

PH 202

College Physics II

Winter 2022

[General Information](#)

[Learning Outcomes](#)

[Grading](#)

[Quiz/Exam Information](#)

[Laboratory Information](#)

[Homework Information](#)

[Computer Use](#)

[Accommodation Statements](#)

[Tentative Calendar](#)

General Information:

Professor: Dr. David W. Donovan
Office: 2517 The Science Bldg.
Phone: 227-2453
Email: ddonovan@nmu.edu
WWW: <http://physics.nmu.edu/~ddonovan/classes.html>

Office Hours: Dr. Donovan's Face to Face office hours

**Please Wear a Face Mask that Covers both your nose
and your mouth when you come in to the office**

T	11:00 – 11:50 AM
R	3:00 – 3:50 PM
F	9:00 – 9:50 AM

Dr. Donovan's Zoom office hours

[Dr. Donovan's Office Hours Zoom Link for Winter 2022](#)

M W R	11:00 – 11:50 AM
T	3:00 – 3:50 PM

Other times by Appointment

Text: Physics (11th Edition) by Cutnell & Johnson
WileyPlus <https://www.wileyplus.com/>
Site:

Wiley Plus
Registration Help <http://physics.nmu.edu/~ddonovan/classes/Nph202/WileyPlusFlyerph202.pdf>

Students are asked to please be patient and flexible with how things are done during the ongoing **COVID-19 Pandemic**. Please understand that **EVERYTHING is TENTATIVE** this semester. This is not a “Business as Usual” semester. **ANYTHING can be changed** with little or no warning

due to University, Local, State or Federal dictates and the professor cannot do anything about such changes.

Students are asked to not come to class if they are experiencing any health issues. Please stay home, and email the professor informing him of your situation. You should make arrangements to get class notes from another student in the class. If after reviewing these notes, you still have questions, contact the professor and he will give you some help with the material.

The professor is older and has some underlying health conditions. He therefore is requesting that students respect his desires that you keep the recommended six-foot distance from him as much as possible. Office hours will be done either Face to Face or by Zoom. See the times listed above. Students participating in Face to Face office hours must wear a mask that properly covers your nose and your mouth entirely. Zoom will not be turned on during times designated as Face to Face, and students will not be allowed into the office physically during times designated as Zoom. Please understand, you can do either or both types of office hours.

The professor is willing to arrange other office hours, either face to face or Zoom, for students who cannot attend his scheduled office hours. Please email the professor (ddonovan@nmu.edu) and request an alternative time. Please provide the professor with several options, and he will let you know which ones he could do. Please reply to his email and confirm that you will attend the extra office hours proposed. Please inform the professor **if you change your mind**, and decide you will not attend the extra office hours. Students can call (906 227-2453) and/or email (ddonovan@nmu.edu) to discuss any class business as needed.

Please avoid coming down to the professor at the beginning or end of classes. This is not only because of health concerns, but rooms are often fully scheduled and another class may be trying to get settled in for their class. Moreover, the professor himself, might have another class or meeting immediately following the class. For questions that would be of interest to other members of the class, please ask them during class.

Learning Outcomes: A student who obtains a grade of “C” or higher will have successfully completed the following Learning Outcomes:

- Through the successful completion of laboratory exercises, students will demonstrate the ability to collect, graph, and analyze experimental data.
- Through the successful completion of quizzes and exams, students will demonstrate an ability to solve problems related to Electric Fields, Electric Potentials, and Electronic Circuits.
- Through the successful completion of quizzes and exams, students will demonstrate an ability to solve problems related to Magnetic Fields and Electromagnetic Induction.

- Through the successful completion of quizzes and exams, students will demonstrate an ability to solve problems related to Optical Systems including Mirrors and Lenses.

Grade Breakdown:

Thursdays – Fridays	Quizzes (Lowest 1 Dropped)	15%
Thursdays – Fridays	Exams 2 @ 20% each	40%
	Laboratory	20%
Monday, Apr 25, 2022 (8:00 – 9:50 AM)	Final Exam	25%

Please understand the Gradebook in [EduCat](#) is not the complete grading for the PH 202 course. I will maintain grades in my own personal spreadsheets. You may request a meeting at any point of the semester to discuss how well you are doing in the course. [EduCat](#) will provide the correct grades for your particular quiz or exam, however, other course materials such as labs will not have their grades reflected in [EduCat](#). **Please do not Assume [EduCat](#)'s Gradebook is in any way a final statement of your PH 202 Course grade!**

NOTE: You must receive a passing grade in each part (Lecture and Lab) separately in order to pass the course as a whole. If you fail either part, regardless of your grade in the other part you will fail the course!!

