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Spring 2-1-2017

### PHSX 206N.02: College Physics I Laboratory

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## Course Information

- Instructor: Dr. David A. Macaluso
- Office: C.H. Clapp Building, room 119
- Telephone: (406) 243-6641
- Email: david.macaluso@umontana.edu
- Labs:
  - Section 1: Tuesdays 1:00 – 2:50 PM, CHCB 225
  - Section 2: Wednesdays 1:00 – 2:50 PM, CHCB 225
- Office Hours: Tuesday & Wednesday 3 – 5. I am happy to help students and answer questions outside my normally scheduled office hours and I strongly encourage students to seek my assistance whenever necessary.

## Overview

The goal of the laboratories is to both aid students in quantitative laboratory techniques and conceptual understanding of physics. The material covered will be commensurate with the lecture courses with which the experiments are paired. The quantitative laboratory techniques will include reading an array of measuring instruments, handling of error that results from the measuring instruments, understanding the distinction between precision and accuracy, and the proper display of data. It is essential that students keep up from the start as the concepts in this course build on each other.

## Learning Outcomes

The goals of this course are:

1. To learn how to properly take measurements and record data.
2. To learn how to interpret results both statistically and graphically.
3. To experimentally confirm theories presented in lecture.

## Add/Drop/Withdraw

Please refer to the University policy on adding, dropping, and withdrawing from the course at <http://www.umt.edu/registrar/students/dropadd.php>.

## Websites

Grades and other materials will be posted on Moodle.

## Laboratory

There will be 11 two-hour labs during the semester. Ten of those labs will count towards the student's final grade. The reason for offering 11 labs but only counting 10 is so students may miss one lab (e.g. unplanned absence, emergency) without consequence. Students with planned absences may attend a different laboratory section during the same week with the permission of both instructors. Students are required to attend the labs, take measurements, and keep a notebook for each lab. **There are no make-up labs.**

Each week, a few days before lab, students should download and print a copy of the next laboratory procedure. Each student is expected to have read the instructions prior to arriving at the lab, have completed a short pre-lab quiz on Moodle, and prepared some tables to record measurements in their notebook.

At the beginning of the lab session, students will be given a post-lab quiz on the previous experiment. These post-lab quizzes will be given approximately ten to fifteen minutes to complete the quiz. No calculators will be allowed during the post-lab quiz; all relevant calculations should have been completed before the lab session, or any new calculations should be very simple.

If you miss a lab session, the post-lab quiz you will take when you return will be for the last experiment you were able to perform.

The experiments are designed to take approximately two hours for measurements and an additional two hours outside of class for data analysis as well as preparation for the next lab. This is consistent with time expectations for a one credit course.

## Notebook

Students will be expected to maintain a lab notebook and bring it to every lab session. The notebook should contain the instructions for each experiment, the measurements taken for each experiment, the calculations for each experiment, and any other relevant information.

## Grading Policy

This course can be taken for a traditional letter grade only (A, B, C, etc.). Credit/No Credit is not an option. Grading will be based on the traditional letter grade percentage scale. Grade breakdown:

Pre-Lab Quizzes	<b>10%</b>
Post-Lab Quizzes	<b>80%</b>
Lab Notebook	<b>10%</b>

## Academic Honesty

I encourage students to work together and to seek assistance from me whenever necessary. However, work submitted in this class must be the original work of the student. In addition, the majority of your grade will be based on quizzes and exams that test your mastery of the homework problems, so doing the problems on your own will give you the best chance to succeed.

**University policy statement on academic honesty:** All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code: ([http://www.umt.edu/vpsa/policies/student\\_conduct.php](http://www.umt.edu/vpsa/policies/student_conduct.php)).

## Students with Disabilities:

Students with disabilities may request reasonable modifications by contacting me. The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, visit the Disability Services for Students website at <http://life.umt.edu/dss/>.

## Schedule:

Date	Topic	Week #
Jan 31 & Feb 1	Syllabus, Measuring Instruments Lab	2
Feb 7 & 8	Acceleration of Gravity Lab	3
Feb 14 & 15	Force Tables Lab	4
Feb 21 & 22	Centripetal Force Lab	5
Feb 28 & Mar 1	Collisions Lab	6
March 7 & 8	Angular Momentum Lab	7
March 14 & 15	<b>No class (MSU &amp; M-Tech Spring Break)</b>	8
March 21 & 22	<b>No class (UM Spring Break)</b>	9
March 28 & 29	Ballistic Pendulum Lab	10
April 4 & 5	Mechanical Equivalent of Heat Lab	11
April 11 & 12	Archimedes' Principle Lab	12
April 18 & 19	Hooke's Law Lab	13
April 25 & 26	Standing Waves Lab	14
May 2 & 3	<b>No class (last week of classes)</b>	15