

This syllabus is likely not yet the final version. We were assigned a new classroom that is still in the process of being prepared. Significant adjustments may be needed depending on the equipment that will (or will not) be available.

This syllabus was last updated on **August 21, 2020**

Instructor: Sylvio May, South Engineering 216A, phone: 701.231.7048, email: Sylvio.May@ndsu.edu, web: <https://www.ndsu.edu/faculty/symay/>

Bulletin Description: Second course for students without a calculus background. Includes electricity, magnetism, optics and modern physics.

This course has been approved for the General Sciences category in general education because “Students will learn to comprehend concepts and methods of inquiry in science and technology, and their application for society.” and “Students will learn to integrate knowledge and ideas in a coherent and meaningful manner.”

Goals: This course provides students with an understanding of the basic principles and applications of electromagnetism, optics, and modern physics. It will guide them in their everyday lives and careers as informed members of our society.

Objectives: Students acquire the ability to recognize, analyze, and solve conceptual and quantitative physics problems and apply this ability to novel problems and situations.

Course objectives are met by readings, lectures, in-class discussions, and homework through the development of conceptual understanding and the ability to quantify concepts in specific physical situations. Students demonstrate their level of comprehension in LON-CAPA homework and exams.

Prerequisites: Physics 211 or consent of instructor

Meetings: Tuesday and Thursday 11:00AM - 12:15PM in *Memorial Union, Prairie Rose*. This is on the upper level of the Memorial Union; for a map see https://www.ndsu.edu/mu/about_the_mu/mu_floorplans/. I do not have an attendance policy as I normally would. You can participate in class or remotely (synchronous course participation via Zoom). You may also review the lectures and view pre-recorded video material remotely (asynchronous course participation). All course material will be posted in Lon-Capa.

Office hours: Mon and Wed 11am-12:15pm through Zoom; additional face-to-face option may be specified during the course

Textbook: Nicholas J. Giordano, *College Physics, Reasoning and Relationships 2nd edition*, (Brooks/Cole, Cengage Learning), Chapters 17-26

Topic Outline and Timing: The textbook chapters to be covered in this course are listed below, along with the tentative exam dates. Most (but not all) material of chapters 17-26 will be covered.

Chapter 17:	Electric Forces and Fields	Aug 25-Sept 03	Exam 1: Tue, Sept 08	(covers Ch. 17)
Chapter 18:	Electric Potential	Sept 08-Sept 15	Exam 2: Thu, Sept 17	(covers Ch. 18)
Chapter 19:	Electric Currents and Circuits	Sept 17-Sept 24	Exam 3: Tue, Sept 29	(covers Ch. 19)
Chapter 20:	Magnetic Fields and Forces	Sept 29-Oct 06	Exam 4: Thu, Oct 08	(covers Ch. 20)
Chapter 21:	Magnetic Induction	Oct 08-Oct 15	Exam 5: Tue, Oct 20	(covers Ch. 21)
Chapter 22:	Alternating-Current Circuits	Oct 20-Oct 27	Exam 6: Thu, Oct 29	(covers Ch. 22)
Chapter 23:	Electromagnetic Waves	Oct 29-Nov 05	Exam 7: Tue, Nov 10	(covers Ch. 23)
Chapter 24:	Geometrical Optics	Nov 10-Nov 17	Exam 8: Thu, Nov 19	(covers Ch. 24)
Chapter 25:	Wave Optics	Nov 19-Dec 01	Exam 9: Tue, Dec 03	(covers Ch. 25)
Chapter 26:	Applications of Optics	Dec 03-Dec 10	Exam 10: Thu, Dec 15	(covers Ch. 26)

Format: This is a Hyflex class. The instructor plans to be physically present. Lecture material will be discussed in class, with the option to attend remotely. In addition, pre-recorded video material of what I plan to

discuss during lecture time will be made available to allow student to study course material asynchronously. The in-class activities involve some traditional lecture plus discussions with a focus on critical thinking and problem solving. Paper flash cards may be distributed and used. Students are encouraged to engage in in-class discussions and ask questions at any time during or after class. Class announcements will be made though email.

How to succeed: Attending class, reviewing lecture notes, reading the textbook, taking part in class activities and discussions, and doing homework (and additional) problems are keys to success. Each student is encouraged to contact the instructor with any concerns, questions, and suggestions. If desired, review sessions will be held prior to exams.

