



Physics 105: Fundamentals of Physics Fall 2018.

Welcome!

Instructor: Raymond Zich
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Office Hours: Tuesday & Thursday 11:30 am (before class)

Course Meeting Times:

Lecture: T, R Moulton Hall Room 208, 2:00 pm – 3:15 pm

Labs: M Moulton Hall Room 203, 6:00 – 8:50 pm

T Moulton Hall Room 203, 8:00 – 10:50 am

T Moulton Hall Room 203, 6:00 – 8:50 pm

W Moulton Hall Room 203, 8:00 – 10:50 am

W Moulton Hall Room 203, 6:00 – 8:50 pm

R Moulton Hall Room 203, 8:00 – 10:50 am

Texts: *Physics Matters*, Larry Kirkpatrick & Gregory Francis, required
Astronomy, Diana Moche, required

Needed for class: scientific calculator, Turning Point Response Card (clicker)

Course Description

Introduction

Welcome to Physics 105, Fundamentals of Physics! This class is an algebra and vector based introduction to fundamental physics. The lectures and lab sessions are designed to provide an active learning experience with illustrations and practical demonstrations of applied fundamental physics concepts.

The weekly lab is designed to give you the opportunity to explore the concepts you have encountered in lecture and integrate your knowledge into a more global understanding or theory and practice.

Also there will be open office hours every week to give you one-on-one assistance if you need more help; do not be bashful about taking advantage of these!

In order to succeed in Physics 105, you must not fall behind! This course covers a large amount of new material, and the understanding of new topics usually requires mastery of previous material. The best way of absorbing the material is to read about each topic before we discuss it in class, and review it after we have practiced the concepts and mathematics. To this end I will provide homework problems through Expert TA, and solved sample quizzes. Most weeks regular quizzes will be given in class the week following the coverage of the material.

Lectures:

The primary focus of the lecture will to convey the basics of each chapter or topic, work on example problems, and practice simple concept and mathematical problems, testing our understanding and pointing out areas of each topic that can be tricky for students.

In order to provide an environment more conducive to participation and interaction, each student will have a clicker with which to answer various questions during lecture. You will receive points based on the correctness of your answers *and* points based on your participation in each lecture.

During times when you are working on a clicker question or we are solving problems together, students should work with those around them to discuss their ideas.

This format allows the instructor and the students to pinpoint problems in understanding and deal with them before moving on. The purpose is to help your understanding, and your participation is critical.

Clickers

We will be using clickers in every lecture. If you have not already done so, please register your clicker by visiting Reggienet. **Answering with another student's clicker, or having another student answer questions using your clicker, is a serious academic violation!**

Homework:

Each week homework problems will be assigned from Expert TA. These problems will help you to learn the material and prepare you for doing well on the quizzes and tests. Inability to do these problems usually leads to poor exam and quiz scores. Start your homework assignments early, as I am not responsible for computer or connectivity problems (server down, Resnet down, slow access, or interruptions due to heavy use).

To sign up for and use Expert TA, go to <http://goeta.link/USG15IL-271B61-1P6> and register for using the Student Class Code 271B61-1P6 Registration is \$32.50

Use your ISU email to register!

Look for assignments on the Assignments Page. The due date for assignments will be shown next to the assignment. You may redo the homework assignment for practice, but late homework cannot be made up.

Lab Session (Hands-on Activities):

Each of the three-hour laboratories will involve a series of activities, including (i) setting up simple experiments to study topics studied in class, (ii) making predictions about the outcome of your experiments, (iii) performing measurements of different phenomena you have studied, (iv) working through worksheets designed to mesh the theory with the hands on activities (v) analyzing your results, and (vi) answering questions concerning your results and predictions. In addition, at the end of each lab, you are expected to turn in response to a subset of the lab questions and findings. These will be graded for correctness and counted as part of the total lab score. Some labs will have additional reports which must be completed after class and turned in the following week if there is insufficient time for students to complete these during the lab time allotted.

The lab sections start the second week of the course.

Hour Exams and Final Exam:

Three 50 minute multiple-choice exams and a Final exam will be given. (See the schedule for the dates.)

The lowest of the exam scores will be dropped. Scores will be posted in the gradebook as soon as possible following the exam.

The final exam is comprehensive and will not be dropped.

Any conflicts with exams must be discussed with the instructor prior to the exam.

Make up exams will be scheduled at the instructor's discretion. In cases of illness or similar last minute, unavoidable conflicts, arrangements will be made only for those with appropriate documentation (e.g. a doctor's note indicating that the student could not attend due to illness). Because of the lowest exam score being dropped, make up exams will be given only for extreme situations.

Quizzes:

Most weeks there will be a quiz on Tuesday or Thursday about material covered in the previous week's lecture and laboratory periods (13 quizzes in all). Practice quizzes with solutions to study from will be posted on Reggienet. You may drop 1 quiz for free; this is

designed for illness or unavoidable life issues. (There will not be additional make ups for quizzes available.)

Gradebook

You will be able to view your grades on all components of the course using the course gradebook through Reggienet. During the semester, you should check that your exam, homework, lab, and quiz scores are correctly entered in the Reggienet gradebook; any problems here should be brought to the attention of your instructor immediately. Changes to the Gradebook will not be made the last week of class.

Grading

Your final grade for Physics 105 will be based upon your total score on all the components of the course. The components are weighted, broken down as follows:

Course Component	Percentage
Exams	40%
Homework	15%
Labs	15%
Clickers and Quizzes	10%
Final	20%

The breakdown of total points versus course letter grade will be:
A (90%), B (80%), C (70%), D (60%), and F (< 60%).

Academic Integrity

All activities in this course are subject to the Academic Integrity rules. Infractions include, but are not limited to: cheating, plagiarism, fabrication, academic interference, computer-related infractions, unauthorized use of university resources, sale of class materials or notes, and facilitating infractions of academic integrity. Violations of any of these rules will be prosecuted and reported to the home college of the student. All aspects of the course are covered by these rules, including quizzes, clickers, exams and labs.

105 Weekly Schedule (Subject to Change!)

Week	Date	Topic	Lab	Exam	Reading
1	8/20/2018	Introduction to Physics			1
2	8/27/2018	Kinematics conversions			2
3	9/4/2018	Falling Bodies	Giant Disk		3
4	9/10/2018	Newton's Laws of forces	Computer Interface		4
5	9/17/2018	Gravity & Circular Motion	Free Fall	Exam 1 2/15/2018	5,6
6	9/24/2018	Torque			6
7	10/1/2018	Momentum & Impulse	Projectile Motion		7
8	10/8/2018	Work & Energy	Newton's Second Law	Exam 2 3/8/2018	8
9	10/15/2018	Waves			
10	10/22/2018	Thermodynamics	Conservation of Energy		13
11	10/29/2018	Electrostatics			15
12	11/5/2018	Electric Circuits	Coulomb Law Electrostatics		20
13	11/12/2018	Magnetism	Wave Addition	Exam 3 4/12/2018	20
14	11/19/2018	Thanksgiving			21
15	11/26/2018	Optics	Light from Atoms		22
16		Optics			17 & 18
Final		MLT 208			