

Syllabus for Physics 271- Spring 2016

PHYS271 General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory)

Course description: *PHYS271 General Physics: Electrodynamics, Light, Relativity and Modern Physics (Laboratory); (1 credit) Grade Method: REG/P-F/AUD. Prerequisite: PHYS261. Corequisite: Concurrently enrolled in PHYS270. Lab includes experiments on ac circuits, magnetism, light and modern physics.*

Instructor: Prof. Fred Wellstood, Dept. of Physics, Room 0367 Physics Building
e-mail: well@squid.umd.edu. Office Hours: Wednesday 1-2 PM or by e-mail appointment

Schedule: You need to attend lab the first week of the semester, and every week thereafter, with the only exception being the week of spring break. A week-by-week schedule of the experiments is given at the end of this syllabus.

Required Textbook: The Lab Manual for Physics 271 is required and is only available electronically. This semester, the Lab Manual and grading of PreLab Questions for PHYS271 are hosted via the online service Expert TA. In order to purchase the lab manual from Expert TA, you need to follow the steps listed below. Please note that the University bookstore may incorrectly list "no textbook required" for the course. Don't be fooled - you need to purchase access to the lab manual and Prelab questions via Expert TA.

How to Purchase the Lab Manual and get access to the Prelab Questions via Expert TA:

1. Locate your section number in the table below and then find the class code for your specific section. Make sure you have the correct section and the correct code.
2. Go to <https://www.theexpertta.com/registration/>
3. Follow the instructions... be sure to enter the correct class code for your section listed below.

Laboratory sections and class codes: You must attend your assigned section at the scheduled meeting time. You cannot attend a section that you are not enrolled in. All sections meet in Room 3213 Physics.

Section	Meeting Time	class code	TA	E-mail
0101	M 9:00 am - 11:50 am	USH22MD-6D6F82-1CY	Hadadi, Reza	hadadi.rz@gmail.com
0102	M 12:00 pm - 2:50 pm	USH22MD-B4E746-1CX	He, Peiwen	phe@umd.edu
0103	M 3:00 pm - 5:50 pm	USH22MD-7627DC-1CW	Raina, Abhay	rainaby@umd.edu
0104	Tu 8:00 am - 10:50 am	USH22MD-178336-1CV	Hadadi, Reza	hadadi.rz@gmail.com
0105	M 6:00 pm - 8:50 pm	USH22MD-0CB1C8-1CU	Lin, Zijie	zlin1@umd.edu
0106	Tu 11:00 am - 1:50 pm	USH22MD-AD504F-1CT	Komey, Adiel	akomey@umd.edu
0107	Tu 4:00 pm - 6:50 pm	USH22MD-DC8ED3-1CS	Hadadi, Reza	hadadi.rz@gmail.com
0108	W 5:00 pm - 7:50 pm	USH22MD-A8FC9D-1CR	Lin, Zijie	zlin1@umd.edu
0109	Th 1:00 pm - 3:50 pm	USH22MD-74F78D-1CQ	Dhrithi Uday	dhrithi.uday@gmail.com
0110	W 2:00 pm - 4:50pm	USH22MD-3D2CD0-1CP	Komey, Adiel	akomey@umd.edu
0111	Th 9:00 am - 11:50 am	USH22MD-76FBF3-1CO	Lin, Zijie	zlin1@umd.edu
0112	Th 4:00 pm - 6:50 pm	USH22MD-20DD1F-1CN	Raina, Abhay	rainaby@umd.edu
0113	Th 7:00 pm - 9:50 pm	USH22MD-3AAE7D-1CM	Dhrithi Uday	dhrithi.uday@gmail.com
0114	Tu 7:00 pm - 9:50 pm	USH22MD-796729-1CL	Dhrithi Uday	dhrithi.uday@gmail.com
0115	W 8:00 am - 10:50 am	USH22MD-FA1308-1CK	Raina, Abhay	rainaby@umd.edu

Weekly schedule of the different Sections

	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 AM					
9:00 AM	101	104	115	111	
10:00 AM					
11:00 AM	102	106			
12:00 PM					
1:00 PM					
2:00 PM	103		110	109	
3:00 PM					
4:00 PM			107		112
5:00 PM	105			108	
6:00 PM					
7:00 PM			114		113
8:00 PM					
9:00 PM					

Grading:

Prelab Questions (due before each of your lab sessions start)	15%
Spreadsheet Lab Reports	50%
both Culminating Labs	35%

The scoring of each individual lab report will typically break down roughly as follows

data	45%
analysis and plots	35%
postlab questions	20%

Note: To pass PHYS 271, you must complete **ALL** the labs. This includes Experiment 10 (the Review for the Culminating Lab) and Experiment 11 (the Culminating Lab). Students who do not complete all the labs receive an automatic grade of F.