THERE IS NO EXTRA CREDIT!! Doing poorly for a portion of the semester will not be corrected by any extra projects. Please do not assume you can replace poor work under any circumstances with any “additional assignments”!!

In the event that the University cancels classes on the day of a quiz or exam, the professor will adjust the window of time allowed to take quiz or exam. Please check your NMU email for directions from the professor. Any homework or other assignment due to be turned in on the canceled day, should be turned in at the same time listed on the next day the university is open, whether or not the class is normally held on that day. Please be aware that the university cancels evening classes separately from daytime classes.

Students are expected to be proactive in dealing with issues that require missing class. The professor would prefer that students who are ill, not come to class and potentially spread their illness to other members of the class. The professor understands that on occasion unforeseen legitimate circumstances will arise such as family deaths or other family emergencies that requires a student miss class. In these cases, however, the student should expend every possible effort to keep the professor apprised of the situation (usually by [email](#)). Let the professor know when you expect to be back in class. It is unacceptable to wait until the next time you happen to be in class to let the professor know what is going on. If you choose to wait until you are in class again, the professor is within his rights to deny the making up of any missed work or even accepting previously completed work that was not turned in on time. Finally understand that the professor needs to be fair to all members of the class and may ask some questions about the situation. He might require appropriate documentation from additional sources such as a

doctor or the dean of students. Students are expected to provide reasonable information.

Below is a [tentative course schedule](#) of topics, which we shall attempt to cover in this course. Please remember that the Covid-19 Pandemic is currently active. There are many decisions that are not under the control of the professor. As with other aspects of this course, the course schedule is to be considered tentative and it may change, as it needs to, in order to deal with conditions present in our daily lives. Please continue to be patient and flexible as we deal with these changes. Unless specifically noted below in the outline of topics, all sections of a chapter are expected to be learned. Ask questions if you feel you need more clarification of a section.

Also contained in the course schedule are the dates of [quizzes and exams](#). The quiz dates are firm and will occur on the specified days. All [quizzes and exams](#) will be given online through [EduCat](#). They will usually go live on Thursdays. They will need to be completed by 5:00 PM on Fridays. Normally, a quiz will allow a total of 20 minutes to be worked on once you start it, and a test will be allowed 80 minutes. While you can choose when you wish to complete the quiz or exam during the roughly 25 hours (Usually, Thursdays 4:00 PM to Friday 5:00 PM), once you start the quiz or exam you will have just the allotted time to complete it.

Any questions not answered will be scored a zero. **The questions are multiple choice and there is no partial credit.** Their content will usually be the material covered since the previous quiz. One quiz will be dropped from your grade. **There are no make-up quizzes or exams unless a proper reason is provided.** You should discuss the situation with the professor and he will decide if the reason is appropriate.

Once the time window has opened for a quiz and exam, you may email the professor if you think there is an error in the questions, but understand, there will be no changes to the questions. The professor will investigate the issue and if there is indeed an issue, he will adjust the final scores to properly account for the issue. The professor will not comment on any questions while the quiz or exam is still open for other students take. Please consider that some students may have circumstances that allow them to take the quiz outside of the window the majority of the class has for taking the quiz or exam. Once all students who are going to take it, have taken the quiz or exam, the professor will email the class and announce the average and inform you that a solution is available on his website

<http://physics.nmu.edu/~ddonovan/classes/Nph202/ph202nq.html>

Occasionally, EduCat has a glitch and answers are not collected. The professor checks for these shortly after the window closes for each quiz or exam. When he finds an instance of this (and it is very rare), he will email you and provide you with another opportunity to provide answers. You should **check your email at least within a day** of the end of quiz or exam and see if you experienced this issue.

If you have legitimate reasons for not being able to take the quiz or exam during the allowed time window, contact the professor by email and he will decide if you can have an additional window to take the quiz.

If you receive testing accommodations, consult with [Disabilities Services](#). After they provide you with your accommodations letter, provide it to your professor, and schedule a brief meeting with him to ensure you and he understand what is to be provided. Your accommodations will be provided, and you will not need to schedule any quizzes or exams with [Disabilities Services](#).

For a quiz, one **3-inch by 5-inch** index card of notes will be permitted. For an exam, one standard size (**8 and 1/2 inch by 11 inch**) sheet of paper of notes will be allowed. For the final, **two standard size** sheets of paper will be permitted. I recognize that you will be taking the quizzes and exams by yourself and I am counting on your honor and integrity that you will abide by these conditions.

