Physics 212 COLLEGE PHYSICS II Summer 23

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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: M T W Th F 9:00 AM - 10:00 AM in NDSU South Engineering 120. Physical attendance is not required, as there will be a Zoom meeting of the class that will be recorded. All course material will be posted to LonCapa.

Office Hours: Th F 10 AM - 12 PM through Zoom or in person. Additional times available by arrangement.

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

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 (6/14-6/17) - **Exam 1: Tues, 6/20**
Chapter 18:Electric Potential(6/20-6/23) - **Exam 2: Fri, 6/23**
Chapter 19:Electric Currents and Circuits (6/22-6/28) - **Exam 3: Wed, 6/28**
Chapter 20:Magnetic Fields and Forces (6/28-7/1) - **Exam 4: Wed, 7/5**
Chapter 21:Magnetic Induction (7/1-7/6) - **Exam 5: Mon, 7/10**

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Chapter 22:Alternating-Current Circuits (7/6-7/12) - **Exam 6: Thurs, 7/13**
Chapter 23:Electromagnetic Waves (7/12-7/15) - **Exam 7: Tues, 7/18**
Chapter 24:Geometrical Optics (7/15-7/21) - **Exam 8: Mon, 7/24**
Chapter 25:Wave Optics (7/21-7/26) - **Exam 9: Mon, 7/31**
Chapter 26:Applications of Optics (7/26-8/2) - **Exam 10: Thurs, 8/3**

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, recordings of the lecture time will be made available to allow students 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 through email.

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	Ch 17	6/13/23	6/21/23	10
2	Ch 18	6/13/23	6/24/23	10
3	Ch 19	6/13/23	6/29/23	10
4	Ch 20	6/13/23	7/6/23	10
5	Ch 21	6/13/23	7/10/23	10
6	Ch 22	6/13/23	7/14/23	10
7	Ch 23	6/13/23	7/19/23	10

8	Ch 24	6/13/23	7/25/23	10
9	Ch 25	6/13/23	8/1/23	10
10	Ch 26	6/13/23	8/4/23	10

Exams: 10 exams (including the final) will be given. For each exam (including the final), 5 questions need to be solved within 25 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.

Face coverings and physical distancing: As NDSU has switched to an optional mask wearing policy, this course will have optional mask wearing for those who are fully vaccinated.

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