

**UNIVERSITY OF VERMONT**

**Department of Physics**

**Physics 12**

**Spring 2023**

**General Information**

**Instructor:** Jason Pepe, Innovation Hall 231

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**Office Hours:** Mon, Wed 1:00-2:00 or by appointment

**Materials:**

- *Textbook:* "College Physics" by Knight, Jones & Field, 4th Edition, with MasteringPhysics registration code and etext.
- *Learning Catalytics:* a software extension of MasteringPhysics that will be used to deliver question and answer, tutorial, or simulation exercises
- Pocket calculator with trigonometric functions, scientific notation and exponential functions.
- Smartphone, Tablet or Laptop (laptop preferred): You will need a device that can support a web browser to participate in Learning Catalytics exercises and MasteringPhysics assignments.

**Course format:**

- Three 50-minute meetings per week on Mondays, Wednesdays, Fridays and one 75-minute meeting on Tuesdays. Students are expected to prepare for class by completing assigned readings and pre-flight activities, including watching videos, short assignments, and/or quizzes. Selected homework problems to be completed after class will be assigned to consolidate the students' knowledge, while balancing the additional time needed to complete the pre-class activities.

**Homework:**

Homework problems serve as illustrations of the course material and are essential towards consolidation of the students' grasp of physical principles. The course outline shows the homework assignments for each chapter.

## **Mastering Physics Homework Quizzes and Pre-Lectures:**

On most weeks, there will be a Mastering Physics online homework quiz. Late Mastering Physics assignments will not be accepted. There will be no make up quizzes. The lowest score will be dropped from the record. In addition to the homework quizzes, a Mastering Physics pre-lecture assignment for each chapter will be given.

## **Mastering Physics course identification:**

Section B (2:20 MWF 2:50 T meetings): **pepe73638**

## **Examinations:**

There will be three midterm exams based on class material, Learning Catalytics exercises, homework, and textbook material. There will also be a comprehensive final exam.

## **Course Grades:**

For each student, a score will be computed based on 100 percentage points to be distributed as follows:

- Hourly exams:  $3 \times 11 = 33\%$
- MasteringPhysics prelectures: 9%
- Learning Catalytics: 26%
- MasteringPhysics Homework Quizzes: 16%
- Final examination: 16%

## **Numerical to Letter Grade Conversion:**

Letter grades will be assigned as follows:

A range = 90 - 100

B range = 80 - 89

C range = 70 - 79

D range = 60 - 69

F = below 60

**Attendance:**

Students are expected to attend all classes and participate in group activities. A student's attendance record provides additional information for assessing a student's overall attitude in the course. It will be used for advising, for documentation in a letter of reference, etc. It is the student's responsibility to keep up with missed material, announcements, etc.

**Excuses:**

Circumstances beyond a student's control may warrant an absence. Valid excuses for such absences are notes from the academic dean, the attending physician, the team coach, the officiating clergyman, the presiding judge, the arresting officer, etc.

**Missing Hourly Exams:**

Missing a midterm exam will result in a score of zero unless the student has a valid excuse as defined above. A student with a valid excuse may be given a make-up exam at a time that is mutually convenient for the student and the instructor.

**Missing the Final:**

Missing the final examination will result in a final course grade of F unless the student has arranged with the instructor through the appropriate academic dean for an "Incomplete."

**Extra Credit:** Extra credit work will not be assigned for the course.

**STUDENTS MUST READ APPROPRIATE SECTIONS BEFORE COMING TO CLASS.**

|                                  |   |
|----------------------------------|---|
| Jan 17, 18, 20, 23, 24           | Chapter 20: <b>Electric Fields and Forces</b><br>Questions: 8,16,32,33      Problems: 1,13,18,29,41,54,58,61,68,76                          |
| Jan 25, 27, 30, 31<br>Feb 1      | Chapter 21: <b>Electric Potential</b><br>Q: 6,8,11,15,17      P: 13,17,19,33,51,60,63,72,75,82  |
| Feb 3                            | Chapter 22: <b>Current and Resistance</b><br>Q: 10,21,27      P: 11,19,23,29,54,64  |
| Feb 6, 7, 8                      | Chapter 23: <b>Electric Circuits</b><br>Q: 17,26,27,38      P: 5,16,28,35,47,66,77  |
| Feb 10, 14, 15, 17, 21, 22       | Chapter 24: <b>Magnetic Fields and Forces</b><br>Q: 13,15,18,26,30      P: 6,10,17,23,31,33,45,48,58,70                                     |
| <b>Feb 15</b>                    | <b>EXAM I - Chapters 20, 21, 22, 23 –6:40 pm</b>  |
| Feb 24, 27, 28<br>Mar 1, 3, 6, 8 | Chapter 25: <b>Electromagnetic Induction and Electromagnetic Waves</b><br>Q: 3,11,15,18,28,29,36      P: 4,12,17,20,21,36,47,54,64,65,71,74 |
| Mar 10, 21, 22, 24, 27           | Chapter 17: <b>Wave Optics</b><br>Q: 4,6,8,17      P: 1,8,21,25,31,37,46,49,57,61   |
| <b>Mar 22</b>                    | <b>EXAM II - Chapters 24, 25 - 6:40 pm</b>  |
| Mar 28, 29, 31<br>Apr 3          | Chapter 18: <b>Ray Optics</b><br>Q: 6,9,12,25,26,27      P: 7,23,35,41,45,66,69,70,72,82  |
| Apr 4, 5, 7, 11                  | Chapter 19: <b>Optical Instruments</b><br>Q: 10,17,23,24      P: 1,17,22,29,40,47,58,60   |
| Apr 12, 14, 17, 18, 19, 21       | Chapter 27: <b>Relativity</b><br>Q: 3,16,18,21      P: 5,9,13,23,32,35,40,43,65,67,70   |
| <b>Apr 12</b>                    | <b>EXAM III - Chapters 17, 18, 19 - 6:40 pm</b>   |
| Apr 24, 25, 26                   | Chapter 28: <b>Quantum Physics</b><br>Q: 4,6,12,17,38      P: 10,14,24,31,36,41,47,53   |
| Apr 28<br>May 1, 2               | Chapter 29: <b>Atoms and Molecules</b><br>Q: 6,11,19,31      P: 3,15,22,27,40,52,59,61  |
| May 3, 5                         | <b>Summary - Course Evaluation; Final Review</b>  |
| May                              | <b>Final Exam - Comprehensive – TBA</b>   |