

Instructor: William Doney
Assoc. Prof. of Engineering & Physics

Email: bdoney@northampton.edu

Web: physics.WilliamDoney.com

Office: 307 College Center

Office Hours (available in Penn 129):

Phone: 610/861-5556 office
(*email is preferred*)

After class/lab, and posted 2nd week of classes
on office door. Also by appointment.

Prerequisites: Physics 101 with a C or better

This is an Algebra-based course and follows the material covered in Physics 1. As well as being responsible for the material covered in Physics 101, students are expected to be competent in Algebra, be familiar with Geometry (right triangles and angles) and some Trigonometry (sine, cosine, tangent). Familiarity with a scientific calculator is also expected, as well as competency in MS Word & Excel for lab work!

Required: Textbook - *Physics*, 7th Edition, Volume 2, by Giancoli, 2013. A used text is ok.

We will also study from Chapters 11 & 12 from Volume 1.

Contact instructor if you do not have access to Volume 1.

Lab Manual - *PHYS 151 Lab Manual* – available from the Main Campus bookstore, PINK cover.

Online “access key code” - **NOT** needed or required.

Blackboard will only be used to host textbook solutions and a few other resources.

Suggested Supplies: Scientific calculator, flash/thumb drive – for lab, and your brain.

Course Description

Physics 151 covers wave motion, sound, electrostatics, electricity, AC/DC circuits, electromagnetic waves, magnetism, color, and light.

The goal of the course is for you to gain a practical understanding—both conceptually and mathematically—of physical principles that are applied in everyday life. You'll learn through laboratory work, problem solving, conceptualization, “why does that happen” discussions, and imagination. The laboratory work emphasizes hands-on experience in which physical principles are applied and results observed, measured, and analyzed. Most of the laboratory experiments are computer-based.

Course Objectives

You have the opportunity to gain:

- a practical understanding of physics (wave motion, sound, electrostatics, electricity, AC/DC circuits, electromagnetic waves, magnetism, color, and light), so as to be able to apply those principles to your observation of the physical world
- an understanding of physics so as to be able to solve simple physics problems.
- computer experience using a PC, interface, and sensors to measure physical quantities, collect data samples, and analyze collected data.
- an increased ability and confidence to conceptualize the application of physical principles and to integrate conceptual information with actual practical experience
- a greater ability to apply basic mathematics to scientific and technical fields.
- experience working in teams, and acting responsibly toward yourself and toward your colleagues
- increased computer skills

Reading Assignments

Other than for the first class session, reading assignments should be completed before each class session which deals with the subject matter. Reading the material beforehand will greatly enhance your comprehension during lecture.

Topics (week-by-week):

Week	Beginning Monday	Topics/Chapters Covered	Exam
1	1/15 (<i>no classes MON</i>)	Welcome + Ch 11 Vibrations & Waves	1
2	1/22	Ch 11 (cont.)	
3	1/29	Ch 12 Sound	
4	2/05	Ch 12 (cont.)	
5	2/12	Ch 16 Electric Charge & Electric Fields	2
6	2/19	Ch 17 Electric Potential & Electric Energy	
7	2/26	Ch 18 Electric Currents	
8	3/05	Ch 18 (cont.)	
9	3/12 (<i>no classes</i>)	<i>Spring Break</i>	
10	3/19	Ch 19 Circuits	3
11	3/26	Ch 20 Magnetism	
12	4/02	Ch 21 Electromagnetic Induction, Faraday, AC	
13	4/09	Ch 22 Electromagnetic Waves	4
14	4/16	Ch 23 Light: Geometric Optics	
15	4/23	Ch 24 Wave Nature of Light	
16	4/30	Extra Topic: Colors & Light + Ch 25	
17	5/07 (<i>MON last class</i>)	FINALS WEEK	
	FINAL EXAM	TBD	
* schedule subject to change *			
<i>The Final Exam is just a 4th exam on the last section of material</i>			

Class Agenda

Current educational research indicates that students don't learn a great deal of physics by listening to a professor talk about physics. Therefore, only part of our class time will be spent lecturing. We'll spend time in class working on example problems, discussing real-world applications, etc. My approach here is to give you more opportunity to get involved in the class. I encourage you to ask questions.