Note: Total scores listed on ELMS are NOT weighted as given above and thus they are not your correct or current official final score. In other words, your scores on each lab will be listed correctly on ELMS, but the total scores or percentages listed on ELMS are completely bogus. Your instructor will generate a correctly weighted final score at the end of the semester and this is what is used for assigning your grade.

Course Outline: Labs start meeting the first day of the first week of the semester. There are 13 experiments, including two review labs and two Culminating Exam labs. All of these labs are required in order to pass the course.

Each week you must turn in answers to the Prelab questions to Expert TA. The answers are due at the start of your lab session.

Each lab session lasts three hours typically begins with a brief 5 minute discussion of the lab by the TA. At the end of your lab session, you need to turn in your own spreadsheet lab report to ELMS Canvas. It doesn't matter if your lab partner turned in a report, you need to turn in your own report. It does not matter if your report is the same as your lab partner's. Of course you have the same data as your lab partner. But, if you want to get a grade for the lab you must turn in your report to your own Physics 271 area in ELMS Canvas (go to <http://www.elms.umd.edu>) before you leave the lab. The report itself consists of an Excel

spreadsheet which should contain all your data, as well as analysis, plots and answers to any questions. The report is meant to be a succinct and organized summary of data, analysis and conclusions without redundant or superfluous discussion. **The spreadsheet itself must be turned in at the end of the lab session (upload it to the Physics 271 site on ELMS).**

The Prelab Questions: Prelab Questions are due just before your lab section starts. The labs should typically require less than two hours to complete, leaving ample time for analysis and thought. However, to perform the experiment in this limited time you have to prepare before you get to the lab. In particular, it is essential that you read through the lab write-up and complete the Prelab Questions before you get to the lab. It should not surprise you that the answers to all the Prelab Questions can be found by reading the lab.

To actually complete the Prelab Questions and get credit for them, you must log onto the Expert TA website and complete the assignment. No paper submissions can be accepted - you must submit via Expert TA. Answering and submitting the assignment in Expert TA is the only way to get credit for the Prelab Questions.

The Lab Report: At the end of your lab session, each and every student must turn in their own lab report to ELMS Canvas. It seems that every semester there are a few students that think that they don't need to turn in a lab report to ELMS because their lab partner did - these are students who end up failing the class or have to go back and make up the lab.

Lab reports are not meant to be long or extremely time consuming. In fact, the only thing you turn in is the Excel file that you and your lab partner worked on during the lab. The spreadsheet should have all your data, your plots, all the analysis and your answers to the questions. Just make sure that both you and your lab partner each turn in your lab report. Each of you will need to log in to ELMS at <http://www.elms.umd.edu>, select the Physics 271 link, then click on "Assignments", find the current lab assignment and follow the instructions to upload and submit your spreadsheet report. Don't forget to hit the submit button. Also be sure that it is the right and final file that you submit. If you make a mistake and send the wrong thing, e-mail Dr. Wellstood and your TA to let them know what happened along with a copy of your spreadsheet.

***Important Notes:**

- (1) Phys 271 sections will start meeting the **first** week of class.
- (2) By the end of each lab session, you must turn in your own lab report to ELM . You can't turn it in after your section ends. It is great if your lab partner turned in a report to his or her own area in ELMS, but if you don't want to get an F you need to log onto ELMS and turn in your own report. No one else can turn in a report for you.
- (3) **YOU MUST COMPLETE ALL THE LABS IN PHYSICS 271 IN ORDER TO PASS.** Students who do not complete all of the experiments in physics 271 will automatically get an F in Physics 271. Don't believe anyone who tells you differently.
- (4) You must take the two Culminating Labs in order to pass the course.
- (5) No lab, prelab, or exam scores will be dropped. Missing a lab will require that you make it up as soon as possible, and preferably in the same week that it is missed. The make-up date must be arranged by consulting with your TA and Dr. Wellstood (well@squid.umd) as soon as possible after it becomes apparent that there will be a problem. If you are going to miss a lab because of a religious holiday, it is your responsibility to inform your TA and instructor in advance, so that suitable arrangements can be made for doing a make-up.

