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| **PH 202 L** | **College Physics II - Laboratory** | **Fall 2020** |

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

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| **Dr. Donovan's office hours Will be Done Via Zoom** |
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| **[Dr. Donovan's Office Hours Zoom Link for Fall 2020](https://nmu.zoom.us/j/99371660880?pwd=TW9hRlZrKzk2LzJRZDN2V20rZ2c3Zz09)** |
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| M W R |  | 10:00 – 11:30 AM |
| R |  |  2:30 – 4:00 PM |

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|  | Other times by Appointment |

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| **Lecture Seating Charts:** | **Please Be Aware That Seating Charts May Change As Circumstances Dictate!** |
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|  | [Lab Seating Chart PH 202 10 AM - Group C - Web View](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab10AMGroupC.html) |  | [Lab Seating Chart PH 202 10 AM - Group C - PDF File](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab10AMGroupC.pdf) |
|  | [Lab Seating Chart PH 202 10 AM - Group D - Web View](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab10AMGroupD.html) |  | [Lab Seating Chart PH 202 10 AM - Group D - PDF File](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab10AMGroupD.pdf) |
|  | [Lab Seating Chart PH 202 2 PM - Group E - Web View](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab2PMGroupE.html) |  | [Lab Seating Chart PH 202 2 PM - Group E - PDF File](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab2PMGroupE.pdf) |
|  | [Lab Seating Chart PH 202 2 PM - Group F - Web View](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab2PMGroupF.html) |  | [Lab Seating Chart PH 202 2 PM - Group F - PDF File](http://physics.nmu.edu/~ddonovan/classes/ph202/PH202SCLab2PMGroupF.pdf) |

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| Students are asked to please be patient and flexible with how things are done during the current **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. |
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| 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 by Zoom. Students can call and email to |
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| discuss class business. Please do not come down to the professor at the beginning or end of classes. Course materials will be handled electronically. There should be no need to pass physical papers |
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| **Learning Outcome:** | A student who obtains a grade of “C” or higher will have successfully completed the following Learning Outcome: |

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| • Through the successful completion of laboratory exercises students will demonstrate the ability to collect, graph, and analyze experimental data. |
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| **Grade Breakdown:** | **Laboratory Exercises** | **100%** |

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| **Lab Grades will not be present in EduCat. The professor will be maintaining lab grades of his lab sections in his own spreadsheet. You will received your lab work back and graded normally each week. You are able to arrange a meeting with the professor at a mutually agreeable time to discuss your lab grade with the professor.** |
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| **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!!** |
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| **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”!! |
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| **In the event that the University cancels classes on the day of a quiz or exam, be prepared to take the quiz or exam at the next available class period. Any homework or other assignment due to be turned in on the canceled day, should be turned in at the next time the class is held.** |
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| 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.  |
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| 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  |
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| documentation from additional sources such as a doctor or the dean of students. Students are expected to provide reasonable information. |
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| 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!!** There are several possible laboratory sections; you must be registered and attending one of these sections, unless you have made arrangements with the course professor. 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, each 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!!!** |
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| **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!!** |
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| You are required to bring the following items to **EVERY LAB:**  |
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| i) |  | Your Laptop Computer. |
| ii) |  | A **pencil** |
| iii) |  | A scientific calculator **(not your laptop)** |

