|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monday** | Tuesday | **Wednesday** | W/Th Lab | Friday |
| *6.Jan*Introduction | *7.Jan*Chp 13.1-13.2 | *8.Jan*Chp 13.3-13.4 | Lab 3Universal Gravitation  | *10.Jan*HW1a dueChp 13.5 |
| *13.Jan*Chp 13.6 | *14.Jan*Chp 12.1-12.2**HIP1 Due**HW1b due | *15.Jan*Chp 12.3-12.4 | Lab 1Torques in Equilibrium | *19.Jan*Chp 12.5-12.6HW2a due |
| *20.Jan*MLK DayLBCC Closed | *21.Jan*Chp 12.7**HIP2 Due**HW2b due | *22.Jan*Chp 12.8-12.9 | Lab 2Torques and Angular Acceleration | *24.Jan*Chp 12.10HW3a due |
| *27.Jan*Chp 12  | *28.Jan*Chp 14.1-14.2**HIP3 Due**HW3b due | *29.Jan*Chp 14.3-14.4Start work on scholarships and internships below | Lab 5Archimedes’ Principle | *31.Jan*Chp 14.5-14.6HW4a due |
| *3.Feb*Chp 14**HIP4 Due**HW4b due | *4.Feb*Exam 1 | *5.Feb*Chp 15.1-15.3SWE Dinner | Lab 4Simple Harmonic Motion | *7.Feb*Chp 15.4-15.6HW5a due |
| *10.Feb*Chp 15.7-15.8 | *11.Feb*Chp 15**HIP5 Due**HW5b due | *12.Feb*Chp 16.1-16.3 | Lab 6Doppler Effect  | *14.Feb*Chp 16.4-16.5HW6a dueRassmussen Scholarship Aps Due |
| *17.Feb*Presidents’ Day | *18.Feb*Chp 16.8**HIP6 Due**HW6b due | *19.Feb*Chp 17.1-17.3 | Lab 7 Standing Waves | *21.Feb*Chp 17.4-17.6HW7a due |
| *24.Feb*Chp 17HW7b due**HIP7 Due** | *25.Feb*Exam 2 | *26.Feb*Chp 33.1-33.3NASA Internship Aps Due see https://intern.nasa.gov/ | Lab 8Diffraction  | *28.Mar*Chp 33.4-33.6HW8a due |
| *2.Mar*Chp 33HW8b due**HIP8 Due** | *3.Mar*Old Ch. 25Handout | *4.Mar*Old Ch. 25Handout | Project EvaluationAdditional noon presentation  | *6.Mar*HW9a dueOld Ch. 25Handout |
| *9.Mar*Chp. 34.1-34.4HW9b due **HIP9 Due** | *10.Mar*Chp. 34.5-34.7  | *11.Mar*Chp. 35.1**HIP10 Due** | Lab 9Telescopes  | *13.Mar*ReviewHW10 dueEC HW due |
| *16.Mar* **Sec. 2****Final Exam****10am-11:50am** |  | *18.Mar* **Sec. 1** **Final Exam****8am-9:50am**  |  | Oregon Space Grant Scholarships Aps Due Week 1 of next term |

**PH 212**

General Physics

with Calculus

Part II

**Instructor:**

Greg Mulder

**Sec. 1 Lec.: MTWF 8am-8:50am**

**Sec. 2 Lec.: MTWF 11am-11:50am**

**Office:**  MH 109

**LBCC Phone:** 917-4744

**Cell Phone:** 908-4025

**E-mail:** mulderg@linnbenton.edu

**Office Hours:**

MWF 10:00-10:50am

T noon-1pm

And, as always, by appointment, just ask!

**Help Desk Hours:** Check on-line for MH Atrium, Learning Center and Sat. Session Hours.

**Course Web Address:**

http://minirov.info/ph212

**Homework:**

http://www.masteringphysics.com

Course ID:

[PH212WINTER2020](http://session.masteringphysics.com/myct/assignmentListTeacher?courseID=1012045)

**Winter 2020**

**Linn-Benton**

**Community College**

## Ph 212: General Physics with Calculus

**Linn-Benton Community College Winter 2020**

W

elcome to PH 212! As you discovered in PH 211, physics is the study of nature. Last term we spent time discovering how objects moved and how we used quantities such as Forces, Energy and Momentum to discuss the motion of objects alone and as they interacted together.

This term, we are going to start out by uniting all the concepts of PH 211 in order to understand a bit more about universal gravitation and rotational motion.

After that, we will work a bit on systems of larger numbers of particles. Then, after having spent around 15 weeks on the particle nature of the universe, we will begin to focus on wave descriptions of how everything works.

This term will be a lot like last term in that the class will have homework assignments through masteringphysics.com, two exams and a final and a set of laboratory activities. A new addition this term is that you, in a group of size one, two or three, will choose a topic upon which to do a little extra research and make a presentation upon what you learned.

