|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Monday** | **Tuesday** | **Wednesday** | **W/Th Lab** | **Friday** |
| ***1.Apr***No Class Today | ***2.Apr***Chapter 22Electric Chrg and Force | ***3.Apr***Chapter 22 | ***Lab #1***Electric Chargew/Formal Report | ***5.Apr***Chapter 22HW#1a Due |
| ***8.Apr***Chapter 23The Electric Field HW#1b Due | ***9.Apr***Chapter 23HIP1 Due | ***10.Apr***Chapter 23 | ***Lab #2*** The Electric FieldFormal Report Rough Draft Due | ***12.Apr***Chapter 23HW#2a Due |
| ***15.Apr*** Chapter 23HW#2b Due | ***16.Apr***Chapter 24Gauss’ LawHIP2 Due | ***17.Apr***Chapter 24 | ***Lab #3***Gauss’ LawFormal Report Final Draft Due | ***19.Apr***Chapter 24HW#3a Due |
| ***22.Apr***Chp. 22-24HW#3b, HIP3 Due for Peer Gd. | ***23.Apr***Exam 1 | ***24.Apr***Chapter 25Electric Potential  | ***Lab #4***Electric Potential | ***26.Apr***Chapter 25HW#4a Due |
| ***29.Apr***Chapter 25HW#4b Due | ***30.Apr***Chapter 25HIP4 Due | ***1.May***Chapter 26  | ***Lab #5***Circuits | ***3.May***Chapter 26Potential and Field HW#5a  |
| ***6.May*** Chapter 26HW#5b Due | ***7.May*** Chp. 26/27HIP5 Due | ***8.May***Chapter 27 | ***Lab #6***RC Circuitsw/Formal Report | ***10.May***Chapter 27/28HW#6a Due |
| ***13.May*** Chapter 28CircuitsHW#6b Due | ***14.May***Chapter 29Magnetic Fields HIP6 | ***15.May*** Chapter 29 | ***Lab #7***Earth’s Magnetic FieldFormal Report Final Draft Due | ***17.May***Chapter 29HW#7a DueBlack Friday Registration |
| ***20.May***Review Chp. 25-29 HW#7b HIP7 Due | ***21.May***Exam 2 | ***22.May***Chapter 30Induction | ***Lab #8***RL Circuits | ***24.May***Chapter 30InductionHW#8a Due |
| ***27.May*** *Memorial Day**No Class*  | ***28.May***Chapter 30HW#8b Due | ***29.May***Chapter 30HIP 8 Due | ***Lab Exam*** | ***31.May***Chapter 31EM Fields and Waves |
| ***3.June***Chapter 31 | ***4.June***Chapter 31HIP9 DueHW9a Due | ***5.June***Chapter 32HW#9b DueTurn in Score-Keeper | ***Lab #9***Make a Electric Motor | ***7.June***Review Chp. 22-32HW#10 & HIP#10 Due E.C. HW Due |
| ***10.June*****Sect. #1 Final****8am-10:50am** |  | ***12.Mar*** **Sect. #2 Final****10am-11:50am** |  |

**PH 213**

General Physics

with Calculus

Sect. 1: 8-8:50am MH 113

Sect. 2: 11-11:50am MH 113



**Instructor:**

Gregory Mulder

**Office:**  MH109

**Phone:** 541-917-4744

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

**Office Hours in MH109, 106 and/or 113:**

 MW9-9:50am; T10-10:50am

 And of course, by appointment.

# Class Webpage: www.minirov.info/ph213

**Class Homework:**

[www.masteringphysics.com](http://www.masteringphysics.com)

**Course ID:**

PH213SPRING2019

# Linn-Benton Community College

# Spring 2019

**Linn-Benton Community College—Spring 2019**

## Ph 213: General Physics with Calculus

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hysics is the study of nature. It is the study of how rainbows are formed. It is the study of why the sky is blue, why the stars twinkle, and how the planets move through the heavens. Applications of physics have given us eye glasses, levers, pulleys, the combustion engine, transatlantic steamers and communication, television, lasers, computers, satellites, space flight, and new insights into the universe that startle the imagination and can only make hungry to learn more.

Why should one spend time learning about physics? First of all, physics affects us all. Almost every aspect of life today has been influenced by discoveries that originated in Physics. As a citizen, it is important for each and every one of us to have a good grasp of the scientific issues that face us as a society. When the newspapers talk about the supposed dangers of low frequency EM waves; or scientists warn us of the dangers of CFC’s in the atmosphere; or any number of other current topics in the newspaper, it important for us to be scientifically literate.

*Physics is the study of the underlying forces of nature and the search for the understanding of the fundamental building blocks of the universe*.

However, in my opinion, the most important reason to study physics is because it is simply fun. Physicists have the neatest toys—many of which I hope to share with you—and we get to go on gedanken journeys that previous generations can’t even imagine.

