## PHY103 LAB Syllabus (sections 12L, 22L, and 23L)

Lab meets in 214 Cowley Hall:

12L Tues 12:05p- 2:05p 22L Thur 7:45a – 9:45a 23L Thur 9:55a -11:55a

#### Instructor: Dr. Rob Salgado, 116 Cowley

Office Hours: Tu 2:15-3:15p, W9:55-10:55a, Th 3:15-5:15p, by appointment, or stop by my office Email: rsalgado@uwlax.edu (please include 103 Lab in the subject line, and send mail only from a uwlax.edu account.)

#### **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* in general

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 fact, you will in fact often have to solve physics problems to derive the appropriate formulas yourselves!

## **Switching Lab Sections**

Due to space constraints, changing lab sections may only occur if there is a mutual swap between sections. If you are interesting to changing to a different lab section, sign up on the sheet posted on the door of 214 Cowley *during the first week of classes*. Include all of the requested information.

## Laboratory handouts

When you arrive at lab, you will receive that week's explanatory handout.

An electronic version will then be posted on D2L. These handouts include background info, instructions on how to perform the experiments, sample exam questions, etc...

You are responsible for:

- (If given in advance) Reading through the appropriate section before coming to lab
- Working through the lab 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. You should record your experimental setup, results, conclusions, etc.

These notes will <u>not</u> 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

If you cannot attend your regular lab section, you can make up the lab as follows:

- With at least an email, let me know your intention to attend another lab section during the same week (but don't make a habit of this). I will then contact the other lab instructor. Only if that instructor is willing, you have permission to attend that lab section. Be sure to tell the other instructor that you are present, so he or she can pass that information on to me. Be careful though: 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.
- All missed labs must be made up within one week of the absence.

There may be other ways to make up labs under exceptional circumstances, but talk to me individually for approval.

## "Grading"

Your laboratory **score** will be based on the laboratory examinations and attendance/participation. Each exam will be 40% of your laboratory score, and the remaining 20% will be from attendance and participation. Unexcused absences that are not made up, tardiness, and/or leaving early will be dealt with on a case-by-case basis and may result in losing attendance/participation points.

Due to departmental policy (to compensate for variations among lab instructors), at the end of the semester your total laboratory score will be scaled so that the class average is 85 (with a maximum of 100). Your score will be reported to the Physics 103 lecture instructor, who will [alone] incorporate that score for the laboratory into your overall course grade.

#### Exams

There will be two lab exams, each covering half of the semester.

Theoretical & Experimental. Some exam problems will test your experimental ability. Others will test your ability to solve problems on paper, based on experiments that we performed. Others may combine both 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.

#### **Special Needs**

"Any student with a documented disability (e.g., physical, learning, psychiatric, vision, or hearing, etc.) who needs to arrange reasonable accommodations must contact the instructor and the Disability Resource Services Office (165 Murphy Library) at the beginning of the semester. Students who are currently using Disability Resource Services will have a copy of a contract that verifies they are qualified students with disabilities who have documentation on file in the Disability Resource Service Office." It is the student's responsibility to communicate their needs with instructor in a timely manner.

#### **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*.

# Physics 103 Lab schedule Fall 2014

# Dates (Tuesdays, Wednesdays, Thursdays) Lab

Sept 2,3,4	Lab 1: Uncertainty and Error Analysis
Sept 9,10,11	Lab 2: One Dimensional Motion
Sept 16,17,18	Lab 3: Acceleration Due to Gravity
Sept 23,24,25 Sept 30/Oct 1,2 Oct 7,8,9	Lab 4: Vector Addition with Forces Lab 5: Range Prediction Lab 6: Force, Mass, and Acceleration
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Oct 14,15,16	First Lab ExamLabs 1-6
Oct 14,15,16	
Oct 21,22,23	Lab 7: Centripetal Acceleration and Force
Oct 21,22,23	Lab 7: Centripetal Acceleration and Force

Nov 18,19,20 Lab 11: Archimedes' Principle

(Thanksgiving week-no labs)

# Dec 2, 3, 4 Second Lab Exam---Labs 7-11