

# University Physics II Phys 252 syllabus

## Fall 2024

### (4 credits)

Prereq: PHYS 251&251L or ME 221&222

Coreq: MATH 166

#### Instructional team

Professor Mila Kryjevskaja

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#### Course Description

Physics 252 is a detailed introduction to electromagnetism, waves, and optics. This four-credit course for engineering/science students requires an understanding of Math 166 and Phys 251&251L (or ME 221&222). There are four lectures each week, regular homework assignments, and other outside-of-class-time required work.

#### Course goals

Students completing Physics 252 should be able to solve electrostatics, electrodynamics, circuits, and optics problems that require both conceptual and mathematical understanding of the material. Students must develop qualitative and quantitative reasoning skills necessary to answer novel questions that were not explicitly discussed in class. Students must be able to provide alternative solutions, check answers for consistency, and identify mistakes in their incorrect lines of reasoning (if appropriate).

#### Prerequisites

Math 166 (prereq/coreq)

#### Class Hours and attendance via Zoom

11:00 am - 12:50 pm Monday, AGHILL 112

11:00 am - 11:50 am Wednesday and Friday, AGHILL 112

You can attend class in person or on Zoom.

To join the Zoom meeting and view all classroom recordings, use the Zoom shortcut included in the Blackboard Course panel on the left.

The Zoom link is also included below:

<https://ndsu.zoom.us/j/95627592887?pwd=8CQlbnLgaujuno9cvyecvYcytTaC0y.1>

Meeting ID: 933 6037 7287

Passcode: phys252

#### Office Hours:

Wednesday after class: 12:00 pm - 1:00 pm

Friday before class: 10:00 am - 11:00 am

Office hours will be during the times specified above. However, you are welcome to email me to arrange a different time to meet. A Zoom meeting is also an option.

#### Course materials

1. Textbook (optional): Halliday, D.; Resnick, R.; Walker, J. *Fundamentals of Physics*, any edition ed. Wiley,. (full version)
2. PointSolution Web.
3. Scientific calculator.

## Course format

Phys 252 meets three times a week in a large lecture hall. There are no small group discussion sessions associated with Phys 252. However, we would like to provide opportunities for you to think about the material in class, share your thoughts with classmates, and provide feedback on your learning to the instructional team. We will use PointSolutions Web (formerly Turning Point Web).

**PointSolutions Web works for students who attend class in person OR on zoom.** NDSU students have free access to PointSolutions license. We will use a web-based PointSolutions option, which allows all students to participate in class, those who are physically present on campus and those who join via Zoom. You do NOT need to purchase any hand-held “clickers,” but you will need a device capable of connecting to the internet (phone, iPad, laptop, etc.). You will also need to download the app on your device. Follow a few steps described in the link below to create an account and to download the app.

<https://kb.ndsu.edu/page.php?id=101669>

Please be prepared to use/test the Turning Point app on the first day of class.

## Attendance

Attendance is not required, but you are encouraged to attend and participate by using PointSolution Web regardless of your attendance choice, in-person or online. However, participation is voluntary, and no credit will be assigned for clicker participation.

## How to succeed in this class

Do not memorize the material or solutions to problems. Think about your reasoning. Science (and physics in particular) is not about memorization. It is about the ability to think, make mistakes, recognize when mistakes are made, recover from these mistakes, and move forward.

Please check out a set of five short videos on how people learn and on effective strategies for learning.

<http://www.youtube.com/playlist?list=PL85708E6EA236E3DB>

The videos are created by Stephen L. Chew, a cognitive psychologist at Samford University. The videos discuss common student misconceptions about learning (memorization of facts, reading lecture notes as opposed to processing information, *etc.*). The videos also include discussions of effective strategies for academic success. There is a sequence of 5 episodes, you can watch all of them in under 30 minutes. I am extremely impressed by the videos. I think you will enjoy the videos as well. Check them out!

## Homework assignments

Regular web-based ([LON-CAPA](#)) HW (due approximately every 10 days).

## Ungraded web-based assignments

We would like to learn more about what ideas and concepts related to Phys 252 you know well and what material needs to be discussed in class at a deeper level. To help us gain this knowledge and to give you opportunities to practice applying ideas learned in class, we will ask you to complete short weekly *ungraded* assignments (15-30 min long). You are *not* expected to read or study prior to each assignment because we want to learn how you *think* about the material (not necessarily what you read about it in a textbook or whether or not you are correct). However, you will be expected to explain your answers or reasoning and make an effort to answer each question included on these web-based assignments. Your effort and not correctness of your answers will contribute 10% to your final grade. Participation in these assignments is usually beneficial for the students since it 1) gives students an opportunity to recall relevant material before coming to class, 2) recognize what students do and do not know, and 3) practice applying new concepts before course exams.

A link to each web-based assignment will be emailed to you. Each assignment will also be announced in class and on Blackboard. Typically, these assignments will be open weekly over the weekend, Friday – Tuesday.

## Exams.

Exams will be in person, in class in a traditional paper-based format.

All exams will have a mix of multiple-choice questions (you will get credit for correct answers only) and free-response questions (you will be asked to explain your reasoning and show your work; you will be given credit for partially correct answers as well).

**The final exam** will be comprehensive (will cover all topics discussed in the course): December 18, 8 AM (AgHill 212).

### **Tentative exam dates:**

Exam 1: September 20,

Exam 2: October 18,

Exam 3: November 15,

Final Exam: December 18, 8 AM (AgHill 212).

## Grading information

Your final grade in Physics 252 will be determined on the following basis:

Homework: 40%

Exams: 50% total (lowest exam score will be dropped, but *not* the final)

Ungraded web-based assignments: 10%

*Extra credit LON-CAPA HW problems: 3%*

Letter Grading:

89.5 to 100% = A

79.5 to 89.4% = B

69.5 to 79.4% = C

59.5 to 69.4% = D

## Health and Safety Expectations

Do not come to class if you are sick. Should any circumstances necessitate strictly online instruction, all course resources will remain accessible through Blackboard, attendance via zoom will be available.

## Copyright of Course Materials

According to NDSU Policy 190 on Intellectual property, recording the lectures in this course is prohibited with your own personal devices (without prior express approval from the instructor). All recordings and course materials posted in the Blackboard cannot be used for anything other than personal use for learning.

## Special Considerations

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 as soon as possible. Extra time on exams must be requested by formal letter from the NDSU department of disability services and administered through that department.

Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.

## Academic Responsibility

All work in this course must be completed in a manner consistent with NDSU University Senate Policy, section 335: Code of Academic Responsibility and Conduct.