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| There is no lab manual to purchase. Handouts for the experiments will be available on the professor’s [Lab Work](http://physics.nmu.edu/~ddonovan/classes/ph202/ph202Labwork.html) webpage located at <http://physics.nmu.edu/~ddonovan/classes/ph202/ph202Labwork.html> . Each experiment will have a worksheet of some sort. (Note: All questions are to be answered in **Complete Sentences**. Numerical Answers should contain the appropriate **units.**) The worksheet will be turned in by emailing the worksheet and any associated Excel files as attachments to your professor (ddonovan@nmu.edu) by Noon on Fridays.  |
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| All plots and spreadsheets in Excel must contain your name and date on them. In the spreadsheet, it should be in the top row along with a title related to the lab. In a plot, it should be the second line of your title, with the top line being an appropriate title. For example:  |
| Acceleration vs. ForceD.W. Donovan 8/29/2017 |
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| Axis Labels should follow the format “quantity in words”, Symbol, (units) So one example is: |
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| Acceleration, a, (m/s2) |
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| Notice the 2 is superscripted. I expect that and Greek letters used as well. If you are not sure how to do these things, your professor will help you learn. For logarithms, the following would be appropriate: |
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| Ln(Torque), Ln(τ), (Ln(m N)) |
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| Notice the Greek letter tau τ! |
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| All plots should be on their own spreadsheet page. Your professor will help you how to do this. |
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| 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 contact 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. |
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| The professor makes every effort to return collected work in a timely fashion. There may arise situations in which homework assignments and/or laboratory exercises may not be returned before the next homework or laboratory exercise is due. Students are reminded that in spite of the fact that you may not have gotten your previous work back and seen that you failed to follow directions, this does not mean you cannot be held to following the directions on the subsequent assignments. The handouts and their directions remain enforceable unless the professor indicates otherwise. As always, if you are unclear on directions, you should ask the professor for clarification. |
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| 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.** |
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| **Food and drinks of any kind (including snack food) is not allowed in the lab due to the facemask requirement.** |
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| 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. However, 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. Each student is expected to learn how to create his or her own files, graphs, etc. 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. Both partners are expected to understand the lab exercises. If you have questions on what is considered appropriate, ask your professor. |
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| **Please be sure any cell phones or pagers or other devices do not produce sounds during lectures.** |
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| **Please do not engage in conversations at all during lectures.** |
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| **Computer Usage Policies:** |
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|  | **UNLESS PERMISSION is GRANTED, All Laptops and other Electronic Communication/Entertainment devices are to be off and remain unused during class times.** |

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|  | **If Permission is granted then:** |

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|  | • | 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 CS 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. Copyright information may be accessed through the NMU Library website at: <http://library.nmu.edu/guides/copyright.htm> |
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|  | • | 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. |

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| **PH 202 satisfies part of** [**Division III**](https://www.nmu.edu/acac/liberalstudies)**—Foundations of Natural Sciences-Mathematics** [**Liberal Studies**](https://www.nmu.edu/acac/liberalstudies) **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. |
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| **PH 202 satisfies one of the two courses required in the** [**General Education Program**](http://www.nmu.edu/bulletin/general-education)**’s** [**Scientific Inquiry**](http://www.nmu.edu/bulletin/general-education?processtype=self&action=LibStudReq&phase=phase1&elementid=1490373693) **Component:** Scientific Inquiry (two courses required): Students will demonstrate use of scientific processes to investigate and report knowledge about natural or social phenomena. |
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| [**Writing Center**](https://www.nmu.edu/writingcenter/home-page) |
| 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 offers **free online tutoring** to help students with their writing concerns. The tutors will help students with anything concerning writing, such as understanding assignments, organizing ideas, or learning grammatical rules. Please visit the Writing Center website for an appointment with a tutor. Here is the URL: <https://www.nmu.edu/writingcenter/home-page>. |
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| [**DISABILITY SERVICES**](https://www.nmu.edu/disabilityservices/home-page) |
| 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. |
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| **Mask Accommodation ADA Statement** |
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| 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. |
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| [**Non-Discrimination Policy**](https://www.nmu.edu/equalopportunity/home) |
| 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. |
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| **Tentative Lab Schedule** |
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| Aug 18 |  | Waves |  | Aug 25 | Inverse Square Law |
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| Sep 1 |  | Plotting Electric Fields and Potentials |  | Sep 8 | Capacitors in Series and Parallel |
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| Sep 15 |  | Ohm’s Law |  | Sep 22 | Wheatstone Bridge |
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| Sep 29 |  | Faraday’s Law and Electromagnetic Induction |  | Oct 6 | Plotting Magnetic Fields |
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| Oct 13 |  | RC and RL Circuits |  | Oct 20 | Optical Ray Tracing |
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| Oct 27 |  | Thin Lens Optics |  | Nov 3 | Spectroscopy |
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| Nov 10 |  | Interference and Diffraction |  | Nov 17 | Optical Instruments |
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| Nov 24 |  | Semester Wrap Up Activities |  |  |  |

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