PHY104 LAB (sections 13L and 14L)
Spring 2017 - Syllabus

Lab meets in 214 Cowley Hall**:** **Tue 13L (2:15-4:15p), 14L (4:25-6:25p)**

Instructor: **Dr. Rob Salgado**, 116 Cowley
Office Hours: Mon 4:25-5:20p, Tue 11:00-11:55a *[check D2L for updates]*
or, by appointment, *or* drop by my office *[my schedule will also be posted there]*
Email: **rsalgado@uwlax.edu** (best way to reach me - please include **104 Lab** in the subject line)

Course Content
There will be 11 labs over the course of the semester designed to accomplish these two goals:

1) To solidify your understanding of the principles you learn in the Physics 104 lecture by demonstrating them *experimentally*
2) To help you gain experience with *laboratory techniques* and the *analysis* and *interpretation* of experimental data.

These labs focus on the connection between ***experiment*** and ***theory*** *[a summary of a body of knowledge that… has been supported with repeated testing by experiment and makes new predictions that is subject to more testing by new experiments]*.

Almost all of the labs will emphasize (a) first using basic concepts to make theoretical predictions, followed by (b) performing the experimental test to verify the prediction. To make the theoretical predictions, you will have to do things on a more advanced level than simply "plug numbers into an equation and get the answer". In typical experimental work, the limitations imposed by available measuring equipment compel us to *devise indirect methods* of measuring quantities of interest! Often, this involves applying basic physical laws to derive the appropriate formulas which ***relate the "quantities of interest" in terms of the "quantities we can directly measure."***

Laboratory handouts
When you arrive at lab, you should **bring that week's handout** and **pick up next week's handout.** If you misplace your handout, before you arrive in class, print out the electronic version available on D2L. These handouts include background info, instructions on how to do the experiments, extra questions, etc… You are responsible for:

- Reading through the Introduction and Background section before coming to lab. It would be helpful if you also read through the Activity sections.
- Working through the lab activities during the laboratory period.
- Reviewing the handouts *and your notes* prior to each lab exam

You should take notes during the labs; this can be directly on the handouts or in a separate notebook. Ideally, you should record your experimental setup, results, conclusions, etc.

Your lab notes will **not** be graded, nor will you be required to turn in any lab reports. However, **the lab exams will contain both theoretical and practical problems based entirely on the lab handouts which you have completed**. So, it is in your best interest to keep accurate notes so that you can study for the exams! Although not required, the "Extra Questions" provide **good practice** for testing your understanding while in the lab and while preparing for your lab exams.

Attendance and Participation *(required)*
An attendance sheet will be kept, which *you should* **sign each week**. Plan for each lab to take the allotted 2 hours. Some labs may be shorter than that, but you cannot plan for a given lab to let out early. **DO NOT** schedule other appointments during lab time. **DO NOT** work on other items during lab.

Making up Labs to be Missed (but don't make a habit of this)
If you cannot attend your regular lab section, you may be able to make up that week's lab as follows:

- Please **let me know *in advance*** (with at least an email) and **preferences** for an alternate 104-Lab section to attend during the **same** week.
  (104 Labs meet starting at 7:45a, 9:55a, 12:05p, 2:15p Tue & Wed, as well as Tue 4:25p & 6:35p.)
- Only upon approval of the other lab instructor, you will be able to attend that lab section.
  Then, when you attend the other lab, be sure to tell the other instructor that you are present, so he or she can pass that information on your attendance to me.
  However, note that *the lab handouts do vary from instructor to instructor*. Since you will be tested on what we did in *my* labs, **it's best to work through *my* lab handout**—or at the very least look over my lab handout while working through the handout of the other instructor.

"Grading"
Your laboratory grade will be based on two laboratory examinations (one for the first 6 labs, the second for the remaining 5 labs). Each exam will be worth half of your laboratory score. Since attendance and participation is required, more than two unexcused absences may result in a decreased final score.

Your score will be reported to the PHY104 lecture instructor, who will [alone] incorporate that score for the laboratory into your overall course grade. Following the department policy,
a final-lab-score of at least 55% is required in order to obtain passing grade in PHY 104.

Exams
The two exams described above are closed-book, closed-notes, and are heavily based on the lab activities you performed. An equation sheet will be provided. Some exam problems will test your ability to make experimental measurements. Some problems will test your ability to analyze experimental data. Others will test your understanding of the physics involved in the lab experiments that you performed. Others may combine some of the above. As mentioned above, the "Extra Questions" in the lab handouts may help you prepare for lab exams.

