PHYS271

General Physics III Laboratory

Fall 2019

Dr. Matt Severson
PHY 1330 Toll Phys Bldg
mseverso@umd.edu
Office hours by appointment

Sec	*Lab time*	*TA*	*email*
0102	M 3:00-5:50	Hao Wu	haowu@umd.edu
0103	M 6:00-8:50	Guanwen Yan	guanweny@umd.edu
0104	W 4:00-6:50	Guanwen Yan	↑
0105	T 10:00am-12:50pm	Fan Kwok	fankl@umd.edu
0106	T 1:00-3:50	Hao Wu	↑
0108	T 7:00-9:50pm	Guanwen Yan	↑
0117	Th 11:00-1:50	Fan Kwok	↑
0118	Th 2:00-4:50	Hao Wu	↑

All sections meet in PHYS271 lab room, PHY 3213.

NOTE: Details in this syllabus should be taken as tentative. I will notify you when changes are made.

IMPORTANT Note on Your Course Grade

To obtain credit for this PHYS271 laboratory course, you MUST complete ALL 9 experiments and the Exam.

Required pre-requisites: PHYS161, PHYS260, PHYS261 (**Mandatory**)
If you are signed up for this course and have ***NOT*** *completed the pre-requisites,* ***please contact me*** *as soon as possible.*

Co-requisite: PHYS270 (**Generally mandatory for non-bio engineering majors**)

Required Textbook: The correct version of the Phys 271 lab manual for this course is available only through the **Expert TA** web system (see below). Printed editions older than Fall 2014 are entirely defunct for this course.

Course Description

The 261-271 laboratory sequence gives an experimental introduction to classical and modern physics intended for students studying engineering or other similarly mathematical sciences. This second course in the sequence will consist of experiments in Electricity, Magnetism, Circuits, Light, and Optics.

Assignments

Pre-lab exercises: There are several pre-lab exercises associated with each experiment. The weekly assignments are found on the each Experiment page in the Expert TA system. Pre-labs are due *before* class begins and must be submitted prior to class start time for full credit.

Experiment Reports: You MUST complete the Excel lab spreadsheet for each of the 9 weekly experiments in order to receive credit for the course. Experiments are conducted with a partner, with whom you will share a pre-fabricated Excel template, which will contain all measurements, analyses, and answers to final questions. Partners *may* submit different answers or versions of the spreadsheet, but submissions may also be identical.

Groups of **3 students** must complete **2 spreadsheets.** ***NO groups larger than 3 are permitted UNDER ANY CIRCUMSTANCES***. If more than 2 students have the same computer station number, only 2 assignments will be graded!

The custom spreadsheet saving process will create 2 unique copies of completed work for individual submission. Completed assignments are submitted *by every individual student* via upload to the ELMS page; even if the work submitted by partners is identical, two submissions are required.

Exam: The final assignment for the course is a written exam, rather than a culminating lab. The exam will consist of short answer questions, some of which will be similar to those in pre-lab or experiment final questions; other questions will be more directly related to experimental or procedural aspects of the experiments.

The week before the Exam, you will have an opportunity to do a lab-based review, which will cover the material on the Exam and provide you with sample questions to study.

Again, you MUST complete the Exam to receive credit for the course!

Expert TA

You will need to *purchase access to the course on* ***The Expert TA*** in order to access the lab manual AND to complete the required weekly pre-lab exercises through their online system. The **initial access code** for your section can be found on the course **ELMS** page.

Choosing the link for your section will initialize registration and then give you the opportunity to purchase course and manual access by credit card in the steps that follow. The cost of the access here replaces the cost of a physical lab manual.

Lab manual access codes can also be purchased at the Campus Book Store, with the addition of a small surcharge. To register with a code, go to theExpertTA.com and choose Student Registration at bottom right.

Grading Scheme

Pre-labs	10%
Experiment reports (9)	70%
Exam	20%

ELMS Posts and Communicating with Me

I will clearly post all announcements, assignments, due dates, and other important information on the course ELMS page. I will also use ELMS to send course-wide emails when necessary. *It is* ***your responsibility*** *to find such information on ELMS.* Please check the page regularly for updates. I will be rather inflexible in dealing with problems that arise due to your failure to know things that have been said on ELMS.

That said, the TA or I will be happy to answer any other questions about course material, trouble with assignments, etc as they arise. Please feel free to send me email at any time for such reasons.

Attendance, Religious Observances, and University Closures

Since all experiments (and the exams) **must** be completed to receive credit for the course, **attendance** is effectively **mandatory**.

We are under no obligation to excuse your absence for weak or illegitimate reasons.

If you need to miss *an experiment or exam for a religious observance or other legitimate reason known at this time,* ***please notify me in advance****, and preferably ASAP.*

If you miss due to illness or emergency, *please contact your TA ASAP* after the fact, and obtain documentation of the incident if possible.

In both cases, make-up for the experiment in question will be arranged accordingly, usually during designated make-up weeks.

If the **university is closed** due to inclement weather or some emergency situation, **I will contact you on ELMS** with further instructions.

Academic Integrity

Performing physics experiments can be a difficult and tedious process; all students will work with a partner on the experiments. The spreadsheet saving process will create 2 unique copies of completed work for individual submission.

There are a number of security features in each spreadsheet to make the unique identification of your work (with your partner) nearly inevitable. I will have zero tolerance for submission of work you were not present to complete. Such garbage behavior may result in an XF grade for the course and/or further action taken by the Student Honor Council.

Students with Disabilities

Accommodations will be provided to enable students with disabilities to participate fully in the course. Please discuss any needs with me at the beginning of the semester, so that appropriate arrangements can be made. Students who are registered with DSS and plan to take exams at their facilities should provide the pertinent authorization forms (electronic format is fine) prior to the exam date.

PHYS 271 Schedule

Fall 2019

Wk	*Week of*	*Experiment*
1	Aug 26	1 - Electric and Magnetic Fields
2	Sep 3	*No labs due to Labor Day holiday*
3	Sep 9	2 - The Multimeter and Oscilloscope
4	Sep 16	3 - Resistors and Capacitors
5	Sep 23	4 - Faraday's Law of Induction
6	Sep 30	5 - Resonance in LRC Circuits
7	Oct 7	Make up - Expts 1-5
8	Oct 14	8 - Photovoltaic Cell
9	Oct 21	9 - Polarized Light
10	Oct 28	10 - Interference and Diffraction
11	Nov 4	11 - Optical Spectroscopy
12	Nov 11	Make up - Expts 8-11
13	Nov 18	12 - Review for Exam
14	Nov 25	*No labs due to Thanksgiving holiday*
15	Dec 2	**13 - Exam** (in your usual section)