# Foundation of Physics

**PHYS 252 - Winter 2017 - CRN25085**

*Updated: 8 January 2017 (this document subject to change)*

| Instructor | Prof. Eric Torrence  
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Office Hours: Fri 2-4 PM  
or by appointment |
|---|---|---|
| Teaching Assistants | Wes Erickson  
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| Lecture | MWF 10:00 - 10:50 in Willamette 100 |
| Tutorials | Tutorial sections are held on Tuesday in Willamette 112 |
| Midterms | Midterms will be held *in the evenings* of Feb. 1st and March 1st.  
*Please mark your calendar!* |
| Final | Friday March 24th from 10:15-12:15 |
| Labs | PHYS 290 is recommended, but not required for this course. |
| Website | All communication will be made through the course website on Canvas  
https://canvas.uoregon.edu/courses/77245 |
| Textbook | *Physics for Scientists and Engineers w/ Modern Physics, 4th Ed.*, by Randall Knight  
A copy is on reserve in the Science Library |
| Mastering Physics | All students will need *ModifiedMasteringPhysics* access. This came with your  
textbook if you bought it through the UO bookstore, or can be purchased separately.  
A 2-week trial is available if you are uncertain about your attendance in this course.  
Sign in at www.pearsonmylabandmastering.com. Our course ID is torrence05814 |
| Co-Req | MATH 252 or equivalent |

## Overview

Winter quarter will continue our study of kinematics, applying what we learned in Fall to rotations, fluids, and extending these ideas into oscillations and waves. We will finish the quarter exploring optics, both as wave and ray behavior.
Schedule

The daily course schedule is provided as a separate document to facilitate keeping it up to date. All assignments will be posted on Canvas.

Grading

Course grades will be based on the following categories. Please see below for more details on course expectations and how assignments will be graded.

- HW - weekly written homework assignments - 10%
- MP - weekly online (MasteringPhysics) homework assignments - 10%
- T - tutorial attendance and participation - 10%
- P - class participation, reading quizzes, pre-lecture videos, etc. - 10%
- MT - two midterm exams - 15% each
- F - one final exam - 30%

Historically, scores above 90% have earned an A, scores above ~75% have earned a B, scores above ~60% have earned a C, while scores below ~50% have failed, however the exact ranges for this course will be determined after the final exam. The overall course evaluation will possibly be graded on a curve to account for variations in the difficulty of exams, although I will not penalize the class if everyone is doing very well. Grade reports will be provided after each midterm to indicate your achievement at that point.

Written Homework

The key goal of this course is for you to become proficient at solving physics problems, and homework is your primary means to practice this skill. Written homework will be assigned from the Problems at the end of each chapter and will typically be assigned on Monday and due the following Monday at 6PM. To receive full credit you must show your work. Written homework problems will generally try to synthesize several concepts together, and your approach and thinking about the problem is more important than the final answer. We can not properly assess your reasoning without seeing your work.

Written homework should be turned in to the PHYS 252 box in the basement of Willamette Hall. Late homework will be accepted with a 25% penalty until noon the following day, when homework solutions will be posted to Canvas. Turning in homework even later is possible, but a 50% reduction of the assignment value will be applied. If your answers are clearly copied from the solutions, no credit will be given. Turning in late homework is better than not doing the homework at all, and practicing on the homework problems will clearly help you on the exams, but staying on top of the assignments and getting your work done on time is a key to achieving a good grade in this course.
You are encouraged to find help in doing your homework, including from other students, your TAs, the physics department drop-in help center, and the instructor during office hours. Discussing homework with other students is a very good way to discover conceptual difficulties and can be a powerful tool for improving your understanding of the subject. To facilitate students who wish to work together, we will have scheduled times in the physics drop-in center (Science Library) when your TAs will be present to help people with homework issues. The physics reading room in the atrium of Willamette hall is also available for students wishing to work together.

Please note that while discussing homework problems with other students is encouraged, copying the work of others and claiming it as your own is **academic misconduct** and will be treated as such. This includes copying solutions to problems found online. Since most of your course performance is determined by exam scores, and these exams will test very similar material as covered by the homework, there is very little benefit and considerable risk to not fully engaging with the homework material.

For students looking for more intensive help, or looking for more one-on-one time, there is a list of tutors available for hire in the physics office. These are typically current UO physics graduate students or advanced undergraduates, and the list is made available by the department strictly as a helpful service (to both parties). All arrangements must be made directly with the tutors.

**Online Homework**

There will be weekly online homework assignments due through *MasteringPhysics*. These assignments will typically be due Monday evening at 10PM, and generally will be shorter problems than the written homework assignments. Late online homework assignments will not be accepted, so please make sure you are properly registered with *MasteringPhysics* before the end of the first week.

For people who want additional practice, or are interested in making up some points missed on the online homework, you can complete additional *Adaptive Followup* questions. These questions will allow you to recoup up to ~10% of the assignment value, although this only earns you back points you missed. In no case will you receive ‘extra credit’ by doing additional problems.

