1-2014

PHSX 218N.01: Physics Lab II with Calculus

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General Physics Laboratory 218 — Spring 2014

Instructor:	Jaylene Naylor
Office:	CHCB 228
Phone:	406-243-5179
Email:	jaylene.naylor@umontana.edu
Lab:	Wednesday or Thursday 3:10-5:00 PM. CHCB 229
Office Hours:	M 11-12, F 1-2 and by appointment. Please feel free to email me to set up other times.
Web site:	Moodle: umonline.umt.edu
	For labs, prelabs, quizzes, grades
Suggested Materials:	Thumb Drive, Lab Notebook, Laptop (nice for programming, but not required)

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, and learning of laboratory techniques. 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 217.

Learning Objectives: 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.

Laboratory: There will be 12 two-hour labs during the semester. 11 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!)* In preparation for the course, you should go to the course web site to download two documents: (1) *Laboratory Report Guide*, which gives instructions on what to include in the lab report and how to present your results; and (2) *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 download and print a copy of the current lab, read it and bring it with you to your lab meeting. 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. Labs are held Wed 3:10-5:00 pm, or Thurs 3:10-5:00 pm in room CHCB 229. Lab Reports are due at the beginning of the next lab meeting. The last lab report is due May 2 at 5:00 pm, absolutely no labs will be accepted after this date. Some labs will have quizzes instead of lab reports. See below for when these quizzes are due. There will be no make-up labs; if you miss your lab, contact your instructor about attending another section that week.

When things are due:
Pre Lab Quizzes: On Moodle, open Friday at 8am and close at 11:55pm the day before your lab section. 60 min allowed to take quiz
Lab Quizzes: On Moodle, open Friday at 8am and close on Monday at 11:55pm for all sections.
Lab Reports: Due at beginning of the following lab meeting.
Late Penalties for Lab Reports:
0-1 day 5%, 1-2 days 10%, 2-3 days 15% , 3-4 days 20%, 4-5 days 25%
More than 5 days past due, we will no longer be able to accept it.

Grading:

Laboratory Write-ups and Quizzes:	80%
Pre-laboratory Quizzes:	20%

This course can be taken for a traditional letter grade only:

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

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 at www.umt.edu/SA/VPSA/index.cfm/page/1321.

Accommodations: 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 (DSS). "Reasonable" means the University permits no fundamental alterations of academic standards or retroactive modifications. For more information, please consult http://life.umt.edu/dss/

Physics 218: Spring 2014 Schedule

	Week:	Labs
Week 1	Jan 27–Jan 31	Review and more Python Quiz: Review and more Python
Week 2	Feb 3–Feb 7	Experiment: Thermal Expansion Report: Thermal Expansion
Week 3	Feb 10–14	Report Due: Thermal Expansion Experiment: Mechanical Equivalent of Heat Quiz: Mechanical Equivalent of Heat
Week 4	Feb 17–21	NO LAB
Week 5	Feb 24–Feb 28	Experiment: Electric Fields Quiz: Electric Fields
Week 6	Mar 3–Mar 7	Experiment: Ohm's Law and Simple Circuits Quiz: Ohm's Law and Simple Circuits
Week 7	Mar 10–14	Experiment: Slow RC Quiz: Slow RC
Week 8	Mar 17–21	Experiment: Fast RC Quiz: Fast RC
Week 9	Mar 24–28	Experiment: Magnetic Force Report: Magnetic Force
Week 10	Mar 31–Apr 4	NO LAB: Spring Break
Week 11	Apr 7–11	Report Due: Magnetic Force Experiment: Magnetic Induction Quiz: Magnetic Induction
Week 12	Apr 14–18	Experiment: Raspberry Pi Quiz: Raspberry Pi
Week 13	Apr 21-25	Experiment: Index of Refraction Report: Index of Refraction
Week 14	Apr 28–May 2	Report Due: Index of Refraction Experiment: Lenses Quiz: Lenses
Week 15	May 5–9	Experiment: Interference Quiz: Interference
Week 16	May 12–16	Finals Week NO LAB