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| --- | --- | --- | --- | --- |
| **Monday** | **Tuesday** | **Wednesday** | **W/Th Lab** | **Friday** |
| ***6.Apr***  Chapter 22 Electric Chrg and Force | ***7.Apr***  Chapter 22 | ***8.Apr***  Chapter 22  HW#1a Due | ***Lab #1***  Electric Charge  w/Formal Report | ***10.Apr***  Chapter 22  HW#1b Due  Sunday |
| ***13.Apr*** Chapter 23 The Electric Field  HIP1 Due | ***14.Apr*** Chapter 23 | ***15.Apr*** Chapter 23 HW#2a Due | ***Lab #2***  The Electric Field  Formal Report Rough Draft Due | ***17.Apr*** Chapter 23 HW#2b Due  Sunday |
| ***20.Apr*** Chapter 23 HIP2 Due | ***21.Apr***  Chapter 24  Gauss’ Law | ***22.Apr***  Chapter 24  HW#3a Due | ***Lab #3*** Gauss’ Law Formal Report Final Draft Due | ***24.Apr***  Chapter 24  HW#3b, HIP3 Due Sunday |
| ***27.Apr***  Chapter 22-24 Review  HIP3 Due | ***28.Apr***  Exam 1 | ***29.Apr***  Chapter 25  Electric Potential | ***Lab #4***  Electric Potential | ***1.May***  Chapter 25  HW#4a Due Fri  HW#4b Due  Sunday |
| ***4.May***  Chapter 25  HIP 4 Due | ***5.May***  Chapter 25 | ***6.May***  Chapter 25/26  HW#5a Due | ***Lab #5***  Circuits | ***8.May***  Chapter 26  Potential and Field HW#5b |
| ***11.May***  Chapter 26  HIP 5 Due | ***12.May***  Chp. 26/27 | ***13.May***  Chapter 27  HW#6a Due | ***Lab #6***  RC Circuits | ***15.May***  Chapter 27  HW#6b Due  Sunday |
| ***18.May***  Chapter 25-27 Review  HIP6 Due | ***19.May***  Exam 2 | ***20.May***  Chapter 28  Circuits  HW#7a Due | ***Lab #7***  Earth’s Magnetic Field | ***22.May***  Chapter 29  Magnetic Fields  HW#7b Due Su |
| ***25.May***  *Memorial Day*  *No Class* | ***26.May***  Chapter 29  HIP 7 Due | ***27.May***  Chapter 29  HW#8a Due | ***Lab #8***  Mass of an Electron  w/Formal Report | ***29.May***  Chapter 30  Induction  HW#8b Due Su |
| ***1.June***  Chapter 30  HIP 8 Due | ***2.June***  Chapter 30 | ***3.June***  Chapter 30/31  EM Fields and Waves  HW#9a Due | ***Lab #9***  Make a Speaker & an Electric Motor | ***5.June***  Chapter 31  HW#9a Due |
| ***8.June***  Term in Review | ***9.June***  Term in Review | ***10.June***  Term in Review | Exam 3 | ***12.June***  End of Term Party |