Students bear the responsibility of making sure their work is legible and easily discernable to the professor. Any work that the professor cannot determine exactly what is presented is automatically scored as a zero (no points). It is not the responsibility of the professor to take extreme measures to ascertain whether or not the student has provided correct and proper information. The professor is willing to work with students on this, but if work is not legible, whether due to poor penmanship, poor printouts, staining of papers, insufficient ink or lead on the page, or any other reason why a paper cannot be read is solely the student's responsibility. Moreover, students are required to comply with all instructions provided by the professor. Students may ask questions, but failure to follow instructions can result in the loss of points up to and including all points for the assignment.

A knowledge of algebra and trigonometry is assumed for all participants in the course. Additional math techniques will be taught to the students as needed. Please feel free to ask for additional help if this additional math is causing problems. This is not a math course. The aim is to learn about physics, however physics is a mathematical subject. When having difficulty with material, try to decide if it is the physics or the mathematics that you are having difficulty with.

[Homework](#) is assigned for each chapter. These [assignments](#) are available on the professor's [webpage](#). They will not be collected or graded. However, exam and quiz questions will be similar to these kinds of problems. Physics cannot be learned by watching. Without struggling with problems before a quiz or exam, you will probably struggle during the quiz or exam.

[Homework, quiz and exam](#) solutions will be posted on my [webpage](#) <http://physics.nmu.edu/~ddonovan/classes.html>. If you need assistance in learning how to use the world-wide web, see your professor. Quiz and Exam solutions will be one version of the quiz or exam. The order of questions and the order of answers will be randomized for students when they are taking them. The solutions provided will show the method and answers for the problems/questions, but they may not match the order of the specific exam or quiz you took.

Laboratory work is part of your final grade. **Reminder: You must receive a passing grade in each part (Lecture and Lab) separately in order to pass the course as a whole. If you fail either part, regardless of your grade in the other part you will fail the course!!** It is quite likely your laboratory instructor will not be the same as your lecture professor. While the Laboratory grade is a part of your PH 202 Course grade, the Laboratory instructor will have a separate syllabus, which outlines the policies of the Laboratory portion of the course. **Labs begin in the FIRST WEEK OF CLASSES!!!**

Attendance at all labs is mandatory. Make-ups for quizzes and labs will only be provided for at the discretion of the professor. This will occur only for reasonable excuses. Desire to go home for the weekend or to go hunting are not considered reasonable excuses. Informing the professor **BEFORE** an absence is more likely to result in a make-up than informing the professor after the absence. **A missed lab is a zero for that experiment and all associated work!!**

There may be questions that pertain to material only covered in laboratory on most quizzes and exams. Anything covered in Lab is fair game!!!

Physics is a cumulative subject. Falling behind will cause problems. If you have any questions or problems talk to the professor. If you need any special arrangements, they should be arranged **prior** to the problem, unless this is completely impossible (a rare occurrence!)

The professor is always willing to discuss the grading of materials. Students should review their returned work promptly. If they believe an error in grading has been made, they should arrange to meet with the professor as soon as possible after the work is returned. **Grades will not generally be changed after the student has had the work in their possession for more than one week.** The work should not have been further marked upon or changed in any way by the student if they wish to discuss a graded item. The professor is happy to discuss what is correct or not correct about an item with a student, but there is no discussion on the number of points awarded or deducted by the professor.

The professor will retain in his possession all final exams for a period of one year. Students may make arrangements to see the work during this year. The professor is not going to provide specific grades over the phone or on email at any time prior to final grades being displayed on MYNMU (this usually occurs on Thursday after graduation).

Food and drinks of any kind (including snack food) are not allowed in the Lecture due to the facemask requirement.

The professor will make every effort to respond to all email (ddonovan@nmu.edu) questions received by 5 PM Monday through Friday, with a response by 10 PM Monday through Friday. Students are expected to regularly check **their NMU issued email accounts** for any messages the professor may send out to the class as a whole or to an individual in the class. Moreover, when students ask the professor a question requiring an answer, it is expected for students to check

their email in an equally timely fashion and to confirm the receipt of the answer, and if necessary provide any answers to questions the professor may have posed about the situation.

The professor reserves the right to cancel any deals proposed in email correspondence if the student fails to confirm the deal with a final email.

Students in this class are expected to conform to a code of **academic honesty**. While it is encouraged for students to work together, there are situations where work is expected to be the student's whose name appears on the work. Quizzes and exams are obvious examples of where cheating will not be tolerated. In lab work, it will often be the case that both partners will have identical work. However, both partners are to turn in lab sheets, and both partners are expected to participate equally in completing the lab tasks. It is not acceptable for one partner to do all the work, while the other merely watches and writes.

