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Spring 2-1-2017

### PHSX 208N.01: College Physics II Laboratory

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# PHSX 208N SYLLABUS

College Physics II Laboratory, Spring 2017

Allison Mueller | CHCB 232 | 406-243-2013 | allison.mueller@umontana.edu

Office Hours: M 10:00–12:00 pm and by appointment

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## COURSE DESCRIPTION

One-credit laboratory course. Meets for two hours, once per week. This class is meant to supplement the material taught in lecture (PHSX 207N) and to provide experience working with scientific uncertainty and data analysis. The labs will generally line up with what you're seeing in class; however, there will be a few times where we get ahead of lecture. I will provide extra information at the beginning of lab to make sure you have everything you need.

## LEARNING OUTCOMES

1. To teach students how to properly take measurements and record data.
2. To teach students how to interpret results both statistically and graphically.
3. To teach students how to calculate and express experimental uncertainty.
4. To experimentally confirm theories presented in lecture.

## HOW TO SUCCEED IN THIS COURSE

Thoroughly read the procedure ahead of time so you understand what's going on with the experiment. This is the number one thing that will reduce your frustration and time spent on data analysis. For calculations, do not blindly trust Excel or your calculator. Being able to identify answers that don't make sense is a valuable skill for double-checking your work and finding mistakes or sources of error for your experiment. If something is unclear, do not hesitate to shoot me an email or drop by my office. The office hours listed above are times I am guaranteed to be available to answer questions. I generally check my email twice per day. I can also answer questions about lecture material if needed.

## GRADING SCALE & POLICIES

You can miss one week of lab with no penalty (in other words, we drop your lowest set of scores). This accommodates unplanned absences, emergencies, etc. If you have a planned absence, please contact me no later than *one week* before the absence. We'll get you into a different lab section, or if that doesn't work, a time when no other classes are using our room. If advance notice is not given, you will receive a zero for that lab. Your final grade in this class will be based on the following weighted categories:

| Assignment       | % of Grade |
|------------------|------------|
| Post-Lab Quizzes | 85         |
| Pre-Lab Quizzes  | 15         |

There will be no final exam for this course. Please note that we will not be following the traditional grading scale where 90% is an A, 80% is a B, etc. *Your class rank will be the most important indicator of what grade you will receive.* Generally, the top fourth of the class will receive As, the next fourth will receive Bs, and so on. *This course may only be taken for a traditional letter grade; Credit/No Credit is not an option.*

Post-lab quizzes will be taken at the beginning of class following each experiment (these won't be online). I'll generally give you 15 minutes to do 3-5 questions for which no calculators are allowed (this is because you should have already done the calculations)! Usually I will include a conceptual question about the experiment, and the rest will be questions about your final, reportable results. Pre-lab quizzes will be taken on Moodle and will be 1-3 questions. You'll get a full hour to do these, but it should generally take you 10 minutes or less. These will be basic questions about the upcoming experiment, due Saturdays at noon. All of the questions will directly relate to the course objectives.

## **DISABILITY ACCOMODATION**

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. *Please contact me as early in the semester as possible regarding what accommodations I need to provide.*

## **ACADEMIC HONESTY**

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. The Student Conduct Code ([http://www.umn.edu/vpsa/policies/student\\_conduct.php](http://www.umn.edu/vpsa/policies/student_conduct.php))

## CLASS SCHEDULE & IMPORTANT DATES

The last day to drop this course on Cyberbear with a full refund is Feb. 10th. The last day to drop this course with instructor's consent form is April 3rd; this gives you a "W" on your transcript. After this date, all dropped courses will result in either a "WP" or "WF" grade on your transcript.

| Week # | Topic                         | Dates    |
|--------|-------------------------------|----------|
| 1      | NO LAB                        | Jan. 23  |
| 2      | NO LAB                        | Jan. 30  |
| 3      | Electric Fields and Potential | Feb. 6   |
| 4      | Ohm's Law                     | Feb. 13  |
| 5      | NO LAB (Presidents' Day)      | Feb. 20  |
| 6      | Slow RC Circuits              | Feb. 27  |
| 7      | Ampere's Law                  | March 6  |
| 8      | Earth's Magnetic Field        | March 13 |
| 9      | NO LAB (Spring Break)         | March 20 |
| 10     | Fast RC Circuits              | March 27 |
| 11     | Interference and Diffraction  | April 3  |
| 12     | Lenses and Image Formation    | April 10 |
| 13     | Wavelength of Light           | April 17 |
| 14     | Determining Planck's Constant | April 24 |
| 15     | Spectrum Analysis             | May 1st  |