LON-CAPA: This course does not use Blackboard. Instead, the LON-CAPA course management system will be used to post homework, lecture notes, grades, and other information. LON-CAPA can be accessed by selecting the appropriate server at http://www.ndsu.edu/physics/lon_capa/. Your username is everything to the left of the @ in your NDSU email address (use all lowercase letters). For example, if your email address is Sheldon.Cooper.2@ndsu.edu, then your LON-CAPA username is sheldon.cooper.2. Initially you create your own password by following the link “Forgot Password”. For help using LON-CAPA contact your instructor or laboratory technician Paul Omernik (SE110, Paul.Omernik@ndsu.edu, 231-7047). Technology concerns other than Lon-Capa can be addressed to IT Help Desk; Email: ndsu.helpdesk@ndsu.edu, Call: 701-231-8685 (option 1)

Homework: 10 homework problem sets, each containing 10 problems (with 8 attempts for each problem), will be assigned via the LON-CAPA online system.

set #	coverage	assigned	due	# of problems
1	chapter 17	Aug 25	Sept 09	solve all 10 problems
2	chapter 18	Aug 25	Sept 18	solve all 10 problems
3	chapter 19	Aug 25	Sept 30	solve all 10 problems
4	chapter 20	Aug 25	Oct 09	solve all 10 problems
5	chapter 21	Aug 25	Oct 21	solve all 10 problems
6	chapter 22	Aug 25	Oct 30	solve all 10 problems
7	chapter 23	Aug 25	Nov 11	solve all 10 problems
8	chapter 24	Aug 25	Nov 20	solve all 10 problems
9	chapter 25	Aug 25	Dec 04	solve all 10 problems
10	chapter 26	Aug 25	Dec 14	solve all 10 problems

Each correctly solved problem earns 1 point (For problems with multiple parts each part earns 1 point). The maximal number of points for all homework sets is 100. You may work together on homework sets, but simply copying another’s answers is neither recommended nor beneficial. No late homework will be accepted.

Exams: 10 exams (including the final) will be given. For each exam (including the final), 5 questions need to be solved within 20 minutes. Each exam covers one single chapter (as specified on the preceding page). Each correctly solved problem earns 2 points. The two lowest-scoring exams will be dropped. The other 8 exams will count towards the final score. The total number of points from the exams is thus 80.

All exams are “open notes” (i.e., using computers and notes is permitted during an exam). Exams can be taken from any location, including the classroom. Students bring a device (computer, laptop, even a cell phone may work) that allows them to access and answer the exam questions through Lon-Capa during exam time. Scantrons will not be used. No makeup exams will be scheduled.

Grading: Grading will be based on LON-CAPA homework score (max. 100 points) and 8 exams (max. 80 points). From the actual number of points and the maximal number ($100 + 80 = 180$ points) the percentage will be calculated and used to grade according to: 90.0% -100% A, 80.0% - 90.0% B, 70.0% - 80.0% C, 60.0% - 70.0% D, 0% - 60.0% F. Expressed in points, this corresponds to: 162 - 180 A, 144 - 161 B, 126 - 143 C, 108 - 125 D, 0 - 107 F. The instructor reserves the right to lower the grade cutoffs in response to class performance, but they will not be raised.

Student illness: Do not come to class if you are sick or if you have been exposed to individuals who tested positive for COVID-19 and/or you have been notified to self-quarantine due to exposure. Please protect your

health and the health of others by staying home and participate in class remotely. For information on COVID-19, symptoms, testing, and steps to stay healthy see https://www.ndsu.edu/studenthealthservice/covid_19/. If you are unable to attend class at the regularly scheduled time due to illness, contact the instructor for alternate arrangements, especially for exams and extensions of homework due dates.

Seating assignments: To facilitate contact tracing by the North Dakota Department of Health, seating in the classroom will be assigned and will remain fixed for the duration of the course.

Face coverings and physical distancing: NDSU requires students and faculty to wear face coverings in classrooms. Wearing face coverings helps reduce the risk to others in case you are infected but do not have symptoms. You must properly wear a face covering (covering both mouth and nose) for the entirety of the class. If you fail to properly wear a face covering, you will not be admitted to the classroom. However, you may choose to participate in the class remotely. Referral to Dean of Students Office or administrative removal from class will be used if necessary.

Students should observe social distancing guidelines whenever possible. Students should avoid congregating around instructional space entrances before or after class. Students should exit the instructional space immediately after the end of class to ensure social distancing and allow for the persons attending the next scheduled class to enter the classroom.

Food and drinks are not allowed in the class unless a student has a documented accommodation through Disability Services.

In accordance with NDSU Policy 601, failure to comply with instructions, including this syllabus, may be handled according to the Code of Student Conduct resolution process and may result in disciplinary sanctions.

Resources for Students on campus and remotely (telehealth):

- Counseling Services: 701-231-7671; <https://www.ndsu.edu/counseling/>
- Disability Services: 701-231-8463; <https://www.ndsu.edu/disabilityservices/>
- Student Health Service: 701-231-7331; <https://www.ndsu.edu/studenthealthservice/>
- Dean of Students Office: 701-231-7701; <https://www.ndsu.edu/deanofstudents/>

Additional Information:

- Any students with disabilities or other special needs, who need special accommodations in this course, are invited to share these concerns or requests with the instructor and contact the Disability Services Office (www.ndsu.edu/disabilityservices) as soon as possible.
- The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.