Homework and participation is an integral part of the course. The course will

cover one- and two-dimensional motion, Newton's laws, work and energy, momentum and collisions, rotational motion, gravitation, simple harmonic motion, waves, and special relativity.

9. Learning Outcomes

The topics covered in this course provide the most fundamental background for a pathway in science and engineering. Some specific objectives are listed below:

1. Analyze and solve kinematical problems for systems moving in one and two dimensions using pictorial, graphical, physical, or mathematical representations (including calculus and vectors) of the system, and other representations as appropriate.
2. Analyze and solve statics and dynamics problems using Newton's laws (including the law of gravitation) in one and two dimensions using multiple representations including free-body diagrams and mathematical descriptions (including calculus and vectors) of the system.
3. Analyze and apply the conservation laws (energy and momentum) for linear and rotational systems, and develop solutions using multiple representations, including pictorial, graphical, or mathematical (including calculus and vectors) descriptions as appropriate.
4. Explain simple harmonic motion and compute parameters related to it in such applications as mass-spring oscillators, simple pendulums, and sinusoidal transverse waves.
5. Use special relativity to analyze differences in the behavior of objects as observed in different inertial reference frames, and explain the equivalence of mass and energy.

10. Grading policy

Quizzes & Recitation	3%
Homework	7%
Test 1	20%
Test 2	20%
Test 3	20%
Final exam	30%

Note: There will be 4 tests but the lowest test score will be dropped.

Letter Grades	A	B	C	D	F
Percentage	90%-100%	80%-89%	70%-79%	60%-70%	Below 60%

11. D2L (Desire to Learn)

Grades, course information, homework solutions and announcements will be available "D2L". This online course information system is accessible from <http://d2l.kennesaw.edu/>. To sign on, use your KSU Local Area Network (LAN) username and password.

12. Homework Assignments

Homework assignments and homework grading will be done through the Webassign on-line homework tool (<https://www.webassign.net>). Students should use the class key: **kennesaw 3316 6426** in order to see and submit the homework.

There will be home work each week. You are encouraged to work together on the homework, but each person must work and submit his/her own homework. Don't rely on your classmates so much that you cannot solve problems by yourself on tests or exams. Keep a detailed note of your work which would be useful in preparing for tests and exams.

13. Recitation

Every student enrolled in this class is required to attend his/her weekly recitation session. The recitations are designed to give direct guidance to applied student learning of the in-class material and assigned readings. The assignment will be given during the session each week. You are required to turn in your work to receive credit (3%) for each session.

14. Withdrawal policy

Last day to withdraw without academic penalty is October 3, 2018. The university's withdrawal policy is explained at:

<http://registrar.kennesaw.edu/student-records/registration-policy.php>

The Academic Standing Appeal policy is explained at:

https://appeals.kennesaw.edu/withdrawal_appeal.php

Students are solely responsible for managing their enrollment status in a class.

Nonattendance does not constitute a withdrawal.

15. Tentative Schedule

Aug 14 (Tue), Aug 16 (Thu)

Physics and Measurement; Motion in One Dimension

Chapter 1: Sects. 1.1-1.6

Chapter 2: Sects. 2.1-2.8

Aug 21 (Tue), Aug 23 (Thu)

Vectors; Motion in Two Dimensions

Chapter 3: Sects. 3.1-3.4

Chapter 4: Sects. 4.1-4.6

Aug 28 (Tue), Aug 30 (Thu)

The Laws of Motion, Circular motion

Chapter 5: Sects. 5.1-5.8

Chapter 6: Sects. 6.1-6.3

Sep 4 (Tue) – **Review for test 1**

Sep 6 (Thu) - **Test 1**

Sep 11 (Tue), Sep 13 (Thu)

Energy of a System

Chapter 7: Sects. 7.1-7.9

Sep 18 (Tue), Sep 20 (Thu)

