

PHY103 LAB (sections 10L, 12L, 13L, 14L, and 15L)
Spring 2016 - Syllabus

**Lab meets in 214 Cowley Hall: Thu 10L (9:55-11:55a), 12L (2:15-4:15p), 13L (4:25-6:25p)
Fri 14L (9:55a-11:55a), 15L (12:05-2:05p)**

Instructor: Dr. Rob Salgado, 116 Cowley

Office Hours: *[as of Jan 28, 2016]* Mon 9:55-11:45am and Fri 2:15-3:05pm *[check D2L for updates]*
or, by appointment, or drop by my office

Email: rsalgado@uwlax.edu (best way to reach me - please include **103 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 103 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 perform the experiments, sample exam 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.** It is in your best interest to keep accurate notes so that you can study for the exams! And note that the “Sample Exam Questions” contain many *actual* exam questions from previous years’ 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 103-Lab section to attend during the **same** week. (Other than my lab sections listed on the first page, section 11L with Dr. King meets at Thursday at 12:05-2:05pm.)
- 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. And be sure to go over the relevant sample exam questions from the handouts in extra detail.

“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 PHY103 lecture instructor, who will [alone] incorporate that score for the laboratory into your overall course grade. **A final-lab-score of at least 55% is required in order to obtain passing grade in PHY 103.**

Exams

As mentioned above, there will be two lab exams, each covering roughly half of the semester. The exams 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 “Sample Exam Questions” in the lab handouts contain some actual exam questions from previous years' exams, along with other questions that I think might be good., so be sure to study these questions prior to the exams.

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/) (<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) (<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 UW-L 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 103 Lab schedule (Spring 2016)

Week	Date	Lab#	Lab topic
1	28-Jan	1	Uncertainty & Error Analysis
2	4-Feb	2	One Dimensional Motion
3	11-Feb	3	Acceleration due to gravity
4	18-Feb	4	Vector addition with forces
5	25-Feb	5	Range prediction
6	3-Mar	6	Force, mass and acceleration
7	10-Mar	X1	Lab exam
SPRING BREAK			
8	24-Mar	7	Centripetal acceleration and force
9	31-Mar	8	Torque and equilibrium
10	7-Apr	9	Moment of inertia and angular acceleration
11	14-Apr	10	Archimedes' Principle
12	21-Apr	11	Simple Harmonic Motion
13	28-Apr	X2	Lab Exam
14			No Lab