

# PHY 162L General Physics Laboratory II

## Syllabus

Instructor: **Sheng-Chiang (John) Lee**

WSC 114, 478-301-2599

Office Hours: MF 2:30PM ~ 4PM; TR 10AM ~ 11AM

Co-requisite: PHY 142

Textbook: **Mercer University Physics Laboratory Manual**

### Course Description:

This course is the laboratory component of PHY162, the second semester of the calculus-based introductory physics series. The experiments cover phenomena of waves, optics, electricity, circuit components, and electromagnetism. Though the subjects of study may not be as physically intuitive as the ones in PHY121L, students will learn to observe physical systems through measuring specific quantities, and understand what those “numbers” represent in the physical world.

### Objectives:

After taking this course, you are expected to

- Learn to think scientifically about measured numbers representing the physical world.
- Learn to setup experimental apparatus, take data, carry out statistical analysis on the data, and derive quantities from the data if needed.
- Be able to think and perform experiments as a scientist.

### Grading Methods:

Grading Scale:

Score:	90+	85~89	80~84	75~79	70~74	60~69	59-
Grade:	A	B+	B	C+	C	D	F

Grading Components:

Weight:	Pre-lab Quizzes	Lab	
		Participation	Reports
	10%	5%	85%

### Pre-Lab Quizzes

You should be prepared whenever you come to a laboratory. The lab manual contains the information you need for the experiments, and you should read it before you start doing anything. Simple quizzes will be given at the beginning of each lab session to encourage you to be prepared prior to the lab.

### Lab Participation

Lab participation is to measure your working attitude in the lab. It is subject to the instructor's judgment. Normally, unless you have really bad working attitude, you will get all 5%.

### Lab Reports

Each report should be typed up and will be graded upon 100 points, distributed as following.

1. Experimental Description (< 2 pages): 15 points
2. Instructor-signed Data Tables and Graphs (provided in your Lab Manual): 35 points  
You must **have the instructor sign the original data tables or graphs** you acquire in the lab before you leave the lab. Otherwise, your lab report **will not count** and will be graded with 0 point.
3. Discussion/conclusions (1 ~ 2 pages): 30 points
4. Answers to the questions: 20 points

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All reports are due at the beginning of the following lab. No late reports are accepted. Physics Laboratory Guidelines, which the style of your reports should follow, can be found at <http://physics.mercer.edu/labs/>.

### **Peer-Evaluation**

You will be evaluated by your group fellows in the middle and at the end of the semester, and the evaluations will be kept confidential to the instructor only. Since the whole group receives a single grade for their report, it is not fair for the sloppy ones to get the same grade as the hard workers. Your true lab grades, therefore, will be scaled by your contribution. For instance, if your group receives an average lab grade of 90 in the first half of semester, but you only contribute 70% of what you should, then your lab grade will be  $90 \times 0.7 = 63$ . The purpose of the evaluations is to provide another measure of each group member's contribution to the lab reports. I will use the evaluations as a reference, not a decisive judgment, when I conclude your contribution to your group work.

### **Use of WebCT**

WebCT will be used to post your scores as soon as your reports are graded. You should use this to monitor your progress and grades in this course. If you find problems with your grades, you should come to me within a week after they are posted.

### ***Important Dates:***

**Last Day for Course Withdrawal: 3/23!!!!**

### ***Class Policies:***

**Attendance Policy:** Attendance is mandatory. Make-up lab will only be available for excused absence. In a rare case that a make-up can not be practically available for an excused student, the student should discuss with the instructor for other options.

**Class Etiquette:** You are expected to conduct yourself in a respectful manner to your fellow classmates and the instructor. The instructor may ask you to leave the classroom/lab if your behavior is disturbing to the instructor or other students.

**Honor Code:** You are bound by the Mercer honor code. The College's academic misconduct policy will be followed. All work, for which a grade is received, must be the **original** work of the **student** without aid or assistance of another party, or any printed and or electronic data/information. Academic misconduct cases will be referred to the honor council and the student will automatically receive a grade of incomplete (IC) pending a ruling by the honor council.

**Cell Phone and Pager Usage:** Out of courtesy for all those participating in the learning experience, all cell phones and pagers must be turned off before entering any classroom, lab, or formal academic or performance event.

**Documented Disability Statement:** Students with a documented disability should inform the instructor at the close of the first class meeting. The instructor will refer you to the office of Student Support Services (SSS) for consultation regarding evaluation, documentation of your disability, and recommendations for accommodation, if needed. Students will receive from SSS the *Faculty Accommodation Form*. On this form SSS will identify reasonable accommodations for this class. The form must be given to the course instructor for signature and then returned to SSS.

To take full advantage of disability services, it is recommended that students contact the Office of Student Support Services, immediately. The office is located on the third floor of the Connell Student Center.

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### ***Lab Schedule:***

<b>Week</b>	<b>Lab #</b>	<b>Topic</b>
1/09 – 1/12		First Week – No Lab
1/16 – 1/19	1	Standing Waves
1/22 – 1/26	2	Light and Shadow
1/29 – 2/02	3	Reflection and Refraction
2/05 – 2/09	4	Geometric Optics
2/12 – 2/16	5	Electric Fields and Equipotentials
2/19 – 2/23	6	Capacitance
2/26 – 3/02	7	Resistance and Resistivity
3/05 – 3/09		Spring Break – No Lab
3/12 – 3/16	8	Series and parallel Resistive Circuits
3/19 – 3/23	9	RC Circuits and the Oscilloscope
3/26 – 3/30	10	Magnetic Fields and Electric Motors
4/02 – 4/05		
4/09 – 4/13		
4/16 – 4/20		
4/23 – 4/27		