Conservation of Energy

Chapter 8: Sects. 8.1-8.5

Sep 25 (Tue), Sep 27 (Thu)

Linear Momentum and Collisions

Chapter 9: Sects. 9.1-9.9

Oct 2 (Tue) : **Review** for test 2

Oct 4 (Thu) : **Test 2**

Oct 9 (Tue), Oct 11 (Thu)

Rotation of rigid objects

Chapter 10: Sects. 10.1-10.9

Oct 16 (Tue), Oct 18 (Thu)

Angular momentum; Static equilibrium and Elasticity

Chapter 11: Sects. 11.1-11.4

Chapter 12: Sects. 12.1-12.3

Oct 23 (Tue), Oct 25 (Thu)

Universal Gravitation

Chapter 13: Sects. 13.1-13.6

Oct 30 (Tue), Nov 1 (Thu)

Oscillatory Motion

Chapter 15: Sects. 15.1-15.5

Nov 6 (Tue): **Review**

Nov 8 (Thu): **Test 3**

Nov 13 (Tue), Nov 15 (Thu)

Wave Motion

Chapter 16: Sects. 16.1-16.2, 16.6

Nov 19 (Mon) –Nov 25 (Sun): No classes; fall break

Nov 27 (Tue)

Special Relativity

Chapter 39: Sects. 38.1, 38.4-38.7.

Nov 29 (Thu): **Test 4**

Dec 4 **Review for Final**

Dec 6 **1:00 pm - 3:00 pm (Final exam)**

16. Exam dates

Test 1	Sep 6, 2018 (2 - 3:15 pm)
Test 2	Oct 4, 2018 (2- 3:15 pm)
Test 3	Nov 8, 2018 (2-3:15 pm)
Test 4	Nov 29, 2018 (2-3:15 pm)
Final	Dec 6, 2018 (1 - 3 pm) (Room 203)

17. Exams Policy

Four tests (In addition to final) will be given in this semester. The test dates are reported on this syllabus. The lowest test score will be dropped. Please note that the use of any mobile device that transmits a signal is not permitted in an exam. ALL mobile devices should be deactivated during exams. You must have a valid KSU identification card to take the final exam. Late students will not be permitted into exam after other students have completed exam and left the exam room.

18. Make-up Exam policy

Make-up exams will not be given (with exception). If you know ahead of time you have a conflict, let me know. If you miss an exam because of an illness (yours or a family member's) or some other unforeseeable event, contact me as soon as you can. You can e-mail me, or call the Physics Dep. Office at 470-570-4205. You must provide documentation showing the reason for missing the exam. Final make-up exam is ONLY for documented and excused emergencies or for scheduling conflicts with other final exams.

19. Academic Integrity

Every KSU student is responsible for upholding the provisions of the [Student Code of Conduct \(http://scai.kennesaw.edu/codes.php\)](http://scai.kennesaw.edu/codes.php), as published in the Undergraduate and Graduate Catalogs. The Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University, which include either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

20. Attendance & Participation

Students are expected to attend all lectures and recitations, take all tests and exams, and complete all homework assignments.

21. Students with Disabilities

Any student with a documented disability or medical condition needing academic accommodations of class-related activities or schedules must contact the instructor immediately. Written verification from the KSU Student Disability Services (<http://sds.kennesaw.edu>) is required. No requirements exist that accommodations be made prior to completion of this approved University documentation. All discussions will remain confidential.

22. Other Policies

See the [Student Handbook \(http://catalog.kennesaw.edu/index.php?catoid=37\)](http://catalog.kennesaw.edu/index.php?catoid=37) for other policies.

23. Inclement Weather

For the official status of the university check the KSU website <http://www.kennesaw.edu>

The instructor of the course reserves the right to make changes on pages 1-6 of this syllabus if it is necessary to account for ineluctable circumstances. In such events, the instructor will notify students of any changes at their students.kennesaw.edu address at least one week prior to the dates the changes take effect.