Online University Physics I (physics 2750) Syllabus (summer 2020)

Course Learning Goals

By the end of this course, students should be able to:

1. Demonstrate the ability to think critically and to use appropriate concepts to analyze qualitatively problems or situations involving physics.
2. Use appropriate mathematical techniques and concepts to obtain quantitative solutions to problems in physics.
3. Demonstrate the ability to collect, analyze and interpret data, and prepare coherent reports of their findings.

Course Information

Course Number & Title: Physics 2750, University Physics I, Calculus Based Physics for Scientists and Engineers

Course Description: First course in calculus-based physics for science and engineering students. Covers kinematics, dynamics, oscillations, waves, fluids, and thermodynamics. Includes a laboratory.
Pre-requisite: Math 1500, Calculus I with a grade of C- or better.
Pre or *Co-requisite*: Math 1700, Calculus II

Course Materials

Textbook: The textbook for this class is free! It is an open educational resource (OER) created by faculty at Rice University. There are two ways to access the textbook:

1. From [Modules/Textbook](). You have a pdf file for each chapter listed: you can view the pdf online or download it on your computer.
2. From the OpenStax website: [*University Physics, Volume 1* from OpenStax](), ISBN 1-947172-20-4. From this website, you can download the entire textbook as a single pdf file, view the textbook online, download the textbook for iBooks, or Kindle. Use whatever method you like the most.

Online Homework/Exams: Expert TA is the online homework/exams system used in this course. The access code to the ExpertTA can be purchased online or in the bookstore. [Follow instructions for signing up for ExpertTA.](#)

Instructor and TA Information

Instructor: **Dr. Ioan (John) Kosztin**
Email: use the email from Canvas

TAs: Ryan Smith
Office hours: Wednesday, Thursday, Friday

How to contact instructor/TA:
For homework questions, test preparation, or general questions about physics, please use the [Discussion Board](#). We want all students in the course to see the answers to your questions (they may have the same questions as you). If you have any private concerns, please use the email in Canvas, otherwise please post all your questions on the [Discussion Board](#).

The instructor and the TA will check the Discussion Board every day and will answer all the questions posted within 24 hours.

Help

Help in this course is available every day of the week, all you have to do is ask! If you have any technical difficulties (e.g. logging in, accessing the discussion board) please e-mail helpdesk@missouri.edu or contact the DoIT Help Desk at (573) 882-5000.
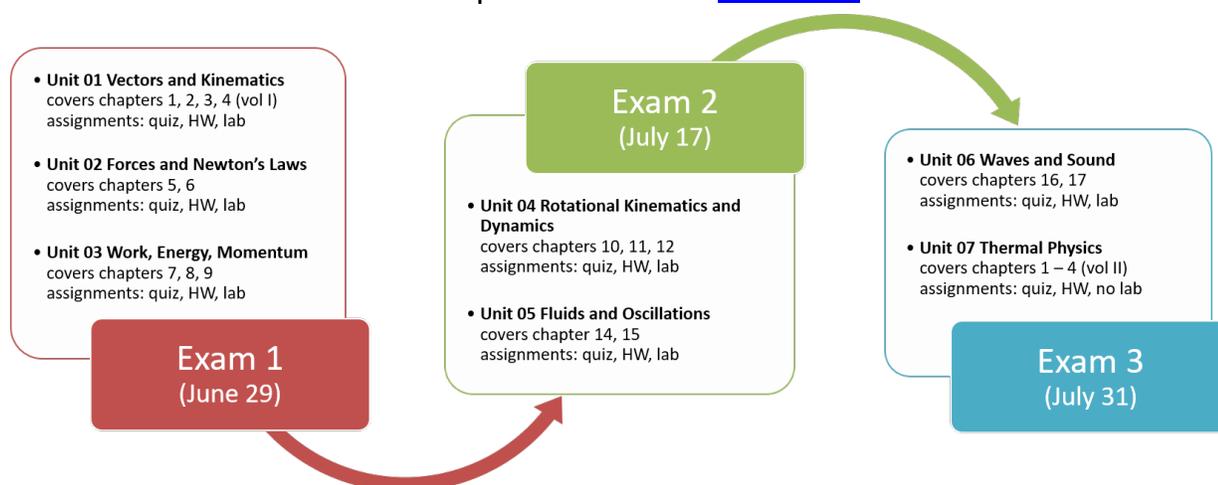
Course Content

INSTRUCTIONAL UNITS
The material covered in this course is structured into 7 instructional units as shown below. Every instructional unit contains a list of reading assignments, recorded lectures, lecture notes, and tutorial problems.