Using the **same code and documentation** (even if you change your name and modify some words), **same graphs, same spreadsheets**, etc. is also considered cheating. For example, using the same EXCEL spreadsheet (unless given permission by the instructor) in lab to produce multiple copies of plots or problem solutions (even if you change your name), is considered cheating. Students are expected to learn how to create their own files, graphs, etc. All partners are expected to understand the lab exercises. If you have questions on what is considered appropriate, ask your professor.

Please be sure any cell phones or pagers or other devices do not produce sounds during lectures.

Please do not engage in conversations at all during lectures.

Computer Usage Policies:

UNLESS PERMISSION is GRANTED, All Laptops and other Electronic Communication/Entertainment devices are to be off and remain unused during class times.

If Permission is granted then:

- Computers (both room based and laptops) are to be utilized for course work and activities related to course work.
- Writing computer code whether for this class or another class while the professor is lecturing is not appropriate.
- Do not use computers for entertainment or communications during class meetings.
- Do not display material on screen which may be distracting or offensive to other members of the class (including the professor).
- Keep a backup of all your files. The university is not liable for any data lost due to equipment failures, damaged disks, or misuse of computer programs.

- Do not utilize software in violation of licensing agreements. Do not copy software, information, data or other work in violation of applicable copyrights. Be aware of current copyright laws regarding software, music, movies, and other digital information.
- You may not copy, install or use any service, information, data, image, recording, or other work in violation of applicable copyrights or license agreements. You may not possess any software or resource whose purpose is to effect one of the afore mentioned violations.
- You must take full responsibility for what you publish, transmit, or possess.
- You may not steal, forge, cheat with; snoop on; tamper with; misuse, damage, harass with; hoard or monopolize; interfere with; violate the confidentiality of; or destroy any information, resource, equipment or software. This includes using your personal computer for these activities against other users or against their information resources.

PH 202 satisfies part of Division III—Foundations of Natural Sciences-Mathematics Liberal Studies requirement. Students who complete the science courses should be able to recognize and understand the scientific method; understand and use scientific concepts; understand and discuss general scientific articles; and apply their knowledge of science to everyday experience. Students who complete the mathematics courses should be able to demonstrate a basic understanding of mathematical logic; use mathematics to solve scientific or mathematical problems in college classes; express relationships in the symbolic language of mathematics; and appreciate the role of mathematics in analyzing natural phenomena.

PH 202 satisfies one of the two courses required in the [General Education Program's Scientific Inquiry Component](#): Scientific Inquiry (two courses required): Students will demonstrate use of scientific processes to investigate and report knowledge about natural or social phenomena.

[Writing Center](#)

It takes time to improve one's writing skills, and very often, talking to another person who is interested in and good at writing could help one generate ideas, notice errors, or even enjoy writing more. The Writing Center, located in LRC 111G, is a place where students can go for assistance with writing. The service is free and no appointment is necessary. The tutors at the Writing Center have experience working with all forms of college writing and all stages of the writing process. Please consider visiting the Writing Center, LRC111G, or find them online at <http://www.nmu.edu/writingcenter>.

[DISABILITY SERVICES](#)

If you have a need for disability-related accommodations or services, please inform the [Coordinator of Disability Services](#) in the Dean of Students Office at 2001 C. B. Hedgcock Building (227-1737 or disserv@nmu.edu). Reasonable and effective accommodations and services will

be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.

NMU Official Statement on absences during the pandemic:

If you are experiencing COVID-19 symptoms, do not attend class, work, or campus and community activities. Please communicate with your instructors and/or work supervisors via email or phone to say you are not feeling well and will be absent. Stay home, avoid contact with others as much as possible, and contact your healthcare provider or the NMU Health Center for next steps, including COVID-19 testing. Instructors are not required to provide remote class sessions for absent students, but rather will work individually with students to provide options for making up missed class time and assignments. Students who have other issues due to being absent from class or work because of COVID-19 symptoms or infection, should consult with the Dean of Students Office.

Mask Accommodation ADA Statement

Certain students may qualify for alternative face-covering accommodations due to a variety of health conditions. These students have gone through a qualifying process with the Office of Disability Services. Faculty have been notified of which students receive these accommodations in their class. If you have concerns regarding this topic please contact the faculty member outside of class. Please do not question or confront fellow students in the classroom who are using alternative or modified face coverings.

Non-Discrimination Policy

Northern Michigan University is an equal opportunity employer and complies with all applicable laws prohibiting discrimination on such factors as race, color, national origin, gender, religion, height, weight, familial status, marital status, veteran status, disability/handicap, age or sexual orientation in employment, or the provision of services, and provides upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in all programs and activities.