You need an account at [www.pearsonmylabandmastering.com](http://www.pearsonmylabandmastering.com) and then you need to enroll in our course with ID [torrence05814](http://torrence05814). Please don’t try to enroll at [www.masteringphysics.com](http://www.masteringphysics.com). This is their old website and is in the process of being retired.
Tutorials

The tutorial sessions are held on Tuesday in Willamette 112. Tutorials are designed to give students the opportunity to discuss and assess their understanding of course topics in a more interactive, group setting with direct feedback from the teaching staff. On some weeks, we may also introduce new material in the tutorials. On other weeks, we may work on particularly complicated problems. Other times, the tutorials will be mostly about addressing conceptual difficulties. Students will work in groups of 3-4 people on the task of the week. These sessions have been shown to be a particularly effective way for students to improve their understanding of physics, and should be viewed as integral part of the course instruction.

The tutorials will be graded for attendance and reasonable participation only. Your answers will not be graded for correctness. It is your responsibility to make sure that your attendance is properly recorded before you leave. If you are really struggling with a particular topic, you should try to use your tutorial time working with the TAs to improve your understanding. Attendance at the tutorials is mandatory, although 100% attendance is not. In each quarter there are typically 8 mandatory tutorials, and attendance at 7 of these will result in full credit. Tutorial sessions during midterm weeks will be used as a review session, and attendance at these sessions is not required.

Lecture Participation

Active participation in the lectures will be facilitated by the LearningCatalytics system which comes with MasteringPhysics and can be accessed from the link on that website. In-class responses will be recorded using most networked devices (smartphone, tablet, laptop, …) and avoids the necessity of having to buy a separate ‘clicker’ device. Please contact me if you have no suitable device available. For days when we are using the LearningCatalytics system, you must connect your device with the proper session code to receive credit for participating. Answering questions on behalf of somebody else is academic misconduct and will be treated as such. If you need to share with a neighbor in class, make sure each person has logged in separately.

On some days, there will be pre-lecture videos assigned, or a pre-class reading quiz, which must be completed before class begins to receive credit. These will be posted as assignments on MasteringPhysics and announced on Canvas at least 24 hours in advance, and will contribute to the participation grade.

Participation Grading

Extensive research in Physics education has shown that active participation including tutorials, pre-lecture videos, and in-class interaction greatly improves student understanding in physics courses. I understand, however, that 100% participation is not always possible due to illness, school activities, or other obligations.
To try to provide a flexible grading scheme that encourages participation but is not overly rigid, you will receive full credit for the participation component of your grade if you score a 70% on your participation grade. These activities will be mostly graded for completion, but getting the right answer will also count for some small fraction of your grade.

Participation over 70% will not earn ‘extra credit’ in the participation grade (but it will likely improve your performance on the exams...).

Exams

There will be two mid-term exams and a final examination. The mid-term exams will take place from 5-8PM on Feb. 1st in Pacific 123 and March 1st in Willamette 100. You will have two hours to complete each midterm. The final exam is set for 10:15-12:15 Friday March 24th and will be in 100 Willamette. These dates will not change, so please arrange your schedules to accommodate these times. In case of serious conflicts, please contact me as far in advance as possible so that we can work out a solution together. No makeup examinations will be allowed. If a higher percentage score is achieved on the final than one of your midterms, the lowest midterm score will be dropped (and replaced with the score on the final). This gives you a chance to redeem yourself if you really screw up a midterm exam.

These exams are the primary tools for assessing whether you have achieved the course goals. Exam problems will be similar to written homework problems, in that you must solve quantitative problems on the physics topics addressed. All exams will be closed book, although you may bring one handwritten, single-sided, notebook-sized sheet of notes if you wish. Scientific calculators may be needed, and will be provided on request. Cell phones, tablets, or laptops may not be used during exams (even as calculators).

Laptop and Cellphone Policy

Apart from use during the in-class clicker questions facilitated by LearningCatalytics, the use of a smartphone, tablet, or laptop computer is not allowed in class. These devices are highly disruptive to the students sitting around you, and are rarely used for any productive, course-related purpose. If you believe you have a valid, educational reason to use a device in class (such as for translation) please discuss this with me in advance.

Academic Misconduct

The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students
should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students’ obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at http://library.uoregon.edu/guides/plagiarism/students/index.html.

**Discrimination and Harassment**

No forms of discriminating, harassing, or hostile behavior in class will be tolerated.

The UO is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and gender-based stalking. If you (or someone you know) has experienced or experiences gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), know that you are not alone. UO has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware that at this time all UO employees are mandatory reporters. This means that if you tell me about a situation, I may have to report the information to my supervisor or the Office of Affirmative Action and Equal Opportunity. Even if I have to report the situation, you will still have options about how your case will be handled, including whether or not you wish to pursue a formal complaint. Our goal is to make sure you are aware of the range of options available to you and have access to the resources you need.

If you wish to speak to someone confidentially, you can call 541-346-SAFE, UO’s 24-hour hotline, to be connected to a confidential counselor to discuss your options. You can also visit the SAFE website at safe.uoregon.edu.