**Course Syllabus**

**Physics 202**

**General Physics Lab (1 Credit)**

**Fall 2014**

**Instructor**

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

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**Textbook** Physics 202 Laboratory Manual, Fall 2014, from the Marshall University Bookstore.

**Times Lab Meets: Tuesday** 8:00 - 9:50 AM

 **Thursday** 8:00 - 9:50 AM

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, and with another group that I instruct.

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

**Office hours: Tuesday, Thursday from 10 am to 11 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:

**Presence & in-class activity 10%**

**Lab Reports & Conclusions 50%**

**Lab Exams (20% each) 40%**

**Attendance:** Students are expected to attend all labs and to be responsible for what they are doing in lab. This is not a course where you can come in later in the week to finish an experiment! Your presence only, will secure **5%** of the credit, the other **5%** depending on how you keep up with the class activities. If one laboratory partner is observed to be consistently letting his/her laboratory partners do all or most of the work, that person will be penalized with up to **5%** from the total at the end of the course. If you miss a class with a valid reason you must see me about a make-up time as soon as possible. ***You are to make every effort to make up your lab while the particular experiment is still set up***. Absences will be excused only with proper documentation. If you do not make up a lab you will receive a **0 (zero)** for that lab. The labs take about 90 minutes to complete. You can leave no more than 20 minutes earlier 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.

**Lab Reports:** Your reports should include all lab manual pages on which data is entered, calculation done, questions answered, homework and the **Conclusions**. Your lab partner’s names must be on the first page of the report near your name. The homework problems and Conclusions are to be done with no collaboration with your partners. The Conclusions must be an analysis of the actual experiment that you did. It 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, or you will be penalized otherwise*. A separate short handout in the first lab period will illustrate what makes a good conclusion. 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*. Lab reports returned at the end of the class will be penalized* ***5%****. Late submission will be penalized 10% per day for the first week. Lab reports returned a week or more late will be penalized a flat 60% of the grade.*

**Lab Exams:**The exams will consist of conceptual questions, procedural questions, and problem solving, from the material covered in the reports.

*YOU MUST PASS ONE EXAM IN ORDER TO PASS THE COURSE!*

**Grade breakdown:** A 90% – 100%

 B 80% – 89%

 C 70% – 79%

 D 60% – 69%

 F below 60%

**Honesty:** Taking credit for work that someone else created, or plagiarism, is stealing and is a violation of **intellectual property law,** stealing. Marshall University *Academic Dishonesty Policy*: <http://www.marshall.edu/muonline/Academic_Dishonesty_Policy.pdf>.

**Respect:** Respect is a two-way street. All students are required to treat the instructor and their colleagues with respect and to expect to be treated with respect. 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. No offensive or rude language will be permitted.

**Policy for Students with Disabilities:** It is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability. The instructor and student will meet to discuss how the accommodation(s) requested will be provided. For more information, please visit [*http://www.marshall.edu/disabled*](https://outlookweb.marshall.edu/owa/redir.aspx?C=570e10b9eced45df8e658db38bb23f1e&URL=http%3a%2f%2fwww.marshall.edu%2fdisabled) or contact Disabled Student Services Office.

**Information about the Writing Center*:*** Students are advised and encouraged to use this resourse.

Location: the 2nd floor of Drinko Library.

Phone: 304-696-6254

Email: [writing@marshall.edu](https://legacy.marshall.edu/owa/redir.aspx?C=77e1b3c159a14bda87736e1527467ba0&URL=mailto%3awriting%40marshall.edu).

Web Page: [http://www.marshall.edu/english/writingcenter/](https://legacy.marshall.edu/owa/redir.aspx?C=77e1b3c159a14bda87736e1527467ba0&URL=http%3a%2f%2fwww.marshall.edu%2fenglish%2fwritingcenter%2f)

**Other policies and statements:** For the statement regarding Marshall University *Computing Services Acceptable Use Policy*, please visit this link: [http://www.marshall.edu/ucs/CS/accptuse.asp](https://outlookweb.marshall.edu/owa/redir.aspx?URL=http%3a%2f%2fwww.marshall.edu%2fucs%2fCS%2faccptuse.asp).

For the statement about Marshall University *Inclement Weather Policy*, please visit this link: [http://www.marshall.edu/www/policy/policy\_07.html](https://outlookweb.marshall.edu/owa/redir.aspx?URL=http%3a%2f%2fwww.marshall.edu%2fwww%2fpolicy%2fpolicy_07.html).

For the statement of Marshall University *Policy regarding Nondiscrimination*, please read the University Policies and Procedures: <http://www.marshall.edu/www/ugradcat/PDF/05_08.pdf>.

Date: Experiment:

Aug. 25 – 29 Lab 1: Introduction to Motion

Sept. 1 – 5 Lab 2: Accelerated Motion

Sept. 8 – 12 Lab 3: Mathematical Description of Motion

Sept. 15 – 19 Lab 4: Projectile Motion

Sept. 22 – 26 Lab 5: Force and Motion

Sept. 29 – Oct. 3 Lab 6: Circular Motion

Oct. 6 – 10 Lab 7: Work and Energy

Oct. 13 – 17 Lab 8: Collisions

**Oct. 20 – 24**  **First Lab Exam: Labs 1 – 6**

Oct. 27 – 31 Lab 9: Simple Harmonic Motion

Nov. 3 – 7 Lab 10: Periodic Motion of a Pendulum

Nov. 10 – 14 Lab 11: Longitudinal Waves and Sound

Nov. 17 – 21 Lab 12: Temperature and Heat

**Nov. 24 – 28** **Thanksgiving Break – No Class**

Dec. 1 – 5 Dead Week

**Dec. 8 – 12** **Second Lab Exam: Labs 8 – 12**