**LaGuardia Community College**

**City University of New York**

**SCP 231 General Physics I: Section XXX**

**Academic Term:** Fall I 2021

**Instructor Name**:

**Instructor Contact Info: Office:**

**Email:**

**Synchronous Meeting Time:**

**The Link for the course will be on Blackboard in the XXXA sections in the Content tab**

**Office Hours:**

**MyOpenMathRegistration:** Please look at the item with the course number and password in blackboard, the link will be on Blackboard in the XXXA sections in the Content tab

**Text**: William Moebs, Samuel J. Ling, Jeff Sanny, *University Physics Vol.1*,

<https://openstax.org/details/books/university-physics-volume-1>

**Course Organization:** This course will require you to use three online platforms in order to complete the required tasks, you will also need to watch videos on YouTube. These three platforms are Blackboard, Zoom, and MyOpenMath. All three of these platforms have numerous help videos that can be found on YouTube, if you are struggling to find these and need help please email me as soon as possible, be sure to put SCP 231 Help as the subject so I can easily find your email.

We will be using Blackboard for general communications, practice exams, and Laboratory. Your Labs will require you to participate in online discussion on Blackboard and to submit your lab reports on blackboard as well. Please keep in mind that course announcements and practice tests will be in Section A and all Laboratory activities will be in Section B

We will be using Zoom to hold our Synchronous lectures and office hours, there are links above that will directly connect you to the lecture and office hours however there will be a blackboard announcement that will allow you integrate our meetings into your online calendars.

Your homework assignments will be assigned and turned in via the MyOpenMath online HW system.

**Course Description:** This course is the first part of the introductory physics sequence for scientists and engineers. We explore Newton’s Laws and the theory of classical mechanics using the language of calculus, this course has a prerequisite/co-requisite of MAT 202. A list of topics covered in this course includes: Measurement; units; one-dimensional motion; vector analysis; two- and three-dimensional motion; Newton’s laws of dynamics; momentum and force; work and energy; conservation of energy; Newton’s law of gravitation; center of mass; conservation of momentum; collisions; rotational motion; moment of inertia; oscillatory motion; hydrostatics; fluid flow; heat and temperature; laws of thermodynamics.

**Learning Objectives:**

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

Explain and understand basic physical concepts and principles such as position, velocity, acceleration, force, Newton’s Laws, and energy conservation.

Use quantitative methods to develop physical models of mechanical 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.

**Calculators**: You are allowed to use scientific and graphing calculators for solving problems in this class, this includes during exams. The calculator cannot have an internet connection or have a purpose other than calculations: TI-89 is O.K. however phones and tablets, smart watches and any other device with an internet connection are not allowed during exams and will result in an immediate 0 on the exam.

**Academic Integrity Policy:** Instructors of this course are required to implement the CUNY academic integrity policy for all exams, quizzes, and assignments. A complete statement of the policy is available at the following link.

https://www.laguardia.edu/uploadedfiles/main\_site/content/faculty\_staff/docs/academicintegritypolicy.pdf

**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.

Students must complete and hand in all reports. Note: Although laboratory counts only 25% of the grade, a student cannot receive a passing grade without completing all the requirements.

**Grading Breakdown**:

Examination 1……………… 15%

Examination 2……………… 15%

Examination 3……………….20%

Laboratory………………….. 25%

Homework…………………..20%

Online Discussion Participation…………5%

**Grading and Standards:** As per college standards, grades will be awarded based on the following criteria: A = 93-100 % A- = 90-92.9 % B+ = 87-89.9 % B = 84-86.9 % B- = 80-83.9 C+ = 77-79.9 % C = 73-76.9 % C- = 70-72.9 % D+ = 67-69.9 % D = 63-66.9 % % D- = 60-62.9 % F = less than 60%

Note if your Lab instructor is not your lecture instructor: Letter grades will be determined by your lecture instructor so you should ask them for details regarding what percentages are required for a specific letter grade.

**Exams:** Exam will be given on blackboard and you will be required to submit both a written response and produce a short video. The exam will consist of three questions that you must provide a written solution for in addition to a video presentation of you solution. The video will be ideally posted to zoom or youtube as video files can take several minutes to upload on black board. The practice Exam posted on Blackboard will explain the instructions here in greater detail

**Homework:**

We will be using the online homework system MyOpenMath to do our homework online, Using this platform is free however you must register for our course using the information on blackboard

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 and I can manually give you points.
2. You will be given 10 attempts to answer the question if after the third attempt your answer is still incorrect STOP this is probably a good point at which to email me or see me during my office hours so I can help you with the problem or we can discuss it during recitation.

