**Course Syllabus**

**Physics 202 - 104**

**General Phy­­sics Lab (1 Credit)**

**Fall 2017**

**Instructor**

**Name:** *Dr. Maria Babiuc Hamilton*

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**Textbook** Physics 202 Laboratory Book, from the Marshall University Bookstore.

**Times Lab Meets: Wednesday** **1:00 - 2:50 PM**

If you have a problem and cannot come with your regular lab group, you need to make up your lab in the same week, preferably in advance, with another group.

**Location of Lab:** S 101, College of Science, First Floor.

**Office hours: Wednesday, 9:00 to 10:00 AM**

*Any other time, you can drop by my office, or send me an email.*

**Lab contents:** The experiments cover one and two-dimensional motion, Newton’s laws, momentum and energy conservation laws, vibrations (simple harmonic motion), waves, heat and thermodynamics. The labs are designed to provide you with experience in applying the principles covered in the PHY 201 lecture class. The lectures will not always cover the theory necessary for understanding the labs *before*the lab meets. You should read the theory and procedures in the lab manual before coming to class. You will use a computer and interfaced apparatus to collect and display data. Then, you are required to make predictions, draw your own graphs, and compare the computer plots with your predictions. Usually you make predictions based upon a consensus with your partner(s). Cooperate closely with your lab partners during the lab. You must work through each exercise, make predictions when asked, and complete all lab requirements. Every member of the group must have their own copies of all graphs. You will need to work steadily for the full lab period if you expect to complete the lab. Each student at a table is expected to contribute to all parts of each experiment. You must take turns at using the computer each week.

**Lab objectives:** The lab is a hands-on, active environment, where you will work in teams, and carry out experiments that will allow you to apply, verify or discover concepts and laws of physics. The objectives of the lab are:

1. To increase understanding of physical laws;
2. To develop experimental skills and curiosity for the laws of nature;
3. To enhance investigative, and observational skills;
4. To enhance problem solving and critical thinking skills;
5. To develop logical reasoning, both qualitative and quantitative.

**Student Outcomes:** As a result of completing this lab, you will be able to:

* Make objective measurements and observations of physical data;
* Draw correct conclusions based on the observations and measurements;
* Analyze quantitative information using software, graphs, tables and statistics;
* Conduct an experiment in order to investigate a phenomenon;
* Conduct qualitative and quantitative discussions of the observations.

**Course Grades:** The grades will be weighted according to the following table:

**Lab Reports & Conclusions 50%**

**Lab Exams (25% each) 50%**

**Attendance:** This is a hands-on class, where students work in class to go through the experiment and fill in the lab reports. You are expected therefore to attend all labs and to be responsible for what we are doing in lab. Each week we will do another lab, so you need to attend every week in order to do all the labs. If you miss one class, plan to make up your lab in the same week. Absences will be excused with proper documentation, however if you do not turn in the lab and conclusions, you will receive a **0 (zero)** for that lab. The labs take about 90 minutes to complete. You can leave only if you completed all your activities. **Before you leave, I will sign your lab report, to acknowledge that you did all the work in class. Do not leave without my signature! This is a proof of your work!**

**Lab Reports:** Your reports should include all lab manual pages on which data is entered, calculation done, questions answered, homework and the **Conclusions**. Your name and the name of your lab partners must be entered on the first page of the lab report. The labs are collaborative, which means that you have to work through the questions together with your lab partners. The homework problems and Conclusions are to be done individually, with no collaboration with your partners. The Conclusions must be done on a separate sheet, typed with font size 12, and be about a half page long (250-350 words), which you attach to the report. ***Remember to include a discussion of the errors, otherwise you will be penalized***. The completed reports are to be stapled and turned in at the immediate beginning of the next lab class. You are not permitted to work on last week’s report or homework in lab*.* ***Late submission will be penalized 10% for the first week. Lab reports returned two weeks late, will be penalized 20% of the grade. For more than two weeks late, you will be penalized a flat 50% of the grade. I do encourage you to make up and return late labs.*** If you miss a class with a valid reason and cannot make up the lab in the same week, you must see me about a make-up time as soon as possible. You will not be penalized.

**Lab Exams:**There will be two exams, each one consisting of problems from the homework and conceptual questions from the experiments covered in class. Each exam is weighed the same, and the last exam is not comprehensive. If you want to raise your grade, or if you did not pass the first exam, you can take the second exam as comprehensive. There will be a 5% extra credit. I will provide a study guide.

**Grade breakdown:** A 90% – 100%

B 80% – 89.9%

C 70% – 79.9%

D 60% – 69.9%

F below 59.9%

**Honesty:** Taking credit for work that someone else created, or plagiarism, is stealing and is a violation of **intellectual property law,** stealing.

**Respect:** Respect is a two-way street. No offensive or rude language will be permitted. Students with unacceptable behavior will have to leave class and will be counted unmotivated absent. As a general rule, students will have to raise hand to speak, and will not be allowed to interrupt, or be disruptive. All the cell phones will have to be muted and laptops will have to be closed unless instructed otherwise. No food, drinks, gum and any edible items are allowed without permission.

**University Policies:** By enrolling in this course, you agree to the University Policies. Please read the full text of each policy by going to: [www.marshall.edu/academic-affairs](http://www.marshall.edu/academic-affairs)

Marshall University Policies: [www.marshall.edu/academic-affairs/policies](http://www.marshall.edu/academic-affairs/policies)

General Emergencies: [www.marshall.edu/emergency](http://www.marshall.edu/emergency)

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