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Spring 2-1-2022

### PHSX 206N.00: College Physics I Lab

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Instructor: Brad Halfpap  
Office: In the corner of CHCB 225 ( Our Lab Room )  
Email: brad.halfpap@mso.umt.edu  
Office Hours: 8:30am to 9:30am and 11:00am to 11:30am Monday through Thursday

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**Overview**

The goal of the laboratory is to both aid students in quantitative laboratory techniques and their conceptual understanding of physics. The material covered will be commensurate with the lecture course with which the lab is 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 proper display and analysis of data. It is essential that you keep up from the start as the concepts in this course build on each other.

**Learning Objectives**

The goals of this course are:

- To teach students how to properly take measurements and record data.
- To teach students how to interpret results both statistically and graphically.
- To experimentally confirm theories presented in lecture.

**Required Materials**

You will need the following materials for the course:

- Laboratory notebook
- Scientific calculator and pencil
- Weekly labs (downloaded from Moodle)

**Laboratory**

There will be 11 two hour labs during the semester. Each week, a few days before lab, you should download and print a copy of the current lab and read it. You are expected to have read the lab instructions prior to the lab and to have completed the associated pre-lab quiz. Pre-lab quizzes will be taken on Moodle and close at 11:59 pm on Sunday. Post-lab quizzes will be taken during the first 20 minutes of the lab period.

The experiments are designed to take approximately 1.5 hours for measurements and an additional one to two hours needed outside of lab for data analysis as well as preparation for the next lab. This is consistent with the time expectations for a one credit course.

**Grading**

Your grade for the course will be determined by a combination of pre and post lab quizzes. The grading for the course will be broken down as follows:

Pre-Lab Quizzes: 10%

Post-Lab Quizzes: 90%

This course can only be taken with the traditional grading option. Plan on letter grades being assigned based on the traditional grading curve: 100-90% A, 89-80% B, etc.

## Couse Guidelines and Policies

### Student Conduct Code

The Student Conduct Code at the University of Montana embodies and promotes honesty, integrity, accountability, rights, and responsibilities associated with constructive citizenship in our academic community. This Code describes expected standards of behavior for all students, including academic conduct and general conduct, and it outlines students' rights, responsibilities, and the campus processes for adjudicating alleged violations. Full student conduct code.

([http://www.umt.edu/vpsa/policies/student\\_conduct.php](http://www.umt.edu/vpsa/policies/student_conduct.php))

### Accessibility Statement

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### Schedule

Week	Monday	206 Laboratory	208 Laboratory
1	1/17	No Meeting	No Meeting
2	1/24	Measuring Instruments	No Meeting
3	1/31	Acceleration Due to Gravity	Electric Fields and Potentials
4	2/7	Force Tables	Ohm's Law
5	2/14	Centripetal Force	Slow RC Circuits
6	2/21	No Meeting	No Meeting
7	2/28	Collisions	Fast RC Circuits
8	3/7	Ballistic Pendulum	Earth's Magnetic Field
9	3/14	Angular Momentum	Measuring an Inductance
10	3/21	No Meeting	No Meeting
11	3/28	No Meeting	No Meeting
12	4/4	Buoyant Force	Lenses
13	4/11	No Meeting	Measuring an Index of Refraction
14	4/18	Hooke's Law	Interference and Diffraction
15	4/25	Standing Waves	Planck's Constant
16	5/2	Mechanical Equivalent of Heat	Atomic Spectra
17	5/9	No Meeting	No Meeting