Missing a Lab: In order to pass Physics 271, you must complete all the experiment, including both culminating labs. Students are permitted to perform labs in make-up sessions only if they

have a legitimate reason for failing to attend a lab session. It is not OK to just go to a section because it is more convenient than your assigned section. In the event that you miss a lab session, e-mail your TA and Dr. Wellstood (well@squid.umd), who may be able to make arrangements for you to attend another section during the same week. If you do not hear from your instructor right away, then by all means try stopping by the Lab to see if there is an open spot. However, many of the lab sections are full and there is a good chance that there are not going to be any open seats in a given section. Experiments run all week, and if you can take care of a missed lab later in the week, by all means do so. You will need to make sure that the section's TA, your regular TA, and Dr. Wellstood (well@squid.umd), all are aware of your situation.

Excuses: Missing a lab or an exam is not allowed without a valid documented excuse as defined by the University (medical problem, religious holiday, or serious family crisis). In all cases, a makeup lab or makeup exam must be completed in a reasonable amount of time or you will receive a score of zero for the assignment or exam. The makeup test or lab, and the due date, must be arranged by consulting with your TA and Dr. Wellstood (well@squid.umd) as soon as possible after it becomes apparent that an exam or lab will be missed. If you are going to miss a lab or exam because of a religious holiday, it is your responsibility to inform the instructor in advance so that suitable arrangements can be made.

Academic honesty: You may get together in small groups and discuss the labs. However, do not use these discussions as an excuse to copy someone else's data or prelab solutions, or to let someone else copy your solution. That is cheating. The right way to proceed is first to read through the lab, do the prelab, and then take a look at the questions. With this preparation you can discuss with others and see if you have missed something. All work you submit must be your own and should reflect your own understanding. Academic dishonesty, including copying homework, Googling for solutions on the web, or cheating on an exam, is a very serious offense which may result in suspension or expulsion from the University. Don't do it. Details on the policy can be found at www.testudo.umd.edu/soc/dishonesty.html.

Help with understanding the material: Learning physics and engineering is not easy. The knowledge learned at each stage builds upon previous knowledge and skills. If you find that you are falling behind, seek help early on, rather than waiting until just before an exam. Help can be obtained by:

- Regularly attending your lab, lecture and discussion sections.
- Visiting the [Slawsky Clinic](#) in room 1140 Physics Building.
- Going to the office hours of Professor Wellstood or your TA.
- The [Learning Assistance Service](#) (2201 Schoemaker Bldg., 301-314-7693) helps students with time management, reading, note taking, and exam preparation skills.

If you are having general academic problems, you can try stopping by Room 1120 Physics and talking to Tom Gleason, the Physics Coordinator of Student Services. Tom graduated from Maryland and also used to be an advisor in Letters and Science (undeclared majors). He is now the advisor for physics majors, but he knows all the University rules and is a great person to talk to because of his perspective on Physics and other programs at the University.

The Culminating Labs: The two Culminating Labs are closed book practical exams, in which you answer a set of questions that may require data to be acquired using apparatus from the different experiments.

PRELIMINARY SCHEDULE for Physics 271
Instructor - Prof. Fred Wellstood
Spring 2016

Week	Date	Experiment #
	Monday Jan. 25	First day of classes
1	Jan. 25 - 29	Exp #1 - Electric and Magnetic Fields
2	Feb. 1 - 5	Exp #2 - The Multimeter and Oscilloscope
3	Feb. 8 - 12	Exp #3 - Resistors and Capacitors
4	Feb. 15 - 19	Exp #4 - Faraday's Law of Induction
5	Feb. 22 - 26	Exp #5 - Resonance in LRC Circuits
6	Feb. 29 - Mar 4	Exp #6 - Review for the First Culminating Lab
7	Mar 7- 11	Exp #7 -The First Culminating Lab
8	Mar 13-20	Spring Break
9	Mar 21-25	Exp #8 - Photovoltaic Cell
10	Mar 28 - Apr 1	Exp #9 - Polarized Light
11	Apr 4 - 8	Exp #10 - Interference and Diffraction
12	Apr 11 - 15	Exp #11 - Optical Spectroscopy
13	Apr 18 - 22	Exp #12 - Review for the Second Culminating Lab
14	Apr 25 - 29	Exp #13 - Second Culminating Lab
15	May 2-6	Make-up Labs
16	May 9-10	No Labs
	Tuesday May 10	Last Day of Classes
	Wednesday May 11	Reading Day
	May 12-18	This is week of Final Exams for lecture courses

 Labs meet first week