There are a set of outcomes for Ph 211 and Ph 212 that have been developed by committees formed from industry executives, researchers and physicists. These outcomes specify the skills and abilities a student successfully completing Ph 212 will have. By the end of Ph 212:

* You will have a better understanding of nature and the physical universe.
* You will able to solve problems graphically and mathematically using the full tools available by a knowledge of first-year calculus.
* You will be able to collect data using a variety of tools.
* You will be able to accurately record and analyze data using a variety of methods.
* You will be able to present and analyze theories, ideas and conclusions.
* You have mastered and related the above outcomes to the topics and concepts specific to this course.

Whether you are an engineer, scientist, mathematician or just a citizen of our world, we expect that the tools you gain in this class, as well as all the classes that you take, will allow you to understand in a more complete manner the way the world works and how you can improve the quality of life upon it.

Meanwhile, as always the most important reason to study physics is because it is simply fun. Studying the nuts and bolts of physics takes lots of work. But it is these nuts and bolts that come together that form a bigger picture of how the universe works and with this a better understanding of the possibilities it affords us.

Course Information Ph 212 – Winter 2020

**Course Prerequisites:** PH 211 General Physics with Calculus with a "C" or better.

**Important Note for Next Term**: If you plan on taking Ph 213 in the Spring you need to complete MTH254 this term. 

Final grades are determined as follows:

**Midterms and Final:** There will be two midterms this term and a final exam this term. The final will consist of a conceptual part and an analytical part. The conceptual part will consist of 20-25 questions that will be either from the “Stop and Thinks” in the book, from the conceptual questions included at the end of each chapter. There is the option of a take-home final exam that we will discuss in class.

**Labs:** Laboratory work is a large part of the grade. Lab manuals are available in the campus bookstore as are the required lab notebooks. A significant part of each exam will consist of topics covered in the lab. No lab scores will be dropped. However, you can make up one lab or improve one low score via the make-up lab assignment.

**Lab Project:** You will choose a topic to research and will present your topic to a group of experts and/or the general public. A list of possible projects will be passed out during the first week of classes. Presentation dates vary depending upon the project – poster deadlines are Week 7 for the rough draft and Week 8 for the final draft.

**Homework** comes from the end of the chapters in our text book and are to be completed online at [www.masteringphysics.com](http://www.masteringphysics.com). Access to this website comes with your textbook. The course code this term is: [**PH212WINTER2020.**](http://session.masteringphysics.com/myct/assignmentListTeacher?courseID=1012045)

**Hand-In-Problems (HIPs)** are posted at <http://minirov.info/ph212>. Your ability to communicate your problem-solving skills is just as important as your ability to come up with a correct answer. Thus, you should neatly and clearly show all of your work for each HIP. Pay attention to each category in the scoring rubric that you turn in each week with your HIP.

**Other LBCC Information:** LBCC is committed to inclusiveness and equal access to higher education. If you have approved accommodations through the Center for Accessibility Resources (CFAR) and would like to use your accommodations in the class, please talk to your instructor as soon as possible to discuss your needs. If you believe you may need accommodations but are not yet registered with CFAR, please e-mail cfar@linnbenton.edu or call (541) 917-4789.

**Student Basic Needs Assistance:** Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Single Stop Office for support at SinglestopatLBCC@linnbenton.edu or 541-917-4877.

Ph 212 – Score Keeper Winter 2020

Use this sheet to keep track of your overall score in the class. You can use this formula to find your total weighted grade or use the grade calculator at the course website http://minirov.info/ph212. 

**Mastering Physics Homework 10%:**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| HW1 |  |  |
| HW2 |  |  |
| HW3 |  |  |
| HW4 |  |  |
| HW5 |  |  |
| HW6 |  |  |
| HW7 |  |  |
| HW8 |  |  |
| HW9 |  |  |
| HW10 |  |  |
| ECHW |  |  |
|  |  |  |

**Hand-In-Problems: 12%**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| HIP1 |  |  |
| HIP2 |  |  |
| HIP3 |  |  |
| HIP4 |  |  |
| HIP5 |  |  |
| HIP6 |  |  |
| HIP7 |  |  |
| HIP8 |  |  |
| HIP9 |  |  |
|  |  |  |

**Labs: 15%**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| Lab1 |  |  |
| Lab2 |  |  |
| Lab3 |  |  |
| Lab4 |  |  |
| Lab5 |  |  |
| Lab6 |  |  |
| Lab7 |  |  |
| Lab8 |  |  |
| Lab9 |  |  |
| MakeUp |  |  |
|  |  |  |

**Lab Project 8%:**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| Class Presentation |  | 10 |
| Poster Rough Draft |  | 20 |
| Poster Final Draft  |  | 20 |
|  |  |  |

**Midterms (33%) and Final (22%):**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| Exam1 |  |  |
| Exam2 |  |  |
| Final |  |  |
|  |  |  |