**Marshall University Physics Department**

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| **Course Title/Number**  | **PHY 204** |
| **Semester/Year** | **Fall 2014** |
| **Location** | **SCI 100** |
| **Instructor** | **John Winfrey** |
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| **Office/Hours** | **MFW 10:00-10:45; MWRF 1:00-1:45** |
| **University Policies****Instructor Policies** |  **By enrolling in this course, you agree to the University Policies listed below. Please read the full text of each policy be going to** [**www.marshall.edu/academic-affairs**](http://www.marshall.edu/academic-affairs) **and clicking on “Marshall University Policies.” Or, you can access the policies directly by going to** [**http://www.marshall.edu/academic-affairs/?page\_id=802**](http://www.marshall.edu/academic-affairs/?page_id=802)**Academic Dishonesty/ Excused Absence Policy for Undergraduates/ Computing Services Acceptable Use/ Inclement Weather/ Dead Week/ Students with Disabilities/ Academic Forgiveness/ Academic Probation and Suspension/ Academic Rights and Responsibilities of Students/ Affirmative Action/ Sexual Harassment.**  **Inclement Weather Policy: This course will comply with Marshall University’s rules for inclement weather. Please reference the Marshall University website, if questionable weather conditions exist, to determine if class will be meeting.** **General Emergencies:** [**http://www.marshall.edu/emergency/**](http://www.marshall.edu/emergency/) **MU Alert:** [**http://www.marshall.edu/emergency/mualert/**](http://www.marshall.edu/emergency/mualert/) **Midcourse Corrections: Information in this syllabus was, to the best knowledge of the instructor, considered correct and complete when distributed at the beginning of the term. The instructor, however, reserves the right, acting within policies and procedures of Marshall, to make changes in the course content and/or instructional techniques during the term without notice or obligation.** **Student Conduct: Student rights and responsibilities are outlined in the Marshall catalog, page 34. Especially, the infractions and violations listed under "Conduct, Rights and Regulations" will be enforced in this class. Students who disrupt class may be removed from class (failing all of the activities for the day) on a daily basis, as warranted, by the instructor. Continuing behavior problems will result in an instructor drop of the offending student.**  **Cell Phones/Ipad/anything electronic: Telephones may be set to vibrate during regular class times. If an emergency call comes through, please leave the class before you answer it. Otherwise, just enjoy the vibration. If during an EXAM, ANY of these devices are “on” or “visible”, they belong to me and you get a zero (0) on that exam*.***  |

**Required Textbook & Materials:** Laboratory Manual printed for you by the Department, Scientific Calculator.

**General Instruction:**

The primary goal of these labs is to develop an understanding of the physics principles that you learn from your lectures about mechanics. You are expected to learn concepts, experimental procedure, and computation steps for each experiment. This process should enhance the learning that takes place in the lecture class.

**Note**:

The Labs have been re-written, and you are the test subjects. There will be mistakes (both equipment and expectations about what is in the student's head already). Even so, you will learn more with the new than the with the old manual!

**Before the Lab Session**:

It is expected that you understand what you will be doing in the Lab before you come in, so you must read your Lab manual before you come to the Lab. I will give very short quizzes to check your understanding of the **current lab**.

Pre-Lab Questions: Fill these in and have your instructor initial them before you begin the day's experiment. This is an INDIVIDUAL contribution.

**During the Lab Session:**

The class will meet weekly and you are required to complete the Lab during the Lab section. You will work with your group. You will have to set up apparatus, test to see if it works, make predictions, collect data, and discuss results and answer questions as you follow your Lab manual. I would like to emphasize that the Lab will be a team work, so I expect all persons in the team work together. I will not accept that one person is working while another person is just watching. Divorce is possible for loafers.

You are expected to complete data collection within the two hour class period. Actual data values often vary from laboratory table to table and you might want to check this. At the end of the laboratory period you are to have the instructor initial your data sheets as a consistent part of the procedure and so that they can ‘catch’ big boo boo’s before you leave the room (and equipment goes away). Usually, any error between experiment and theory > 10% means a mistake (often misreading an instrument, failed instrument, or conversion of units error). Calculate % error on the fly, and immediately inform your instructor of any error > 10%.

**Before you leave the Lab, have your Instructor initial your data**. If there is a boo-boo, it can be remedied on the spot.

***Lab Report***

Your laboratory report should include:

* Pre-Lab Questions done before class. This is an INDIVIDUAL contribution.
* Post-Lab Questions done outside class. This is an INDIVIDUAL contribution.
* Summary of What You Have Learned page, printed and filled in. This is an INDIVIDUAL contribution.
* Copy of all Workbook Graphs. These will be common to your group.
* Your Conclusions\*

**Conclusions Statement\***:

This should consist of 1 page and is an INDIVIDUAL item. This should be completed at home during the week between the experiment and the due date. In this conclusion you should address:

* What were we trying to verify?
* Your results including error analysis.
* A discussion or sources of error (beyond human and calculator).

***Deadline:***

Lab reports are due at the *beginning* of Laboratory session, the week after the scheduled Lab period. Lab Report will have 5% deducted each day it is late and will not be accepted for grading if it is more than a week late. If you are absent on the due date, you should turn in the lab as soon as you can to my office or the department and not wait until the next Lab period.

***Absence:***

Don't! These labs are difficult to make up.

***Exams:***

We will have two exams:

-Exam1: Labs 1-6

-Exam2: Labs 7-11

**Department Policy: you must pass one of these exams to pass the lab course**.

**Exam Content:**

You will be asked questions regarding the introductory material in the printed lab manual, questions about the procedures you performed, and questions about the validity of those procedures (sources of error, was anything assumed to be small or ignored for any reason).

***Grading:***

Your grade for the course will be calculated as follows:

Quizzes 10

Lab reports: 40

First Exam: 25

Second Exam: 25

Total points 100

**Notes to the Wise**: Your lab experience (and performance in lecture) will be more pleasant and fruitful if you pre-read each lab. A schedule of labs is appended. Also, you are more likely to finish the lab in a timely manner (there may be exceptions).

I **strongly, strongly** recommend you spend substancial time working with the web links quoted in the manual. These provide you with visual pictures about how nature really works (and not as your intuition says it **should** work). These will also assist you with the lecture portion.

***Experiment****:*

*A 29 Introduction to Lab*

*S5 Lab 1*

*S 12 Lab 2*

*S 19 Lab 3*

*s 26 Lab 4*

*O 3 Lab 6*

*O 10 Lab 7*

***O 17 First Lab Exam: Labs 1 – 6***

*O 24 Lab 8*

*N 7* *Lab 9*

*N 14 Lab 10*

*N 21 Lab 11*

*D 5 Lab 12*

*D 8 12:45-2:45* ***Second Lab Exam: Labs 7-11***