**PH 213**

General Physics

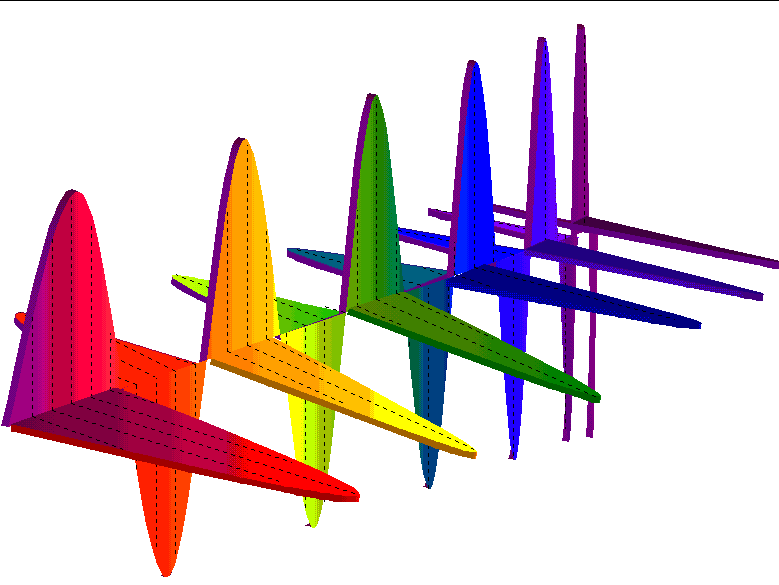
with Calculus

Live Zoom Classes – check for current Zoom link at minirov.info/ph213

Sect. 1: 8-8:50am

Sect. 2: 11-11:50am

Zoom Classes Archived at: http://minirov.info/ph213



**Instructor:**

Gregory Mulder

# Class Webpage: www.minirov.info/ph213

**Class Homework:**

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

**Mastering Physics Course ID:**

PH213SPRING2020

# Linn-Benton Community College

# Spring 2020

Please check <http://minirov.info/ph213> regularly for updates and current Zoom links as well as info on TASS, Help Desk and Tutors.

**Office:** <https://linnbenton.zoom.us/j/5419174744>

Check[www.minirov.info/ph213](http://www.minirov.info/ph213) often for possible changes to office zoom site

**E-mail:** [mulderg@linnbenton.edu](mailto:mulderg@linnbenton.edu)

**Office Hours:** MW9-9:50am; T10-10:50am And of course, by appointment

And of course, by appointment.

**Linn-Benton Community College—Spring 2020**

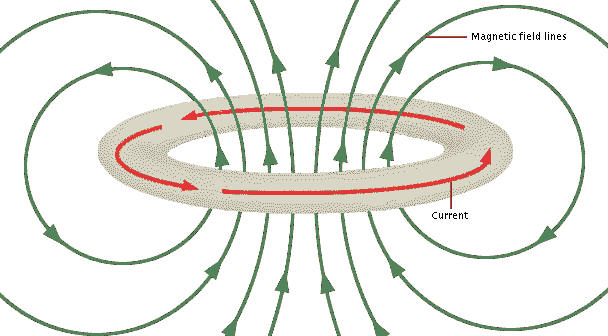
## Ph 213: General Physics with Calculus

P

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.

**Attending the Class:**

Please check on web runner to find the CRN for which you are registered and find your class times here. The Zoom link and password for the class will be available at minirov.info/ph213.

|  |  |  |
| --- | --- | --- |
| **CRN** | **Lecture** | **Lab** |
| 43304 | MTWF 11am-11:50am | R 8-10:50am |
| 43305 | MTWF 8am-8:50am | W 5-7:50pm |
| 43306 | MTWF 11am-11:50am | R 11-1:50pm |
| 43307 | MTWF 8am-8:50am | R 8-10:50am |
| 44308 | MTWF 11am-11:50am | W 5-7:50pm |
| 44309 | MTWF 8am-8:50am | R 11-1:50pm |

If you can’t make your class time, video recordings of the Zoom lesson will appear at minirov.info/ph213.

**Required Materials for the Class:**

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

(3rd Edition and MasteringPhysics access also ok)

Computer and webcam with internet access.

The lab packet assignment will be available each week at minirov.info/ph213.

**Grading Scale for this course:**

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

**Basis for grading:**

Exams: 60%

Labs Reports: 10%

Homework: 10%

HIPs: 20%

**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.

**Grading Scale:**

90%-100% A

80%-89% B

70%-79% C

60%-69% D

< 60% F

**Exams:** There will be three exams equally weighted for the term. All exam are comprehensive to everything you have learned before.

**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, as always, you should keep a lab book. Lab Reports should be uploaded to GradeScope. There will also be an exit assignment for each lab.

**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: PH213SPRING2020.

**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. Your HIPs should be uploaded to GradeScope.

**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.