In Physics 213 we focus on the electricity and magnetism. One hundred years ago physicists were successful in unifying these two seemingly different phenomena. The result was a new way of looking at the universe that allowed us to create new technologies and devices such as motors, generators, radio and radar. The field of electromagnetism also allowed us to better explore the cosmos and paved the way to develop still new models that have allowed us to understand the general nature of the universe in which we live.

Upon successful completion of this course, students will be able to:

* Describe and explain charged physical objects moving in electric fields and magnetic fields.
* Use calculus to determine the electric field of a charge distribution
* Describe and explain the relationship between electric field and electric potential
* Use Gauss' Law to solve a problem
* Solve problems in series and parallel circuits.
* Relate the induced current in a circuit to the motion of [magnets](http://linnbenton.smartcatalogiq.com/en/current/Catalog/Courses/PH-Physics/200/PH-213).

**Math requirements for this class and for physics in general**

Math is the language of a large part of what we do in physics. To be able to do well in Physics 213, we’ve created the following prerequisites for this class:

* Completion of Ph 211 and Ph 212 with a ‘C’ or better
* Completion of MTH 254 with a grade of a ‘C’ or better

Physics 213 heavily relies upon mathematics. If you feel yourself getting lost in the math, make sure that you ask for help as quickly as possible.

**Required Materials for the Class:**

Textbook – Knight 4th Edition *“Physics for Scientists and Engineers”* along with a valid access code.

Lab Packet – Available at the LBCC book store.

Brown Lab Book – Available at the LBCC book store.

**Grading Scale for this course:**

Final grades are determined from the below components of the course.

**Other possible grades at LBCC:**

**I -- Incomplete**. An 'I' grade is assigned if for some reason a student cannot complete all components of the course by the end of the academic term. To receive an 'I' grade, the instructor and student must agree upon a contract that will spell out when uncompleted work will be turned in.

**Basis for grading:**

Exams: 40%

Labs: 10%

Lab Final: 8%

Final: 20%

Homework: 10%

HIPs: 12%

**Grading Scale:**

90%-100% A

80%-89% B

70%-79% C

60%-69% D

< 60% F

**Exams:** There will be two mid-term exams and one comprehensive exam for the term.

**The Final:** A central aspect of physics is that every week builds upon what was learned in the previous weeks—this is especially true in Ph213. As a consequence, by nature, the final exam is comprehensive.

**Labs:** This term two-formal reports will be due. A formal report is a typed up synopsis of your lab for that day. Lab books will not be collected each week—however you must make sure that you complete the lab exam before you leave class and make sure that you “sign out” before you leave the room. You can make up one lab by creating a you-tube video that clearly demonstrates some principle of electricity and magnetism and e-mailing me the link.

There will be a **Lab Exam.** You may bring your lab book into the Lab Exam. Any permanently affixed items in your lab book can then be used to assist you with the Lab Exam.

**Homework** assignments come 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. Sign up for course ID: PH213SPRING2019.

**Hand-In Problems:** There will be Hand-In Problems assigned throughout the term at www.minirov.info/ph213. When grading your hand-in problems I will be assessing how clearly and thoroughly you show your work.

**Students in need of accommodations:** Students who may need accommodations due to documented disabilities, who have medical information which the instructor should know, or who need special arrangements in an emergency, should speak with the instructor during the first week of class. If you have not accessed services and think you may need them, please contact Disability Services, 541-917-4789.

Ph 213 – Score Keeper Spring 2019

Use this sheet to keep track of your overall score in the class. You can use the formula to the right or the grade calculator on the course website to keep track of your overall grade.

**Homework 8%:**

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

**Hand-In Problems: 12%**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| HIP1 |  |  |
| HIP2 |  |  |
| HIP3 |  |  |
| HIP4 |  |  |
| HIP5 |  |  |
| HIP6 |  |  |
| HIP7 |  |  |
| HIP8 |  |  |
| HIP9 |  |  |
| HIP10 |  |  |
|  |  |  |

**Basis for grading:**

Exams: 40%

Labs: 10%

Lab Final: 8%

Final: 20%

Homework: 10%

HIPs: 12%

**Labs: 10%**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| Lab1 |  |  |
| Lab1 Formal Report |  |  |
| Lab2 |  |  |
| Lab3 |  |  |
| Lab4 |  |  |
| Lab5 |  |  |
| Lab5 Formal Report |  |  |
| Lab6 |  |  |
| Lab7 |  |  |
| Lab8 |  |  |
|  |  |  |

**Lab Final: 8%**

|  |  |  |
| --- | --- | --- |
|  | Your Score | Out Of |
| Part 1 |  |  |
| Part 2 |  |  |
|  |  |  |

**Midterms and Final: 60%**

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