Expectations for Graded Work
I provide students feedback and/or scores on assignments that require individualized grading before a further assignment of a similar format is due. Generally, I return work that requires individual feedback within 2 weeks from the date the work was due. I will notify you if I am unable to grade the work within the 2-week timeframe, and will identify a revised return date.

Your graded coursework will be returned in compliance with FERPA regulations, such as in-class, during my office hours, or via the course management system through which only you will have access to your grades.

After you have completed the course, any copies or records of your graded material that I retain will be accessible up to 7 weeks into the next academic term. The second lab exam may be viewed, but it can not be copied or returned.

Student Evaluation of Instruction (SEI)
UWL conducts student evaluations electronically. Approximately 2 weeks prior to the conclusion of a course, you will receive an email at your UWL email address directing you to complete an evaluation for each of your courses. In-class time will be provided for students to complete the evaluation in class. Electronic reminders will be sent if you do not complete the evaluation. The evaluation will include numerical ratings and, depending on the department, may provide options for comments. The university takes student feedback very seriously and the information gathered from student evaluations is more valuable when a larger percentage of students complete the evaluation. Please be especially mindful to complete the surveys.

Accommodations (arranged *in advance,* if possible)

Students with Disabilities - Any student with a documented disability (e.g. ADHD, Autism Spectrum Disorder, Acquired Brain Injury, PTSD, Physical, Sensory, Psychological, or Learning Disability) who needs to arrange academic accommodations must contact The ACCESS Center (165 Murphy Library, 608-785-6900, ACCESSCenter@uwlax.edu) and meet with an advisor to register and develop an accommodation plan. In addition to registering with The ACCESS Center, it is the student's responsibility to discuss their academic needs with their instructors. You can find out more about services available to students with disabilities at http://www.uwlax.edu/access-center .

Veterans and active military personnel - Veterans and active military personnel with special circumstances (e.g., upcoming deployments, drill requirements, disabilities) are welcome and encouraged to communicate these, in advance if possible, to me. For additional information and assistance, contact the Veterans Services Office (http://www.uwlax.edu/veteran-services/). Students who need to withdraw from class or from the university due to military orders should be aware of the military duty withdrawal policy (http://catalog.uwlax.edu/undergraduate/academicpolicies/withdrawal/#military-duty-withdrawal-university) .

Religious Observances - Students will be allowed to complete exams or other requirements that are missed because of a religious observance, provided arrangements are made *in advance.*

Policy on Sexual Harassment - As a faculty member of the University of Wisconsin-La Crosse, **I am a mandated reporter** of sexual harassment (including sexual violence). This means that I am obligated to disclose any detailed or specific information I receive about such incidents involving a member of this campus while that person is a member of this campus, regardless of whether the incident takes place on campus or off. I care about your well-being, and our course assignments sometimes lend themselves to disclosure, but you should not share any details of an incident with me **until you have discussed your options** under the new Title IX guidelines. There are confidential reporters available to students at UWL where you can have this discussion. The contact in Student Life is Ingrid Peterson, Violence Prevention Specialist, at (608) 785-8062 or ipeterson@uwlax.edu. I am also happy to help direct you to counseling and support services. Simply ask me to assist you in locating a confidential reporter and I will help you to do so. (http://www.uwlax.edu/violence-prevention/)

PHY 104 Lab schedule (Spring 2017)

Jan	24	Lab 1: Charge on a Cup
Jan	31	Lab 2: Electric Field Mapping
Feb	7	Lab 3: Circuit Elements (Ohm's Law)
Feb	14	Lab 4: Oscilloscope and Waveforms
Feb	21	Lab 5: DC Circuits (Kirchhoff's Rules)
Feb	28	Lab 6: RC Circuits
Mar	**7**	**First Lab Exam: Labs 1 – 6**
Mar	**14**	**Spring Break: No Labs**
Mar	21	Lab 7: Magnetic Field Mapping
Mar	28	Lab 8: Motions of Charged Particles
Apr	4	Lab 9: Reflection and Refraction
Apr	11	Lab 10: Lenses
Apr	18	Lab 11: Diffraction and Interference
Apr	**25**	**Second Lab Exam: Labs 7 – 11**