There are deadlines for completing each unit and you should make sure you complete each unit in the time specified in the Course Calendar and under [Modules.](#) You may work at your own pace, finish everything early, but you must not fall behind as deadlines for quizzes, homework, labs, and exams are very strict. More information

about each instructional unit is provided under Modules.

- **Unit 01 Vectors and Kinematics**
  covers chapters 1, 2, 3, 4 (vol I)
  assignments: quiz, HW, lab

- **Unit 02 Forces and Newton's Laws**
  covers chapters 5, 6
  assignments: quiz, HW, lab

- **Unit 03 Work, Energy, Momentum**
  covers chapters 7, 8, 9
  assignments: quiz, HW, lab

Exam 1
(June 29)

Exam 2
(July 17)

- **Unit 04 Rotational Kinematics and Dynamics**
  covers chapters 10, 11, 12
  assignments: quiz, HW, lab

- **Unit 05 Fluids and Oscillations**
  covers chapter 14, 15
  assignments: quiz, HW, lab

- **Unit 06 Waves and Sound**
  covers chapters 16, 17
  assignments: quiz, HW, lab

- **Unit 07 Thermal Physics**
  covers chapters 1 – 4 (vol II)
  assignments: quiz, HW, no lab

Exam 3
(July 31)

Quizzes and Homework

For each instructional unit you will have to take a quiz and submit a homework assignment. All unit quizzes and homework assignments are due at the same time the unit is supposed to be completed.

QUIZZES

All quizzes have simple multiple choice conceptual questions that test your understanding of the concepts and theories learned in lectures. You may take each quiz twice and the highest score will be recorded in the grade book. Read carefully all the instructions written on the quiz before you start it. Pay close attention to the deadline for taking a quiz. *There is a three days grace period for submitting the quiz (no late penalty), after which the quiz will no longer be available.*

It is the student's responsibility to make sure that he/she does not forget to take the quiz. No quiz deadline extensions will be given.

HOMEWORK

This class uses Expert TA as the online homework system. The access code to the homework system can be purchased online or in the bookstore.

Follow the instructions for signing up for the homework system.

Deadlines for each HW can be found in Expert TA or the course calendar (see Calendar icon on the left side menu of your Canvas window). While the HW assignments never close, late homework submissions will be penalized 10% of the total score every day the submission is late.

When doing your homework, you are strongly encouraged to ask for help from your instructor or TA, and other students in this class, by posting questions on the Discussion Board.

It is the student's responsibility to make sure that he/she does not forget to do the homework. No homework deadline extensions will be given.

Laboratories

There are 6 laboratory assignments in this course. Detailed information about each lab is provided in the lab assignment itself (linked to each unit that has a lab). You can submit each lab twice. Deadlines for submitting the lab assignments are at the same as the deadlines for finishing the unit. *There is a three days grace period for submitting the lab (no late penalty), after which the lab will no longer be available.*

You must submit ALL labs and get a passing grade (at least 75% of the total points for the lab). Failure to do so results in an automatic F grade for this class.

In these labs you will use simulations created by Phet at University of Colorado Boulder. Make sure you have these simulations downloaded and running on your own computer before starting a lab. Here is a list of all simulations used:

Unit 01 | Laboratory: Projectile Motion	Projectile-motion (html5)
Unit 02 | Laboratory: Forces and Newton's Laws	Forces in 1D (java) Masses & springs (html5)
Unit 03 | Laboratory: Conservation of Energy	Energy-skate-park-basics (html5)
Unit 04 | Laboratory: Rotational Motion	Balancing-act (html5) Torque (java)
Unit 05 | Laboratory: Fluids	Under Pressure (html5)
Unit 06 | Laboratory: Waves and Sound	Wave on a String (html5) Wave Interference (html5)

Please note that you will **not** be able to complete these activities on a mobile device (i.e., smartphone or tablet). You **must** have access to a desktop or laptop computer.

Some simulations are html5, and some need Java (Links to an external site) installed and running on your computer.

1. Download the simulation file using the link provided in the table above, and save it on your computer.

2. If the simulation is an html5 file, all you have to do is double click to open it in a browser.
3. If the simulation is a java file, install Amazon Corretto 8 on your computer, following the instructions provided here: https://aws.amazon.com/corretto/ (Links to an external site.). If you want, you can install Java (Links to an external site.) and run the simulations using java. Once Amazon Corretto 8 is installed on your computer, just double-click on the simulation files (the ones that are java) to open them.