Students and instructor are all considered mutual learners. The life experiences of the students are to be respected. The sharing of those experiences as they relate to the subject of the course is not only welcomed, it is encouraged. Questions are always welcome; what we can't answer we will seek to answer together. We will take class 'breaks' as needed.

Attendance Policy

- Attendance is expected of all students for lecture.
- Attendance is mandatory for lab sessions. If you miss a lab, you will receive a zero for the lab.
- ALWAYS check email before coming to class, in case there is a change due to weather or other
- If you are sleeping, txt-ing or doing something other than physics, you will be asked to leave.
- Please arrive on-time. Your participation is important. Should you arrive late, you might not be given credit for attendance, miss an unscheduled quiz, or not receive credit for an assignment that is due. Also, the door will be closed once class starts. If you arrive and the door is closed, you will need to wait until the class break to come in. And once the door is closed, any assignments due that day are considered late and will not be accepted.
- If you miss more than two weeks of class meetings without contacting the instructor with a valid excuse (see section *Missed Lecture, ...*), NCC may withdraw you from the class in accordance with policy, but until you officially withdraw, you will receive a final grade for the course.
- **You are responsible** for any assignments missed during your absence (excused or unexcused). You should contact a fellow classmate to obtain any class notes that you missed. Please don't say "I wasn't here last class, did I miss anything important?"

Missed Class, Exams, Labs...

- Give **advance notice** if you know you're going to miss an exam or lab (travel, work, doctor, etc.). You must contact the instructor directly (via email) **prior to the start of the exam**. Contacting the instructor **AFTER** missing a class/lab/exam will disqualify you from any makeup opportunity.
- If it is a medical excuse (sick, doctor's appt, etc), you must bring a written excuse from the doctor showing you were "*under their care*" for the date of the exam or assignment missed, to the next class to be eligible for makeup consideration. If your excuse is 'car trouble', a copy of the service repair bill must be presented at the next class. If your excuse is weather related, you must STILL contact me prior to class start. The instructor has the final decision on whether an excuse is acceptable or not.
- No assignments will be accepted late without prior permission from the instructor. Emailing the instructor ahead of time with an excuse (whether it is approved or not) does NOT constitute permission to hand the assignment in late. **EVEN IF YOU ARE EXCUSED FROM CLASS, THE ASSIGNMENT IS STILL DUE THAT DAY**, so make preparations to get it to me in time.
- If the college is open, any assignment that is due that day must be submitted on-time. If you do not attend class, you must email the assignment to me **BEFORE** the start of class to be accepted.
- If approved, **MAKE-UP TESTING** will be during the **next class period (lecture or lab) following** the regular exam in the Library. Makeup exams will NOT contain the same problems as the missed exam. Only the equation sheet (provided by the instructor) can be used for the exam. You will need to present your picture-id (e.g., driver's license) to library staff to take your exam.
- No makeup exams will be given after the exam has been corrected and returned to the class.
- No makeup quizzes. No makeup labs. The first missed lab will be the one that is 'dropped'.
- Once you begin an exam, you cannot leave and finish at another time or day.

Course Grading

I do not calculate grades until after the final exam. If you need to know 'where you stand' then use the free Excel File on my "student" website page to ballpark your grade current grade.

LECTURE GRADE (75%)

- 4 Exams - cover both in-class and lab work, scheduled approx. every 3-4 Chapters
- The final exam will be the 4th Exam, covering the material listed in the schedule.
- Quizzes – may be unannounced

LAB GRADE (25%)

- 12 (minimum) lab reports counted. If more than 12 are completed, lowest grade(s) dropped.

FINAL GRADES: *Grading scale may be lowered, but not raised.*

A	94 - 100	B+	87 - 89	C+	77 - 79	D	65 - 69
A-	90 - 93	B	83 - 86	C	70 - 76	F	< 65
		B-	80 - 82				

- Notes:**
- if your exam avg = "F", you will receive an "F" no matter your final course average
 - if you fail 3 or more exams the highest possible final grade will be a "D"
 - if you fail two exams, the highest possible final grade will be a "C"
 - there are NO retakes of exams, no exceptions. Once you start, you must finish.

