Course Information

- Instructor Name: Jaylene Naylor
- Office: CHCB 228
- Email: jaylene.naylor@umontana.edu
- Lab: Monday 3:10-5:00pm in CHCB 229
- Office Hours: M 9:30-10:30a, F 1-2p. Please feel free to email me and make an appointment for other times.
- Website: Moodle umonline.umt.edu

Overview

The goal of this class is to give you a sound introduction to classical experimental physics. This will include studying some basic concepts in physics, development of problem solving skills, learning of laboratory techniques and some basic programming skills for data analysis. It is essential that you keep up from the start as the concepts in this course build on each other. Co-requisite to this course is PHSX 215.

Learning Objectives

The goals of this course are:

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

Laboratory

There will be 11 two-hour labs during the semester. 10 of those labs will count towards your final grade. You will be required to attend the labs, take measurements, and then write up a report or take a quiz for each lab. *Each student must hand in their own lab report written in their own words (no duplicates!)*

Three of the eleven labs will require a lab report. The remainder of your lab work will be assessed with Moodle quizzes.

In preparation for the course, you should go to the course Moodle page to download the document, “Errors and the Treatment of Data”, which explains how to handle error analysis, graphing, and other key issues that come up while writing labs. Each week, a few days before your lab, you should read the current lab. Students are expected to have read the instructions prior to arriving at the lab, and will be asked to take a brief pre-lab quiz on Moodle.

There will be no make-up labs. If you will miss your lab, contact your instructor *ahead of time* about attending another section that week. Labs are held Mon, Tues, Wed 3:10-5:00pm
Lab Report and Quiz due dates

- **Pre Lab Quizzes**: On Moodle, open on Thursday at 8am and close at 11:59pm the day before your lab section. 60 minutes allowed to take quiz.
- **Lab Quizzes**: On Moodle, open on Thursday at 8am and close on Monday at noon for all sections. 30 minutes allowed to take quiz.
- **Lab Reports**: Due at beginning (by 3:15) of the following lab meeting.
- **Late Penalties for Lab Reports**: Late lab reports will be penalized 10% per day late, excluding holidays and weekends. Labs will not be accepted more than one week after their due date.

**Course 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)

**Course Withdrawal**
Students may use Cyberbear to drop courses through the first 15 instructional days of the semester. Beginning the 16th instructional day of the semester through the 45th instructional day, students use paper forms to drop, add and make changes of section, grading option or credit. PHSX 216 may not be taken as credit/no-credit.

**Disability Modifications**
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](https://www.umt.edu/dss/default.php).

If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

**Grading Policy**
Generally, final letter grades fall within these ranges:
- A or A- = 90-100%
- B+, B, or B- = 80-89%
- C+, C or C- = 70-79%
- D+, D or D- = 60-69%
- F = 59% or less

Your grade will be based on the following:
- Pre-Lab quizzes: 10%
- Lab quizzes and reports: 90%
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<th>Date</th>
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| **Week 1: Aug 25 – 29** | Introduction to Error Analysis and Python Programming  
|              | CHCB 229 – regular lab room                                                       |
| **Week 2: Sept 1 – 5**   | Quiz: Introduction to Error Analysis and Python Programming  
|              | NO LAB, Labor Day                                                                 |
| **Week 3: Sept 8 – 12**  | Experiment: Measuring g (Report assigned)  
|              | CHCB 225                                                                          |
| **Week 4: Sept 15 – 19** | Report Due: Measuring g  
|              | Experiment: Projectile Motion                                                     |
| **Week 5: Sept 22 – 26** | Quiz: Projectile Motion  
|              | Experiment: Force Tables                                                          |
| **Week 6: Sept 29 – Oct 3** | Quiz: Force Tables  
|              | Experiment: Hooke’s Law                                                           |
| **Week 7: Oct 6 – 10**   | Quiz: Hooke’s Law  
|              | Experiment: Circular Motion (Report assigned)                                     |
| **Week 8: Oct 13 – 17**  | Report Due: Circular Motion  
|              | Experiment: Ballistic Pendulum, Energy and Momentum (CHCB 225)                    |
| **Week 9: Oct 20 – 24**  | Quiz: Ballistic Pendulum  
|              | Experiment: Collisions                                                            |
| **Week 10: Oct 27 – 31** | Quiz: Collisions  
|              | Experiment: Moment of Inertia (Report assigned)                                   |
| **Week 11: Nov 3 – 7**   | Report Due: Moment of Inertia  
|              | NO LAB, Election Day                                                               |
| **Week 12: Nov 10 – 14** | NO LAB, Veterans Day                                                               |
| **Week 13: Nov 17 – 21** | Experiment: Archimedes’ Principle                                                 |
| **Week 14: Nov 24 – 28** | Quiz: Archimedes’ Principle  
|              | NO LAB, Thanksgiving                                                               |
| **Week 15: Dec 1 – 5**   | Experiment: Simple Pendulum                                                       |
| **Week 16: Dec 8 – 12**  | Quiz: Simple Pendulum  
|              | NO LAB, Finals week                                                                |