If you have questions, or if you believe that a violation or potential violation of state or federal non-discrimination laws has occurred, is occurring or will occur, please notify the Equal Opportunity office at 105 Cohodas, 906-227-2420, or the Dean of Students at 2001 C.B. Hedgcock, 906-227-1700. Mail to either office can be sent to 1401 Presque Isle Avenue, Marquette, MI 49855.

Tentative Class Schedule

Jan 10 – 14 Electric Forces and Electric Fields (Ch 18)

Homework: [Chapter on Charge & E Field Web View](#)
[Chapter on Charge & E Field Word Document](#)

Jan 17 – 21 Electric Forces and Electric Fields (Ch 18)
Electric Potential Energy and The Electric Potential (Ch 19)

Homework: [Chapter on E Potential & V Field Web View](#)
[Chapter on E Potential & V Field Word Document](#)

Jan 17 MLK Day – No Classes

Jan 20 – 21 [Quiz 1](#)

Jan 22 Andre Ampere (1775)

Jan 23 Hideki Yukawa (1907)

Jan 24 – 28 Electric Potential Energy and The Electric Potential (Ch 19)

Jan 27 – 28 [Quiz 2](#)

Jan 31 – Feb 4 Electric Potential Energy and The Electric Potential (Ch 19)
Electric Circuits (Ch 20)

Homework: [Chapter on Ohms Law & DC Circuits Web View](#)
[Chapter on Ohms Law & DC Circuits Word Document](#)

Feb 3 – 4 [Quiz 3](#)

Feb 7 – 11 Electric Circuits (Ch 20)

Feb 8 Daniel Bernoulli (1700)

Feb 10 – 11 [Exam #1 \(Chapters 18 - 20\)](#)

Feb 14 – 18 Magnetic Forces and Magnetic Forces (Ch 21)

Homework: [Chapter on Magnetism & B Field Web View](#)
[Chapter on Magnetism & B Field](#)

Feb 17 Otto Stern (1888)

Feb 17 – 18 [Quiz 4](#)

Feb 21 – 25 Magnetic Forces and Magnetic Forces (Ch 21)
Electromagnetic Induction (Ch 22)

Homework: [Chapter on Faraday & Induction Web View](#)
[Chapter on Faraday & Induction Word Document](#)

Feb 24 – 25 [Quiz 5](#)

Feb 28 – Mar 4 Spring Break

Mar 7 – 11 Electromagnetic Induction (Ch 22)

Mar 10 – 11 [Quiz 6](#)

Mar 14 – 18 Electromagnetic Induction (Ch 22)

Mar 14 Albert Einstein (1879)

Mar 17 – 18 [Exam #2 \(Chapters 20 - 21\)](#)

Mar 21 – 25 The Reflection of Light: Mirrors (Ch 25)

Homework: [Chapter on Optics Reflection Web View](#)
[Chapter on Optics Reflection Word Document](#)

Mar 21 Jean Fourier (1768)

Mar 22 Robert Millikan (1868)

Mar 24 – 25 [Quiz 7](#)

Mar 25 Last Day to withdraw from Semester Classes with a W - See your Instructors!! And Advisors!!!

Mar 28 – Apr 1 The Reflection of Light: Mirrors (Ch 25)
The Refraction of Light: Lenses and Optical Instruments (Ch 26)

Homework: [Chapter on Optics Refraction Web View](#)
[Chapter on Optics Refraction Word Document](#)

Mar 27 Wilhelm Rontgen (1845)

Mar 31 – Apr 1 [Quiz 8](#)

Apr 4 – 8 The Refraction of Light: Lenses and Optical Instruments (Ch 26)

Apr 7 – 8 [Quiz 9](#)

Apr 11 – 15 The Refraction of Light: Lenses and Optical Instruments (Ch 26)
Interference and the Wave Nature of Light (Ch 27)

Homework: [Chapter on Interference & Diffraction Web View](#)
[Chapter on Interference & Diffraction Word Document](#)

Apr 14 – 15 [Quiz 10](#)

Apr 18 – 22 Interference and the Wave Nature of Light (Ch 27)

Apr 21 – 22 [Quiz 11](#)

Apr 22 J. Robert Oppenheimer (1904)
Apr 23 Max Planck (1858)

Monday April 25, 2022 8:00 - 9:50 AM Final Exam

Apr 30 Carl Gauss (1777)
May 11 Richard Feynman (1918)
May 15 Pierre Curie (1859)