Availability of Additional Information & Help

Links to YouTube videos, course handouts, lecture notes, and other resources are available online via my faculty web page at www.WilliamDoney.com/physics. The NCC Learning Center (3rd floor, College Center) provides tutoring for physics and math. Or make an appointment with me. If you are struggling, get help immediately!

Academic Integrity Policy (dishonesty, plagiarism, ...)

Academic dishonesty or plagiarism will not be tolerated! Anyone caught as a 'doer' or as a 'willing accomplice' will automatically receive a 0 (zero) grade for the exam or assignment. If the incident happens again, you will receive an F for the course and will be subject to the college's disciplinary action for such offenses. Please note NCC's policy on academic dishonesty. Also, *WHEN TAKING EXAMS: turn off and put away all electronic devices before an exam and do not use them until you have submitted the completed exam. Their very presence will be considered prima facie evidence of cheating and will result in a zero.*

Lecture, Laboratory & Miscellaneous Guidelines and Policies

- Lab attendance is required in order to receive a grade for the current lab project.
- If you do not have your lab manual, then you must handwrite all your data and transfer before submitting
- Lab groups will consist of a **MAXIMUM of THREE** students, unless otherwise directed by instructor.
- Labs may be scheduled on either day of class, at the instructor's discretion.
- Your lowest lab grade is dropped. This is your *'get out of jail free'* card. Otherwise, *"miss a lab = zero"*. Assuming you contact the instructor BEFOREHAND and provide the required documentation, it is at the instructor's discretion when it will be done. The first missed lab is your 'dropped' lab.
- If you miss class due to weather and the college is 'open', then any assignment due that day must still be submitted via email before the start of class for credit. Prepare ahead with a way to do this.
- Lab assignments are due one week following the experiment, at the **beginning** of the class. **Late submissions will not be accepted and will receive a zero, even if they are only a few minutes late.** *"I left it in my car or forgot it at home"* is not a valid excuse.
- All assignments must be submitted by the due date/time. If class is cancelled or the school is closed that day, the assignment is due the next day we have class or lab. No exceptions.
- If school is closed or class/lab is cancelled, please check your NCC email for any last minute instructions, as sometimes I will email a take-home lab or assignment.
- When working in lab groups the material you hand-in must be your own. Your wording should not be the same. You may be asked to work with a different lab partner(s) each week.
- The Physics Lab computer policy is similar to that of the College's computer labs - *If you're found abusing the equipment, or accessing inappropriate material on the web, you will lose your lab privileges and may face college disciplinary procedures.*
- All written assignments assigned must be typed in Microsoft Word. **Hand-written submissions will not be accepted.** No exceptions. The computers in the lab have Office installed for your use.
- **All plots or graphs must be done with Microsoft Excel or similar graphing software.**
- **Do not come to lab expecting to printout your lab or graph that is due that day.**
- NCC's computer policy applies to this lab – which includes: No food or drink in the lab
- The instructor is not responsible for missed assignments due to you not having the book or lab manual.
- A one-time award of 5 bonus points will be added to one of your exams if you schedule via email a 10-minute, informal, *"how's the semester going?"* meeting after the 2nd week and before mid-semester break.
- Please do not wait until the day before an exam to try and learn this stuff – it won't work. Get help as soon as possible - from another student, the learning center, or catch me after class. I'm more than happy to work on problems with you. You HAVE watched my YouTube videos, right?
- All communication outside of class will be done through email to your email address in NCC's system. It is the student's responsibility to check email. Even if you leave a message, I reserve the right to email you a response. Note that I only return calls during my regular office hours.
- EMAIL Etiquette: Students are expected to follow proper email etiquette when communicating with me. Emails must include a subject, a salutation (Dear Prof. Doney, Mr. Doney, Professor Doney, etc... not "Hey..."), a useful email body – asking a clear question or providing information, and ending with your name. Any email received that does not include, at a minimum the above, or is highly informal, may not be answered or may be returned asking for corrections per the above. Using your phone to send emails is not an excuse to be lazy and not follow these instructions.
- I do not accept any 'friend requests' via social media while you are my student
- Unclaimed assignments, labs, etc. in the 101 wall folder will be recycled **after each exam.**
- I am not required to provide 'extra credit' if you have a less than desirable grade. No extra-credit will be given on an individual basis – would you want your surgeon to have passed medical school because they got "extra credit" in one of their classes??!!!
- **If you are doing something other than PHYSICS during my class (eg. On your phone, txting, reading paper, etc), you will be asked to leave. If you do not, I will call Security to escort you out.**
- **All disciplinary or inappropriate behavior will be handled by Security and the Dean of Students**
- If an issue arises, this syllabus will be used as the final word in resolving the issue.
- Students have one week to discuss the expectations in this syllabus, after that it will be considered "law".

