Instructor Information

- Instructor: Dr. Benjamin Grossmann
- E-mail: benjamin.grossmann@umontana.edu
- Office Phone: (406) 243-2013
- Office Location: CHCB 232
- Office Hours: WR 10:15 am – 12:00 am
  If you need to meet with me outside my office hours, you can also make an appointment.

Course Information

- Course Request Number: (Section 1) 73510, (Section 2) 73511, (Section 4) 73513, (Section 6) 73515
- Credits: 1
- Lab Schedule: (Section 1) T 11:10 pm – 1:00 pm, (Section 2) T 1:10 pm – 3:00 pm, (Section 4) W 1:10 pm – 3:00 pm, (Section 6) R 1:10 pm – 3:00 pm
- Lab Location: CHCB 225
- Corequisite: PHSX 205N (College Physics II)

Course Materials

- Laboratory Notebook
- Scientific Calculator
- Weekly Labs (download and print from web site)
- Flash Drive (Suggested)

Course 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 labs 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 proper display of their data. It is essential that students 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.

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 or 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.** At the beginning of the
first lab, there is a section on laboratory techniques, which explains how to handle error analysis, graphing, and other key issues that come up while keeping a laboratory notebook.

Each week, a few days before lab, students should download and print a copy of the current lab, read it and bring it with them to their lab meeting. Students are expected to have read the instructions prior to arriving at the lab and to have completed a pre-lab task. Before performing the next experiment students will be given an open notebook quiz on the previous week’s lab. Approximately ten to fifteen minutes will be allotted for completing the lab quizzes.

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.

Grading

Your course grade will depend on a combination of pre-labs and laboratory quizzes as follows:

- 90% Laboratory Quizzes
- 10% Pre-labs

This course can only be taken for a traditional letter grade. Due to the number of laboratory sections, we strive for consistency between sections. As a result, grades will fall within roughly the same distribution for each section. This distribution is 20–25% A’s, 20–25% B’s, 20–25% C’s, and 20-25% D’s and F’s.

Academic Misconduct

All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online.

http://life.umt.edu/vpsa/student_conduct.php

Special Accommodations

If you are a student with a disability and wish to discuss reasonable modifications for this course, contact me privately to discuss the specific modifications you wish to request. Please be advised I may request that you provide a letter from Disability Services for Students verifying your right to reasonable modifications. If you have not yet contacted Disability Services, located in Lommasson Center 154, please do so in order to verify your disability and to coordinate your reasonable modifications. For more information, visit the Disability Services website.

http://life.umt.edu/dss/

Complaint Procedure

Any students experiencing issues with the way the material is being presented or with the way in which the course is being taught are welcome to come to me with their concerns. If you feel that you cannot speak with me about these issues, please see the department chair Dr. Dan Reisenfeld, CHCB 130.
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<tr>
<th>Week</th>
<th>Dates</th>
<th>PHSX 206N</th>
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<tr>
<td>Week 1</td>
<td>Aug 26 – Aug 30</td>
<td>NO LAB</td>
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<tr>
<td>Week 2</td>
<td>Sep 02 – Sep 06</td>
<td>Measuring Instruments</td>
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<td>Week 3</td>
<td>Sep 09 – Sep 13</td>
<td>Acceleration Due to Gravity</td>
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<td>Week 4</td>
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<td>Conditions for Equilibrium</td>
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<td>Week 5</td>
<td>Sep 23 – Sep 27</td>
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<td>Week 6</td>
<td>Sep 30 – Oct 04</td>
<td>Centripetal Force</td>
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<td>Week 7</td>
<td>Oct 07 – Oct 11</td>
<td>Collisions</td>
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<td>Week 8</td>
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<td>Week 9</td>
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<td>Week 10</td>
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<td>NO LAB</td>
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<td>Week 11</td>
<td>Nov 04 – Nov 08</td>
<td>Archimedes’ Principle</td>
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<td>Week 12</td>
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<td>Standing Waves</td>
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<td>Week 13</td>
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<td>Week 15</td>
<td>Dec 02 – Dec 06</td>
<td>NO LAB</td>
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<td>Week 16</td>
<td>Dec 09 – Dec 13</td>
<td>NO LAB — Final’s Week</td>
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