PHY103 LAB – Fundamental Physics I (LAB sections 14 and 15)
Spring 2018 - Syllabus

103 Lab meets in Cowley 214 on **Friday 9:55a-11:55a (sec 14) and 12:05p-2:05p (sec 15).**
Instructor: **Dr. Rob Salgado**, Cowley 116
Office Hours: M 4:25-5:20p, Tu 11:00-11:55a, Th 12:00p-12:55p
or, by appointment, *or* drop by my office *[my schedule will also be posted there]*
Email: **`rsalgado@uwlax.edu`** (the best way to reach me)
sent from *your* **`uwlax.edu`** email account, with **`103 lab`** included 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 lab handout** and **pick up any other handouts.** 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" [collected from other lab instructors] provide **good practice** for testing your understanding while in the lab and while preparing for your lab exams. (Office Hour is a good time to discuss your attempts at these questions. No answer key is available for these Extra Questions.)

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, the department policy is that make-up labs for missed labs must be done during **another lab section of the class during the same week**.
(103 Labs run all day Thursday (starting at 9:55a, 12:05p, & 2:15p with Dr. Zink; and 4:25p with Dr. Hawkins) and the last 103 Labs of the week are my Friday labs at 9:55a and 12:05p.)

- Please **let me know *in advance*** (with at least an email) and **preferences** for an alternate 103-Lab section to attend [Thursday or Friday of] that week.
- *Only upon approval of the other lab instructor* will you 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 (with a maximum of 200/200=100%) will be reported to the PHY103 lecture instructor, who will incorporate that score for the laboratory into your overall course grade. Per the department policy, **a final-lab-score of at least 55% is required in order to obtain passing grade in PHY 103.**

Exams
The two exams described above are closed-book, closed-notes, and are heavily based on the lab activities you performed. An equation sheet [that you will be able to preview] will be provided with each exam. 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. (Office Hour is a good time to discuss your attempts at these questions. No answer key is available for these Extra Questions.)

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.

Concerns or Complaints
If you have a concern or a complaint about the course, or me, I encourage you to bring that to my attention. My hope would be that by communicating your concern we would be able to come to a resolution. If you are uncomfortable speaking with me, or you feel your concern hasn't been resolved after bringing it to my attention, you can contact my department chair: Prof. Eric Barnes (608-785-8437, 2012 Cowley Hall, ebarnes@uwlax.edu).

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.

Our Legal Obligations to You

Sexual Misconduct

As an employee of the University of Wisconsin-La Crosse, I am a mandated reporter of sexual harassment and sexual violence that takes place on campus or otherwise affects the campus community. This means that if I receive detailed or specific information about an incident such as the date, time, location, or identity of the people involved, I am obligated to share this with UWL's Title IX Coordinator http://www.uwlax.edu/affirmative-action/ in order to enable the university to take appropriate action to ensure the safety and rights of all involved. For students not wishing to make an official report, there are confidential resources available to provide support and discuss the available options. The contact in Student Life is Ingrid Peterson, Violence Prevention Specialist, (608) 785-8062, ipeterson@uwlax.edu. Please see http://www.uwlax.edu/sexual-misconduct for more resources or to file a report.

Religious Accommodations

Per the UWL Undergraduate and Graduate Catalogs http://catalog.uwlax.edu/undergraduate/aboutuwlax/#accommodation-religious-beliefs "any student with a conflict between an academic requirement and any religious observance must be given an alternative means of meeting the academic requirement. The student must notify the instructor within the first three weeks of class (within the first week of summer session and short courses) of specific days/dates for which the student will request an accommodation. Instructors may schedule a make-up examination or other academic requirement before or after the regularly scheduled examination or other academic requirement."

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 The ACCESS Center website: 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.

PHY 103 Lab schedule (Fall 2018)

FRIDAYS	Lab#	Lab topic
1/26	**1**	**Measurement, Uncertainty, and Error Analysis**
2/02	**2**	**Kinematics of One Dimensional Motion**
2/09	**3**	**Acceleration Due to Gravity**
2/16	**4**	**Vector addition with forces**
2/23	**5**	**Range of a Projectile**
3/02	**6**	**Net-Force, Mass, and Acceleration**
3/08	**X1**	**LAB EXAM 1**
3/23	**7**	**Centripetal Acceleration and Centripetal Force**
3/30	**8**	**Torque and Static Equilibrium**
4/06	**9**	**Moment of Inertia**
4/13	**10**	**Simple Harmonic Motion**
4/20	**11**	**Archimedes Principle**
4/27	**X2**	**LAB EXAM 2** *(last meeting for lab)*