

# PHYS 251: UNIVERSITY PHYSICS I (Spring 2020)

## Syllabus

Instructor:	Mahmud Ayad Sefannaser
Email address:	<a href="mailto:mahmud.sefannaser@ndsu.edu">mahmud.sefannaser@ndsu.edu</a>
Class hours:	Monday, 11:00am-12:50am, Wednesday and Friday, 11:00am - 11:50am. (Hill 130/132)
Office hours:	Monday, 1:15pm-2:15pm, Wednesday and Friday, 12:15pm - 1:15pm. (South Engineering/room 310)
Learning assistants:	José Agudelo
Number of credits:	4 credits.
Coreq:	Math 165
Required textbook:	Halliday, D.; Resnick, R. Physics: parts 1 and 2, 3 <sup>rd</sup> edition, Wiley, 1978. (You may use Fundamentals of Physics 11th Edition too)
Recommended texts:	Many others!
Grading:	50% (about 3 exams including the final) + 40% (about 14 homework assignments). 10% (in-class participation, group work, and clicker questions). A: 90-100%. B:80-89.9%. C: 70-79.9%. D: 60-69.9%. F: 0-59.9%

### **BULLETIN DESCRIPTION**

The course makes a bridge between applications to the real world and physics principles. The course is introduction to Newtonian mechanics of translational and rotational motion, work, energy, power, momentum, conservation of energy and momentum, periodic motion, waves, heat, and thermodynamics.

## **COURSE OBJECTIVES**

The main goal of this course is to enhance the student ability to understand the basic physical principles. Also, to help the student to be familiar with physics problem that he/she might face in their academic study. In addition, the student after taking this course should be able to explain basic concepts in physics.

## **BACKGROUND**

The student should be familiar with algebra, integral, derivative, and high school physics.

## **TOPICS**

In this course we will discuss the following textbook chapters:

Chapter1:	Measurement
Chapter2:	Vectors
Chapter3:	Motion in one dimension
Chapter4:	Motion in a plane
<b>EXAM-I / Monday 2-24-2020 [Class time]</b>	
Chapter5:	Particle dynamics I
Chapter6:	Particle dynamics II
Chapter7:	Work and energy
Chapter8:	Conservation of energy
<b>EXAM-II / Monday 3-30-2020 [Class time]</b>	
Chapter9:	Conservation of momentum
Chapter12:	Rotational dynamics
Chapter13:	Rotational dynamics II and the conservation of angular momentum
Chapter15:	Oscillations
<b>EXAM-III / Monday 4-27-2020 [Class time]</b>	
Chapter19:	Waves in elastic media
Chapter22:	Heat and the first law of thermodynamics
<b>FINAL EXAM / Thursday 5-14-2020 [08:00-10:00am]</b>	

## **LECTURE FORMAT**

The class will be in the form of traditional lectures that are associated with polling questions and problems. Students will be asked to vote and choose the correct answer from a multibit-choice question. You are free to use a whiteboard and calculator if needed. TurningPoint technology will be used to receive the class answers through clickers. Students can use either a TurningPoint device or app to respond to the polling questions during the session.

Consequently, students are encouraged to visit the Bookstore to have either a TurningPoint device or app. The students are encouraged to discuss with each other the possibilities of solving the

clicker question. Also, both the instructor and the LA will be willing to answer students' inquiries. Students are advised to participate and answer the questions with his/her understanding. Out of the class, all the lecture material and the textbook reading should be understood to help students to be familiar with the next lecture.

## **HOMEWORK**

You will have 14 homework assignments during the whole semester. Each homework assigned is worth 100 points and the total for 14 assignments is (14x100=1400 points). The total homework points represent 40% from the total course grade. You will have one homework with 6 problems every week. It is recommended to start doing the homework. The homework will be assigned via [LON-CAPA](#). Also, feel free to email me to discuss any difficulty that you might face with the homework.

## **EXAMS**

There are three midterm exams, 100 points for each. The midterm exam will cover the material since the last exam. Also, there is one comprehensive exam ([final](#)) that covers the whole 14 chapters. Your lowest exam of the three midterm exams will be drooped, yet not the final exam. 200 points from midterm exams and 200 points from comprehensive exam represent 50% out of the total grade. All the exams will be in the form of multiple-choice problems and you are not allowed to bring your lecture notes (**No open lecture notes**). During the exams you will be allowed to bring both pencil and scientific calculator. However, using either cell phones or laptop computers is not permitted during the exam.

## **ATTENDANCE**

According to [NDSU Policy 333 \(www.ndsu.edu/fileadmin/policy/333.pdf\)](#), attendance in classes is expected. Veterans and student service members with special circumstances or who are activated are encouraged to notify the instructor as soon as possible and are encouraged to provide Activation Orders.

## **AMERICANS WITH DISABILITIES ACT FOR STUDENTS WITH SPECIAL NEEDS**

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.

## **ACADEMIC HONESTY**

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 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](http://www.ndsu.edu/academichonesty).