INSTRUCTOR: Dr. Eric West  
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Office Phone: x8247

SYLLABUS
General Physics I (PHYS 2013)

Office Hours: TBA (see course webpage)
Help Sessions: TBA (see course webpage)

Regular Class Meetings

| Section 011 | M, W | 1:00-2:50 PM | MWAH 347 |

Discussion Section Meetings

| Section 012 | F | 2:00-2:50 PM | Kplz 385 |
| Section 013 | F | 2:00-2:50 PM | H 484 |

Exam Dates and Times

| Exam 1: 6:00-8:00 PM | Tuesday, February 16 | MWAH 195 (Week 6) |
| Exam 2: 6:00-8:00 PM | Tuesday, March 29 | MWAH 195 (Week 11) |
| Final Exam: 2:00-3:55 PM | Wednesday, May 4 | location TBA (Week 16) |

Prerequisites and Co-requisites

1. Grade of C- or better in MATH 1290, MATH 1296, or MATH 1596.
2. Previous credit or concurrent registration in PHYS 2014.
   Note 1: Credit will not be granted if already received for PHYS 1201 or PHYS 2011.
   Note 2: The combination of PHYS 2013 and PHYS 2014 meets liberal education category 4.

Course Materials

1. **Textbook (recommended):** *University Physics*, Volume 1, by Young and Freedman (Y&F).
2. **Access to Mastering Physics (required):** Access codes must be for the 13th edition of Y&F. You will also need the course ID, which is **WEST20161**.
3. **Calculator (recommended):** any scientific calculator will do.
   [NOTE: wifi-capable devices are NOT allowed on exams.]

Grade Breakdown Overview

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COURSE OUTLINE

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LEARNING OBJECTIVES

- Use significant figures, units, and vector notation properly.
- Be able to convert units.
- Use appropriate verbal, graphical and mathematical descriptions of physical phenomena.
- Use calculus to derive equations of motion (position, velocity and acceleration as functions of time).
- Demonstrate ability to solve problems involving 1D and 2D kinematics.
- Use Newton's Laws to analyze physical situations, including drawing proper free-body diagrams, identifying third law pairs, and writing second law equations.
- Use work and energy methods in analyzing physical situations.
- Use impulse and linear momentum in analyzing physical situations.
- Calculate gravitational force, potential energy, and escape velocity for massive bodies using Newton's universal law of gravitation.
- Use torque, rotational kinetic energy, and angular momentum in analyzing physical situations.
- Calculate work, potential energy, center of mass, and moment of inertia using the methods of calculus.
- Recognize simple harmonic motion and calculate angular frequency and period from the equation of motion.
- Use Bernoulli's equation to analyze steady flow of an ideal fluid.
- Use the Zeroth, First, and Second Laws of thermodynamics in analyzing physical situations.
STUDENT EXPECTATIONS

• **Respect:** I expect you to treat your fellow classmates, discussion instructors, and myself with respect at all times. Likewise, I promise to treat you with respect at all times.

• **Absences:** If you miss a class, it is your responsibility to find out what you missed and to cover that material on your own outside of class. A schedule of topics and related sections to read from the textbook will be maintained on the course webpage.

• **Reading:** I expect you to read the textbook (or some version of the textbook) on a regular basis. When you get lost in the wilderness of ideas, this is your compass. Textbooks are not always easy to read. It takes a lot of patience and focus. But technical reading (reading of technical material) is an important skill to develop, which you will use for the rest of your life as a scientist or engineer. So it is best to start developing that skill now, when you can benefit from it.

• **Distracting Behavior:** I expect you to refrain from distracting behavior during class. This includes talking with your neighbor, listening to music loud enough to be heard by your neighbor, texting, or browsing the internet. Please realize that even if you are not being a distraction to me, you may be distracting others around you, preventing them from getting the most out of class.

