

Syllabus for Physics 261 - Spring 2013
General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory)

Official Course Description: PHYS261 General Physics: Vibrations, Waves, Heat, Electricity and Magnetism (Laboratory); (1 credit) Grade Method: REG/P-F/AUD. Corequisite: Concurrently enrolled in PHYS260. Lab includes experiments on mechanics, vibrations, waves, heat, electricity and magnetism. PHYS260 and PHYS261 (lab) must be taken in the same semester and the grade for the courses will be combined into a single grade for both. To pass, students must complete passing work in both PHYS260 and PHYS261.

Co-requisite: PHYS260 is a mandatory co-requisite for PHYS 261. To pass PHYS261, students must complete passing work in both PHYS260 and PHYS261.

Instructor: **Prof. J. Robert Anderson**, Dept. of Physics, Room 2346 Physics Building,
banders@umd.edu, 301-405-6142, Office Hours TBA or by e-mail appointment

Lecture and Lab: To pass Physics 261, you must complete all the labs in Physics 261 and you must enroll in and pass the lecture part of the course (Physics 260) in the same semester.

Grading Policy:

| | |
|--|-----|
| prelab questions (due before your lab session starts) | 10% |
| data (due at the end of your lab session) | 25% |
| analysis (due at the end of your lab session) | 20% |
| postlab questions (due at the end of your lab session) | 10% |
| Culminating lab | 35% |

Your score from the Physics 261 Lab will be combined with your score from the Physics 260 Lecture part of the course to produce one, overall, common score for both Physics 260 and Physics 261. The score from Physics 261 will be weighted 25% and the score from Physics 260 will be weighted 75% to produce this final score.

Required Textbook: Physics 261 Lab Manual, Fall 2010 Edition.

Laboratory sections: You must attend your assigned section at the scheduled meeting time.

See Schedule: Group A meets on weeks 2, 4, 6, 8, 11, 13, 15
Group B meets on weeks 3, 5, 7, 10, 12, 14, 16

| Section # | Meeting time | Room | Group A or B | Teaching Assistant | e-mail |
|-----------|--------------------|----------|--------------|--------------------|--------|
| 0101 | M. 6:00pm- 8:50pm | PHY 3219 | B | | |
| 0102 | M 12:00pm- 2:50pm | PHY 3219 | B | | |
| 0103 | M 3:00pm- 5:50pm | PHY 3219 | B | | |
| 0104 | Tu 2:00pm- 4:50pm | PHY 3219 | A | | |
| 0105 | Tu 5:00pm- 7:50pm | PHY 3219 | B | | |
| 0106 | Tu. 5:00pm- 7:50pm | PHY 3219 | A | | |
| 0107 | W 11:00am- 1:50pm | PHY 3219 | A | | |
| 0108 | W 2:00pm- 4:50pm | PHY 3219 | A | | |
| 0109 | Th 9:00am-11:50am | PHY 3219 | A | | |
| 0110 | Th 3:00pm- 5:50pm | PHY 3219 | A | | |
| 0111 | Th 3:00pm- 5:50pm | PHY 3219 | B | | |
| 0112 | M 6:00pm- 8:50pm | PHY 3219 | A | | |

**Note: Each Lab Section is labeled as Group A or Group B
Both groups complete Lab 0 during first week (stop by the lab if you need help)**

Table for Group-A sections: Group A meets on weeks 2, 4, 6, 8, 10, 12, 14, 16 (see schedule below)

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------|---------|---------|-----------|----------|--------------------|
| 8:00 AM | | | | | |
| 9:00 AM | | | | 109-A | |
| 10:00 AM | | | | | |
| 11:00 AM | | | 107 - A | | |
| 12:00 PM | | | | | |
| 1:00 PM | | | | | TA Lab preparation |
| 2:00 PM | | 104 - A | 108 - A | | |
| 3:00 PM | | | | | 110-A |
| 4:00 PM | | | | | |
| 5:00 PM | | 106 - A | | | |
| 6:00 PM | 112 - A | | | | |
| 7:00 PM | | | | | |
| 8:00 PM | | | | | |
| 9:00 PM | | | | | |

Table for Group-B sections: Group B meets on weeks 3, 5, 7, 9, 11, 13, 15, 17 (see schedule below)

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|----------|---------|---------|-----------|----------|--------------------|
| 8:00 AM | | | | | |
| 9:00 AM | | | | | |
| 10:00 AM | | | | | |
| 11:00 AM | | | | | |
| 12:00 PM | 102 - B | | | | |
| 1:00 PM | | | | | TA Lab preparation |
| 2:00 PM | | | | | |
| 3:00 PM | | | | 111 - B | |
| 4:00 PM | 103 - B | | | | |
| 5:00 PM | | 105 - B | | | |
| 6:00 PM | 101 - B | | | | |
| 7:00 PM | | | | | |
| 8:00 PM | | | | | |
| 9:00 PM | | | | | |

Course Outline: You will attend lab once every two weeks. Look at the above tables to figure out if your section is an A or a B section and then check the schedule at the end of the syllabus to find out which weeks it meets. Group A meets the second week, Group B meets the third week, followed by group A the fourth week, etc. See the Schedule below.

You must complete Experiment 0 on your own during the first week and turn in your completed spreadsheet to the Physics 261 site on ELMS Canvas. The labs will not be meeting the first week, but you can try stopping by if you really get stuck on something in Lab 0. The Lab 0 experiment is found in the lab manual. Lab 0 is a very simple introduction to Excel that you should have no problem completing.