PHYS 151 RECOMMENDED HOMEWORK PROBLEMS from the textbook – 7th Edition

The publisher's solutions to ALL problems in the textbook are available online in Blackboard

Chapter 11 - 1, 3, 7, 13, 19, 27, 29, 35, 36, 41, 48, 49, 51, 53, 55, 62, 73

Chapter 12 – 1, 5, 9, 11, 17, 27, 31, 33, 39, 47, 51, 56, 59, 71, 75, 79

Chapter 16 – 1, 6, 11, 12, 17, 19, 23, 24, 29, 32, 45

Chapter 17 – 1, 4, 6, 10, 13, 17, 22, 25, 35, 40, 44, 47, 52, 55, 72

Chapter 18 – 1, 4, 7, 9, 13, 17, 21, 27, 30, 33, 37, 41, 44, 61, 65

Chapter 19 – 1, 3, 5, 9, 13, 15, 19, 23, 25, 27, 31, 39, 43, 49, 52

Chapter 20 – 1, 4, 8, 9, 12, 13, 17, 25, 27, 42

Chapter 21 – 1, 3, 5, 9, 11, 17, 20, 22, 27, 29, 31, 33, 36

Chapter 22 – 1, 3, 7, 8, 10, 13, 14, 18, 22, 25, 29, 34, 37

Chapter 23 – 1, 3, 8, 10, 11, 12, 15, 17, 19, 21, 25, 27, 28, 31, 34, 37, 41, 47, 54, 71

Chapter 24 – 1, 3, 7, 13, 18, 21, 24, 32, 44, 49, 60, 62, 65

Chapter 25 – 3, 6, 11, 18, 22, 25, 31, 35, 43, 46, 53

PHYSICS 151

*** PRINTOUT THIS PAGE, SIGN IT, AND BRING TO THE FIRST DAY OF CLASS***

By signing below, I confirm that I received a copy of the syllabus, and will be held accountable to the guidelines and policies listed. I also will *not* hold the instructor responsible for my having to "take this class" or for any of the laws of physics. I am taking this course as a responsible adult and understand that I may experience extreme intellectual growth and gain boat-loads of knowledge, thereby becoming a much smarter, life-long productive, and more interesting person. Which, I agree, is a good thing.

Print Name: _____ Signature: _____

Date: _____ Section: _____

VOLUNTARY INFORMATION - FILL OUT AS MUCH AS YOU ARE COMFORTABLE

What is your major? _____

What is the highest level of math you have completed (e.g. Algebra, Trig, ???) _____

What instructor did you have for PHYSICS 1? _____

When did you take PHYSICS 1? _____

If you have a job, what do you do? _____ # of hours per week: _____

Do you know anyone that has taken my class before? (*circle one*) NO YES ME or who? _____

How do you view taking a Physics class? painful boring difficult scary I love it!

What did you *like* about your favorite teacher's teaching style: _____

What did you *dislike* about your least favorite teacher's teaching style: _____

How do you learn new things? watch/visual listen read hands-on

List any hobbies, sports, activities you enjoy: _____

Something I've always wanted to know is: _____

I believe UFO's / Aliens / Life on other planets exist: (*circle one*) YES NO POSSIBLE

Game platform of choice?: (*circle one*) Xbox Wii Playstation Pinball Other None

Is there is life after death?: (*circle one*) YES NO MAYBE

Something you could not live without is: _____

If I was President of the USA, I would: _____

If you could talk to anyone living or dead, it would be: _____

If stuck on a deserted island I would want: _____

If I hit the lottery tonite, I would: _____