• **Questions:** If you have a question or confusion, I expect you to speak up. If I don't notice your hand up, please feel free to yell out “QUESTION!?” or “PROFESSOR!?” or something similar to get my attention. Please don't be shy about asking questions. Others will often have the same question or confusion, but are too afraid to ask. Not only do questions help slow the pace of class down (usually a good thing!), they also help wake people up. And for me, questions are both fun to answer and a way to gauge whether my lecture is going overboard. In short, everyone benefits from you asking questions, so PLEASE ASK!!!

• **Academic Honesty:** When you work on assignments cooperatively but turn them in individually (as you will be asked to do in your discussion sections) you may share data, equations, graphs, calculations and drawings. However, all written work must be expressed in your own words. Thus, you may not copy things like abstracts, summaries, descriptions, discussions or conclusions. If there is reasonable evidence of copying, it will be construed as an act of plagiarism and each student involved may receive a failing grade on that assignment. Since part of your grade will depend on the work of your team members, it is important for you to work cooperatively with them and help them understand the course material. At the same time, you should check that their written work is different from yours.

• **Time and Effort:** As a rule of thumb (applicable to any course), you should plan to spend an average of 2 hours outside of class for each hour spent inside of class. Since we meet for 4-5 hours per week (including discussion sections), that means that on average you may have to devote **8-10 hours per week outside of class**. This is an average; some of you will be able to get by with less, and some of you will require more in order to be successful in the course (i.e., earn a passing grade). If you start spending more than 10 hours of (quality) study time outside of class and still find yourself struggling, please come and talk to me to discuss how to modify your study habits.
GRADE BREAKDOWN

• **Participation (10% of Overall Grade):**
  This part of your grade will be based on participation in class meetings. Half of this portion of your grade will be based on participation during normal class meetings (“lecture”), and the other half will be determined based on your participation during discussion sections at the end of the week. Participation is based on any work that is collected and graded, or when nothing is collected, the judgment of the instructor regarding whether you remained engaged and on task during the class meeting.

  Note that during normal class meetings, your ability to participate will depend on whether you have completed any pre-class assignments or reading. Failure to read the assigned sections out of the textbook before coming to class may significantly impact your ability to fully participate during class.

  - **Make-Up Policy:** participation cannot be made up.
  - **Drop Policy:** no portion of your participation grade will be dropped.
  - **Late Policy:** late work may be accepted, at the discretion of your instructor.

• **Homework (15% of Overall Grade):**
  Weekly homework assignments will be issued through Mastering Physics. To gain access to Mastering Physics, you will need an access code and course ID, which I will provide to you by email.

  - **Make-Up Policy:** no make-ups for missed homework.
  - **Drop Policy:** the two lowest homework assignments will be dropped.
  - **Late Policy:** homework may be completed late, with a penalty. You will receive a 10% grade reduction per day on any portion of the homework that is completed late, but this reduction will never fall below 50%.

• **Quizzes (10% of Overall Grade):**
  Quizzes will be issued through Mastering Physics on a regular (usually weekly) basis. You will have a 24-hour window to take each quiz, however once you start a quiz, you will only have 45 minutes to complete it. Optional, redemption assignments may be issued to allow you to improve upon poor quiz scores.

  - **Make-Up Policy:** no make-ups for missed quizzes. However, redemption opportunities may be available.
  - **Drop Policy:** no quiz scores will be dropped. However, redemption opportunities may be available to replace or improve poor quiz scores.
  - **Late Policy:** quizzes are not available after the designated window closes (or after your 45 minutes expires, which ever comes first).
• **Midterm Exams (40% of Overall Grade):**
  There will be two midterm exams, each worth 20% of your overall grade. They will take place at the following dates and times:

  **Exam 1:** Tuesday, February 16, 6:00-8:00 PM  *(Week 6)*
  **Exam 2:** Tuesday, March 29, 6:00-8:00 PM  *(Week 11)*

  Note that these are NOT during our normally scheduled class time. If you have a known or anticipated conflict with these exam times, you must let me know immediately. Special arrangements will be made for anyone with a legitimate conflict.