For the rest of the labs, there are five main experiments (Labs 1, 2, 3, 5, 7), a practice lab for the Culminating lab, the Culminating Lab itself, and one week to make up missed labs.

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

Each lab session lasts three hours, and begins with a 10 minute discussion of the lab by the TA. At the end of your lab session, you need to turn in your own lab report. 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 261 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 will contain all data taken, as well as analysis and discussion. The report is expected to be a succinct 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 261 site on ELMS).**

The Prelab Questions: Prelab Questions are due at the start of your lab section. The labs generally require less than two hours to perform, leaving ample time for analysis and interpretation. However, to perform the experiment in this limited time you will have to be prepared. It is therefore essential that you come to lab having completed the pre-lab questions and having read and understood the lab write-up. It should not surprise you that the answers to all the Prelab Questions can be found by reading the lab.

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

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 261 link, then click on "submit Lab report" and follow the instructions to upload your spreadsheet report. Don't forget to hit the submit button. Note also that you can only submit one file, so make sure it is the right and final file that you submit. If you make a mistake and send the wrong thing, e-mail Dr. Anderson and your TA to let them know what happened along with a copy of your spreadsheet.

The Final Questions in Each Lab: At the end of each lab there is typically a set of "Final Questions". These are to be completed and turned in with your lab report spreadsheet at the end of each lab session.

The Culminating Lab: is a closed book practical exam, in which you answer questions about the labs, which may require you to take data using the equipment from the prior lab sessions. To give you a better idea of what is involved, there is a practice lab for the Culminating Lab. Failure to prepare for the Culminating Lab will likely be detrimental to your performance on the real exam. If you cannot attend the exam at the scheduled time, see Professor Anderson before the exam! If you miss the exam with a valid excuse, a makeup exam will be given and it is your responsibility to arrange this in a timely fashion with the instructor. Students are responsible for all material in the lab and homework

Missing a Lab: In order to pass the class all labs and culminating lab must be completed. Students are permitted to perform labs in make-up sessions only if they have a legitimate reason for failing to attend a lab session. In the event that you miss a lab session, e-mail the instructor, 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. The labs are full and in general there are not going to be any open seats available. However, experiments run for two weeks and if you can take care of a missed lab in the week it is still set up, by all means do so.

However, you will need to make sure that the TA who you are sitting in with, your regular TA, and your instructor, all are aware of your situation. It is not OK to just go to a section because it is more convenient than your assigned section.

***Important Notes:**

- (1) YOU MUST COMPLETE ALL THE LABS IN PHYSICS 261 IN ORDER TO PASS PHYSICS 260. There are no exceptions. Students who do not complete all of the experiments in physics 261 will automatically get an F in both Physics 260 and Physics 261. Don't believe anyone who tells you differently.
- (2) You must turn in your own lab report to ELMS at the end of your lab session. You can't turn it in later and you no one else can turn it in for you.
- (3) Phys 261 sections will start meeting the **second** week of class. You must do Experiment 0 on your own during the first week and it does count in your grade.
- (4) You must take the Culminating Lab, which is a practical exam, 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 new due date must be arranged by consulting with Dr. Anderson (banders@umd.edu) 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 the instructor in advance, so that suitable arrangements can be made.

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 Dr. Anderson 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: I expect you to get together in small groups and discuss the labs. However, do not use these discussions as an excuse to copy someone else's data, prelab answers or solutions to the homework or 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 final 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 a cumulative process: 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 lecture and discussion sections.
- Visiting the [Slawsky Clinic](#), Mon. – Fri., 10-11 and 12-1, in room 1140 Physics Building.
- Going to the office hours of Professor Anderson 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 find that you are having more 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.

PRELIMINARY SCHEDULE
for
Physics 261- Spring 2013

| week # | Dates | Group | Main Topics |
|---------------|---------------|--------------|---|
| 1 | Jan. 23-25 | A & B | Do "Lab 0: Excel Spreadsheet Lab" by yourself and turn it in to ELMS Blackboard. No meetings this week, but you can try stopping by the lab if you need help. |
| 2 | Jan. 28- 31 | A | Group A Lab 1: Intro to Data and Error Analysis |
| 3 | Feb. 4-7 | B | Group B Lab 1: Intro to Data and Error Analysis |
| 4 | Feb. 11-14 | A | Group A Lab 2: The Pendulum |
| 5 | Feb. 18-22 | B | Group B Lab 2: The Pendulum |
| 6 | Feb.25- 28 | A | Group A Lab 3: Forced Harmonic Motion |
| 7 | March 4-7 | B | Group B Lab 3: Forced Harmonic Motion |
| 8 | March 11-14 | A | Group A Lab 5: Position, Velocity and Acceleration |
| 9 | March 18-22 | - | Spring Break |
| 10 | March 25-28 | B | Group B Lab 5: Position, Velocity and Acceleration |
| 11 | April 1-4 | A | Group A Lab 7: Ideal Gas Law and Absolute Zero |
| 12 | April 8-11 | B | Group B Lab 7: Ideal Gas Law and Absolute Zero |
| 13 | April 15-18 | A | Group A Makeup and Practice for Culminating Lab |
| 14 | April 22-25 | B | Group B Makeup and Practice for Culminating Lab |
| 15 | Apr. 29-May 2 | A | Group A Culminating Lab |
| 16 | May 6-9 | B | Group B Culminating Lab |
| 17 | May 11-17 | | Finals Week - no labs |