# LaGuardia Community College
# City University of New York

## SCP 232 General Physics II: Your Section will be Here

**Instructor Name**: Your instructors name here

**Instructor Contact Info: Instructor Extension Office: Instructor Office**
**Email: Instructor Email**

WilyPlus URL: The website for your homework will live her

**Course Description**:
This course is the second term of a calculus based, two-semester lecture and laboratory course in classical and modern physics. Topics include transverse and longitudinal waves, speed of sound, Doppler effect, Coulomb's Law, Gauss Law, Electric Potential, Capacitance, Ohms Law, elements of DC circuits, Magneto statics, Lenz Law, Faradays Law, AC Circuits, Maxwell's Equations, Geometric optics, Wave Optics. Physical principles are also demonstrated with a "hands on" laboratory experience.

**Text**: D. Halliday, R. Resnick, and J. Walker, *Fundamentals of Physics*, 10th edition (extended), Wiley,. Make sure it has the WileyPlus Code

**Calculators**: You are allowed to use scientific and graphing calculators for problems in this class including exams. The calculator cannot have an internet connection or have a purpose other than calculations: TI-89 is O.K. however phones and tables are not allowed during exams.

**Academic Integrity Policy:** Instructors of this course are required to implement the College Policy regarding cheating on examinations and quizzes. A complete statement of the policy is available at the student counseling services.

**Attendance Policy:** Attendance at all class sessions, lecture and laboratory, is essential for proper understanding and mastery of the course material. A student who is absent from more than one laboratory session seriously jeopardizes his/her grade for the course.

**Goals & Outcomes**: Students must complete and hand in all reports.
Note: Although laboratory counts only 10% of the grade, a student cannot receive a passing grade without completing all the requirements.

**Learning Objectives:**

On completion of the course, students should be able to:

Explain and understand basic physical concepts and principles such as charge, voltage, current, superposition, Maxwell's equations, and the difference between wavelike and particle like interactions.

Use quantitative methods to develop physical models of electric, magnetic, and optical systems and solve problems based on these models using various mathematical techniques.

Obtain and analyze experimental data and learn to appropriately compare experimental results to theoretical predictions.

Understand the limitations of computerized instrumentation and sensors in data collection.

Communicate experimental results in lab write ups and discuss these results and their physical implications in a written report.

**Grading system**:
Examination 1…… 15%
Examination 2…… 15%
Final Examination……..20%
Laboratory……..15%
Homework……..20%
Laboratory Quizzes……..15%

**Homework:**
We will be using the online homework component of the text (Wiley+) to do homework in this class. You are required to obtain a registration code and register for Wiley+. You can order an eBook and code with access to all sorts of multimedia for about $100 on Wiley's website.

The homework will consist of solving problems at the end of the chapter in the text. Solving problems is a large part of learning physics and you will be assigned problems that challenge you to use many of the mathematics skill and critical thinking skills that you have developed throughout your education. The learning curve of getting used to online assignments is sometimes frustrating to students, I will provided below are some tips on how to effectively do the homework online and hopefully answer some questions in the process.

1. It is a good Idea to do all work on paper as if you were not doing it online and then simply type in your answer in the prompt. If there is a problem with the program and you have paper work I can check I can manually give you points.

2. You will be given 5 attempts to answer the question if after the third attempt you it is still not correct STOP this is probably a good point at which to email me or see me during my office hours so your professor can help you with the problem or we can discuss it during recitation.

**Exams:**
There will be two exams plus a final. The final will consist of two parts a cumulative part and what is essentially a third exam. The two exams during the semester will take place during the lab in the lab room. During Exams you will be allowed to use a calculator however you may only use a device for which calculation is its primary function and it must not have internet access, this means NO PHONES, and graphing calculators are acceptable. All other personal electronic devices are strictly prohibited during exams this includes music devices!!

**Cumulative Final Examination will take place in December 2015. (Date subject to change from registrar)**

**Rough Course Outline:** (This list is subject to change)

| | Topic | Reading from Text |
|---|---|---|
| Week1 | Wave Motion<br>Lab 1: Into to Equipment(No Report) | Chapters 16 & 17 |
| Week2 | Electric Charge<br>Lab 2: Measuring the speed of sound | Chapters 21 |
| Week3 | Electric Field and Gauss' Law | Chapters 22 & 23 |
| Week4 | Electric Potential<br>Lab 3: Ohms Law | Chapter 24 |
| Week5 | Capacitance, Current, and Resistance<br>Exam I | Chapters 25 & 26 |
| Week6 | Circuits<br>Lab 4: Series and Parallel Circuits Lab | Chapter 27 |
| Week7 | Magnetic Fields and Magnetic Fields due to Currents | Chapters 28 & 29 |
| Week8 | Induction<br>Lab5: Magnetic Field Activity | Chapter 30 |
| Week9 | AC circuits<br>Lab 6: LCR Resonance (?) | Chapters 31 |
| Week10 | Maxwell's Equations & Electromagnetic Waves<br>Exam 2 | Chapter 32 & 33 |
| Week11 | Geometric Optics<br>Lab 7: Thin Lenses | Chapter 34 |
| Week12 | Wave Optics | Chapters 35 & 36 |
| Final Exam | Final exam TBA | Test3+cumulative part |

# SCP 232 Laboratory Guide

Lab Schedule

| Week | Experiment |
|---|---|
| 1 | Introduction-Lab Rules-Lab Report Guidance |
| 2 | Speed of Sound in Air |
| 3 | Electro static charge |
| 4 | Oscilloscopes (Lissajous figures) and multi-meters |
| 5 | Ohm's Law |
| 6 | Series and Parallel Circuits |
| 7 | Kirchhoff's Laws |
| 8 | Magnetic Fields in a Slinky |
| 9 | LCR Series |
| 10 | Transformers |
| 11 | Ray Optics |
| 12 | Wave Optics |

Lab Rules:

Food and Drinks are prohibited in laboratory. You may put your drinks near the door or along the wall but they must be consumed OUTSIDE of the Lab Room. We will be working with electrical equipment and open circuits that can be hazardous if contacted with liquid.

In the event of an electrical fire unplug your circuit and devices and INFORM YOUR INSTRUCTOR IMMEDATLY!!

Lab cleanliness is of great importance, you must put wires, plugs, and equipment back in the packaging they were given too you in. Failure to do this will result in a 10% deduction for the ENTIRE CLASS on the Lab Report so please take the time to clean up your mess.

The Lab component of this course requires you to be present and active in the lab. If you miss more than 2 Laboratory Sections you will lose all of your lab points and will have to repeat the lab portion of the course the next semester to get a grade in the course.

It may be possible to make up a lab but only at the discretion of your Lab Instructor. Lab Reports will be checked against attendance and if you are absent without an authorized make up you will receive a zero for the lab report. In other words you cannot simply copy data from someone and turn in a report if you miss a lab.

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