  By UMD policy, if an exam is held outside of the normally scheduled class time, the class period that most closely corresponds to the exam must be canceled. For that reason, our Monday class during exam weeks will be canceled. In its place, I will hold an optional help/review session at the time the class would have met.

  Graphing calculators may be used during exams, but any device with wifi capabilities will not be allowed even if they are in “airplane mode”.

  ◦ **Make-Up Policy:** make-up exams will only be issued in extra-ordinary cases. If you will be missing an exam for official university activities, you must notify me by the end of the first week of classes in order to be eligible for a make-up exam.

  ◦ **Drop Policy:** no midterm exams will be dropped, however the final exam grade (by percentage) will replace the lowest midterm exam grade (by percentage), if it is to your benefit.

  ◦ **Late Policy:** exams will not be accepted after the exam period ends.

• **Final Exam (25% of Overall Grade):**
  The final exam will be cumulative and will take place on the following date and time

  **Wednesday, May 4, 2:00 - 3:55 PM**  *(Week 16)*

  As for midterm exams, graphing calculators may be used on the final exam, but any device with wifi capabilities will not be allowed even if they are in “airplane mode”.

  **WARNING:** **Do not make plans to leave Duluth before the final exam. Early final exams will NOT be given under any circumstances!!!**

  The final exam grade will replace the lowest midterm exam grade, if it benefits you.

  ◦ **Make-Up Policy:** a make-up final exam will only be given in extreme circumstances.

  ◦ **Drop Policy:** the final exam will not be dropped under any circumstances.

  ◦ **Late Policy:** final exams will not be accepted after the final exam period ends.
UMD POLICIES

Students with disabilities:
It is the policy and practice of the University of Minnesota Duluth to create inclusive learning environments for all students, including students with disabilities. If there are aspects of this course that result in barriers to your inclusion or your ability to meet course requirements – such as time limited exams, inaccessible web content, or the use of non-captioned videos – please notify the instructor as soon as possible. You are also encouraged to contact the Office of Disability Resources to discuss and arrange reasonable accommodations. Please call 218-726-6130 or visit the DR website at http://www.d.umn.edu/access for more information.

Student Conduct Code:
Appropriate classroom conduct promotes an environment of academic achievement and integrity. Disruptive classroom behavior that substantially or repeatedly interrupts either the instructor's ability to teach, or student learning, is prohibited. Student are expected adhere to Board of Regents Policy (posted on the course webpage).

Teaching & Learning: Instructor and Student Responsibilities:
UMD is committed to providing a positive, safe, and inclusive place for all who study and work here. Instructors and students have mutual responsibility to insure that the environment in all of these settings supports teaching and learning, is respectful of the rights and freedoms of all members, and promotes a civil and open exchange of ideas. To reference the full policy please see: http://www.d.umn.edu/vcaa/TeachingLearning.html

Academic Integrity:
Academic dishonesty tarnishes UMD’s reputation and discredits the accomplishments of students. Academic dishonesty is regarded as a serious offense by all members of the academic community. UMD’s Student Academic Integrity Policy can be found at: http://www.d.umn.edu/vcaa/StudentAcademicIntegrity.html

Excused Absences:
Students are expected to attend all scheduled class meetings. It is the responsibility of students to plan their schedules to avoid excessive conflict with course requirements. However, there are legitimate and verifiable circumstances that lead to excused student absence from the classroom. These are subpoenas, jury duty, military duty, religious observances, illness, bereavement for immediate family, and NCAA varsity intercollegiate athletics. For complete information, please see: http://www.d.umn.edu/vcaa/ExcusedAbsence.html

Appropriate Student Use of Class Notes and Course Materials:
Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. For additional information, please see: http://www.d.umn.edu/vcaa/ClassNotesAppropriateUseof.html