If you have Java (Links to an external site.) installed, just double-click to open the file after you saved it on your computer. Make sure the web browser you use allows you to run Java.

If you are using a Mac and have difficulty opening the simulation, please read "How to open apps from an unidentified developer in OS X Mountain Lion (Links to an external site.)" (iMore.com) and follow the instructions provided.

Exams

There are three online exams and no final. All exams must be taken on the days listed below. Exams are set up in ExpertTA, the regular online homework system.

EXAM 1: June 29 (Monday)
EXAM 2: July 17 (Friday)
EXAM 3: July 31 (Friday)

- All exams have a combination of conceptual and calculation problems similar to the questions/problems you see in your quizzes and homework. You have **90 minutes** to finish the exam and submit your answers. There is NO proctoring software that you need to install/use.
- You can take the exam only **ONCE**, so make sure your internet connection is stable. Once the exam is started, it cannot be stopped and the clock is counting.
- All exams are available from **8 am to 11:59 pm the day of the exam**. Do not start the exam later than 10:30 pm, as you will run out of time. DO NOT CLICK ON THE EXAM UNTIL YOU ARE READY TO START!
- You are allowed to use your textbook and course notes/materials. Just because you have access to all course materials does not mean you will be able to find the answers to the exam questions if you did not prepare for the exam. So be aware, that trying to find the answers/solution to a question by flipping through the book

or searching the internet will take time, and you may run out of time to finish the exam.

- You are **NOT** allowed to solicit answers to exam problems from any source (internet or other student/person).
- You are **NOT** allowed to use any "answer sharing website" to search for the solutions to exam problems.
- Asking for help from anybody, including any companies (such as Chegg) is considered cheating and it will be treated as such. Students caught cheating will be assigned a failing grade for this class.

- You are responsible for reading all the instructions and following them.

Academic integrity is essential to our institutional values of **respect, responsibility, discovery, and excellence**. These values are fundamental to the everyday function of our academic community, as well as to the goals and vision we have for the University of Missouri. Academic integrity ensures that all students have a **fair and equal opportunity** to succeed. Any behavior that provides an unfair advantage to one student is unacceptable and will not be tolerated. Each piece of work completed by a student must be solely a reflection of that student's own work or his or her contribution to a collaborative effort.

STUDENT PLEDGE

I strive to uphold the University values of respect, responsibility, discovery, and excellence. On my honor, I pledge that I have neither given nor received unauthorized assistance on this work.

Students are expected to adhere to this pledge on all graded work.

You must take all of the exams: you will automatically receive a grade of F in this class if you miss an exam. No make-up exams will be allowed except for very special circumstances.

Grading Scale

Course grades will be given on the plus/minus scale based on the following scheme:
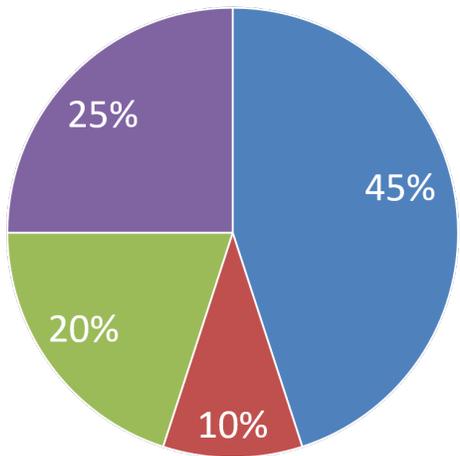
Percentage	Grade
92% and above	A+
90% to 93%	A
87% to 90%	A-
84% to 87%	B+
80% to 84%	B
77% to 80%	B-
74% to 77%	C+
70% to 74%	C
68% to 70%	C-
66% to 68%	D
less than 66%	F

Here is a formula for calculating your score:

0.45*(Exams avg %) + 0.2*(Lab avg %) + 0.25*(HW avg %) + 0.10*(Quizz avg %)

Online Etiquette

Your instructor and fellow students wish to foster a safe on-line learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Our differences, some of which are outlined in the University's nondiscrimination statement below, will add richness to this learning experience. Please consider that sarcasm and humor can be misconstrued in online interactions and generate unintended disruptions. Working as a community of learners, we can build a polite and respectful course ambiance.

Support & University Policies