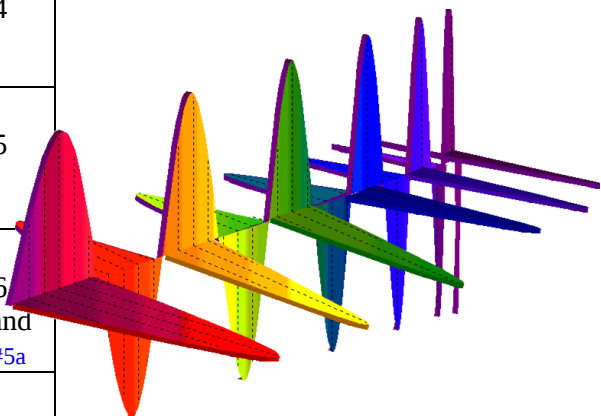


Monday	Tuesday	Wednesday	W/Th Lab	Friday
31. Mar Chapter 22 Electric Chrg and Force	1. Apr Chapter 22	2. Apr Chapter 22	Lab #1 Electric Charge w/Formal Report	4. Apr Inservice No class today
7. Apr Chapter 23 The Electric Field HW#1a&b Due	8. Apr Chapter 23 HIP1 Due	9. Apr Chapter 23	Lab #2 The Electric Field Formal Report Rough Draft Due	11. Apr Chapter 23 HW#2a Due
14. Apr Chapter 23 HW#2b Due	15. Apr Chapter 24 Gauss' Law HIP2 Due	16. Apr Chapter 24	Lab #3 Gauss' Law Formal Report Final Draft Due	18. Apr Chapter 24 HW#3a Due
21. Apr Chp. 22-24 HW#3b, HIP3 Due for Peer Gd.	22. Apr Exam 1	23. Apr Chapter 25 Electric Potential	Lab #4 Electric Potential	25. Apr Chapter 25 HW#4a Due
28. Apr Chapter 25 HW#4b Due	29. Apr Chapter 25 HIP4 Due	30. Apr Chapter 26	Lab #5 Circuits	2. May Chapter 26 Potential and Field HW#5a
5. May Chapter 26 HW#5b Due	6. May Chp. 26/27 HIP5 Due	7. May Chapter 27	Lab #6 RC Circuits w/Formal Report	9. May Chapter 27/28 HW#6a Due
12. May Chapter 28 Circuits HW#6b Due	13. May Chapter 29 Magnetic Fields HIP6	14. May Chapter 29	Lab #7 Earth's Magnetic Field Formal Report Final Draft Due	16. May Chapter 29 HW#7a Due Black Friday Registration
19. May Review Chp. 25-29 HW#7b HIP7 Due	20. May Exam 2	21. May Chapter 30 Induction	Lab #8 RL Circuits	23. May Chapter 30 Induction HW#8a Due
26. May Memorial Day No Class	27. May Chapter 30 HW#8b Due	28. May Chapter 30 HIP 8 Due	Lab Exam	30. May Chapter 31 EM Fields and Waves
2. June Chapter 31	3. May Chapter 31 HIP9 Due HW9a Due	4. May Chapter 32 HW#9b Due Turn in Score-Keeper	Lab #9 Make an Electric Motor	6. June Review Chp. 22-32 HW#10 & HIP#10 Due E.C. HW Due
9. June Sect. #1 Final 8am-9:50am		11. June Sect. #2 Final 1pm-2:50pm		

PH 213

General Physics with Calculus

Sect. 1: MW 8-9:50am MH 113
Sect. 2: MTWF 1pm-1:50pm in
MH 113



Instructor:
Gregory Mulder

Office: MH109
Phone: 541-908-4025
E-mail: mulderg@linnbenton.edu
Office Hours:

MW10-noon; T2:50am in MH 106,
MH 113 or in the hallway
And of course, by appointment –
drop me an e-mail.

Class Webpage:
www.minirov.info/ph213

Class Homework:
<https://moodle.linnbenton.edu/>

Linn-Benton Community College
Spring 2025

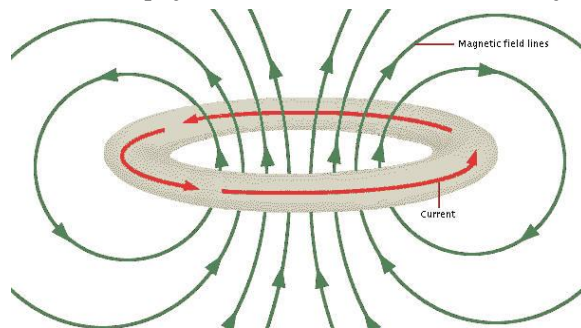
Ph 213: General Physics with Calculus

Linn-Benton Community
College—Spring 2025

Physics 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.

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.



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

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.

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 3rd Edition “*Physics for Scientists and Engineers*” (2nd or 4th editions are ok too... see the webpage for chapter conversion) – no access code is needed.

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.

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

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.

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. Formal write-ups should be submitted to GradeScope – you will get a Ph 213 GradeScope invite the first week of classes. 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 can be found at <https://moodle.linnbenton.edu/>. You get infinite attempts at these homework assignments with automatic feedback. Late homework is accepted at full credit, however, due dates are “strongly recommended”.

Hand-In Problems: There will be Hand-In Problems (HIPs) 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. HIPs should be turned into 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.

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.

$$FinalGrade = \sum_i (percent_weight) \bullet \frac{pts_earned_per_category}{total_pts_possible_per_category}$$

Homework 10%:

	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		

Labs: 10%

	Your Score	Out Of
Lab1		10
Lab1 Formal Report		40
Lab2		10
Lab3		10
Lab4		10
Lab5		10
Lab5 Formal Report		10
Lab6		10
Lab7		10
Lab8		10
Lab 10		10

Lab Final: 8%

	Your Score	Out Of
Part 1		
Part 2		

Midterms and Final: 60%

	Your Score	Out Of
Exam1		
Exam2		
Final		

Basis for grading:

Exams: 40%
 Labs: 10%
 Lab Final: 8%
 Final: 20%
 Homework: 10%
 HIPs: 12%