**Technology Issues:** It is fairly common for issues with one of the online platforms to come up during the semester, while I will help where I can my assistance is limited as I too am a user of the software. Each platform has a help link that should be readily available once you log in or at the site portal even before you log in. If you are struggling to find these links please let me know and I can help you get to the help page

**Detailed Course Schedule:** The detailed schedule for the course is in another document that can be found on Blackboard, this document will give you a concrete idea on when assignments are due and exams are taking place brief schedule below:

**Schedule and Assignments**

|  |  |  |
| --- | --- | --- |
|  | **Topic** | **Reading** |
| 1 | Measurement | Vol. 1 Ch. 1 |
| 1 | Vectors | Vol. 1 Ch. 2 |
| 3 | 1-D Motion | Vol. 1 Ch. 3 |
| 4 | 2- and 3-D Motion | Vol. 1 Ch. 4 |
| 5 | Force and Motion | Vol. 1 Ch. 5 |
| 6 | Exam 1 |  |
| 7 | Friction | Vol. 1 Ch. 6 |
| 8 | Circular Motion | Vol. 1 Ch. 6 |
| 9 | Work and Kinetic Energy | Vol. 1 Ch. 7 |
| 10 | Potential Energy | Vol. 1 Ch. 8 |
| 11 | Center of Mass and Momentum | Vol. 1 Ch. 9 |
| 12 | Collisions | Vol. 1 Ch. 9 |
| 13 | Rotation | Vol. 1 Ch. 10 |
| 14 | Exam 2 |  |
| 15 | Angular Momentum | Vol. 1 Ch. 11 |
| 16 | Angular Momentum | Vol. 1 Ch. 11 |
| 17 | Static equilibrium | Vol. 1 Ch. 12 |
| 18 | Gravitation | Vol. 1 Ch. 13 |
| 19 | Fluids | Vol. 1 Ch. 14 |
| 20 | Fluids | Vol. 1 Ch. 14 |
| 21 | Oscillations | Vol. 3 Ch. 1 |
| 22 | Heat and Temperature\* | Vol. 2 Ch. 1 |
| 23 | Kinetic Theory of Gases\* | Vol. 2 Ch. 2 |
| 24 | Thermodynamics\* | Vol. 2 Ch. 3 & 4 |

\*These topics will be covered if time allows

SCP 231 Laboratory Guide

Lab Schedule

|  |  |
| --- | --- |
| Week | Experiment |
| 1 | Introduction |
| 1 | Data Analysis (Provided Data) |
| 2 | Freefall (Provided Data) |
| 2 | Projectile Motion (PHET Sim) |
| 3 | Projectile Motion (PHET Sim) |
| 3 | Forces I (PHET Sim) |
| 4 | Forces II (PHET Sim) |
| 4 | Forces III (PHET Sim) |
| 5 | Conservation Laws (PHET Sim) |
| 5 | Conservation Laws (PHET Sim) |
| 6 | Conservation Laws (PHET Sim) |
| 6 | Pendulums (PHET Sim) E.C. |

**Distance Labs**:

For a few of the laboratories I’ll be providing data that can be analyzed and match to the original lab reports. I will be restructuring the labs though and after the initial lab for physics 2 and the initial labs for physics one. I’m going to break up the labs into overall themes and while you will have a new experiment every week you only have 5 lab reports do for the semester plus an extra credit one. I will be creating screen capture instruction videos for Phet simulations which are freely available at the following web site:

[https://phet.colorado.edu/en/simulations/category/physics [phet.colorado.edu]](https://urldefense.proofpoint.com/v2/url?u=https-3A__phet.colorado.edu_en_simulations_category_physics&d=DwMFaQ&c=2tStSn3Yyb7CMXxZW9nuG-Sh-vz6mhnySBmFi7HdCsM&r=OmlBey3AY1OW6cPorq17UMaXrljGNNnrrp3IdxYs9W4&m=Fh4QKoOElUqW87ruBeOOyQfoltwwTgfN9UWUfsBlxHA&s=1GUo0Dy_O5HjZ24kAOwuclnnT_PYHutcmNxzDyJzLbo&e=)

The first two labs in SCP 231 will be the exception, I will provide data files for these two labs and the students can analyze the data and use the original lab instructions with some modification i.e. I will ask them to describe how the experiment works, to complete the lab

Lab work is usually done fairly independently, I will discuss the first day my expectations for written reports but after that you will shortly have access to all of the lab assignments and their due dates will be posted in Blackboard and they will be due regularly throughout the semester

In section B you will find instructions for writing Laboratory Reports in this course and we will discuss this in detail during our first Synchronous Session

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