PHYS112N
Introductory General Physics

Course Content
In this class, the continuation of PHYS111N, you will be introduced to some further core topics in physics – electricity, magnetism, light and optics and aspects of modern physics. Through lectures, labs, reading and homework problem solving you will learn how to describe simple physical processes in terms of the laws of physics in their mathematical formulation.

Prerequisite
This is an algebra-based course and without some command of this part of mathematics you will not be able to proceed in the class. You are required to have completed at least one of MATH102M, MATH162M, MATH166 or an equivalent. Furthermore, since the concepts and methods developed in Phys111N will be used regularly, it is strongly recommended that you attain a grade of C or better in PHYS111N before taking PHYS112N.

Lecture Schedule
Monday, Wednesday and Friday 12:00pm – 12:50pm, OCNPS 200

Class-time will feature a mixture of traditional lecturing, problem solving and class participation. There will be regular questions to be answered through your clicker that are designed to get you thinking about physics as we go. Because of this there will be limited time for presenting information in class so it is VITALLY IMPORTANT that you read the appropriate sections of the textbook BEFORE coming to class.

I will inform you at the end of each class what the appropriate reading for the next class will be and most classes will begin with simple clicker questions (for credit) about what you have read.

There will also be optional (but recommended) study sessions where you can get assistance with the current homework and midterms. The schedule for these will be announced in class.

Course Information
All information on the class, including slides and homework solutions will be posted on the class's Blackboard page: www.blackboard.odu.edu.
Required Materials

- **Textbook:** "(Sears & Zemansky's) College Physics, Volume Two" by Hugh D. Young, 9th edition [Addison Wesley]

- **Online Homework Access:** "MasteringPhysics" Student Access Kit
  Contains a code required to access the online homework system at [www.masteringphysics.com](http://www.masteringphysics.com)
  
  There are several options to obtain the textbook/homework access:
  
  - Chapters 17-30 are required for this class – they are available as a standalone volume or as part of the full-length textbook. In either case you will need access to [MasteringPhysics](http://www.masteringphysics.com)
  - The 8th edition of the textbook may be available in used copies and is very similar to the 9th edition – if you choose this option, or if you buy a used copy of the 9th/10th edition, you will need to also purchase access to [MasteringPhysics](http://www.masteringphysics.com) from [www.masteringphysics.com](http://www.masteringphysics.com) (for around $60)
  - there are e-text options available at [www.masteringphysics.com](http://www.masteringphysics.com)

- **Clicker:** "Turning Technologies Response Card"
  This device is available from the campus bookstore (ask at the counter) for around $50 and is required for classroom participation credit. You may already have this device from another class, if so you can reuse it here.

- **Lab:** "Physics 112 & 232 Laboratory Manual"
  This is available from the campus bookstore. You should check with your Lab TA if they require you to have any other materials.

Laboratory

**Attendance and participation is required in the laboratory portion of this course.**

**ANY STUDENT WITH MORE THAN ONE ABSENCE WILL FAIL THE ENTIRE COURSE.**

You must hand in a lab report to get credit for each session. If you cannot avoid missing a lab session, contact the instructor in advance.

You should bring with you to the lab session a scientific calculator and a copy of the laboratory manual. The lab instructor will detail the format of lab reports and the grading criteria to be applied.

**Questions regarding the lab portion of the course should be directed at your lab instructor.**
Homework

Physics is best learned by attempting to solve problems – in this way one becomes familiar with the concepts and comfortable with the mathematical methods required. Homework assignments will be set and your answers collected using the MasteringPhysics online service. You must be sure to have the Student Access Kit that comes with your copy of the course textbook – this contains a code that allows you to register at the website www.masteringphysics.com. If you have bought a used textbook you can purchase access to the homework system at www.masteringphysics.com. If you took PHYS111N last semester, your MasteringPhysics account may still be active.

Once registered with the service you should put yourself on the class-list for this course using the code course ID: SHEIKHZADA20875. More detailed instructions are available in the “Orientation” section of the class Blackboard page. It is advisable to register in this way as soon as you can.

A tentative list of MasteringPhysics homework deadlines is given below – any changes will be announced in class and posted to Blackboard.

<table>
<thead>
<tr>
<th>Date</th>
<th>Homework</th>
<th>Description</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>Mon 11th Sep.</td>
<td>HW1</td>
<td>Electrostatics</td>
<td>(through masteringphysics)</td>
</tr>
<tr>
<td>Mon 18th Sep.</td>
<td>HW2</td>
<td>Potential</td>
<td>(through masteringphysics)</td>
</tr>
<tr>
<td>Mon 25th Sep.</td>
<td>HW3</td>
<td>Capacitance</td>
<td>(through masteringphysics)</td>
</tr>
<tr>
<td>Wed 11th Oct.</td>
<td>HW4</td>
<td>Currents</td>
<td>(through masteringphysics)</td>
</tr>
<tr>
<td>Mon 23rd Oct.</td>
<td>HW5</td>
<td>Magnetism</td>
<td>(through masteringphysics)</td>
</tr>
<tr>
<td>Wed 1st Nov.</td>
<td>HW6</td>
<td>Induction</td>
<td>(through masteringphysics)</td>
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<tr>
<td>Mon 13th Nov.</td>
<td>HW7</td>
<td>Electromagnetic waves</td>
<td>(through masteringphysics)</td>
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<td>Mon 20th Nov.</td>
<td>HW8</td>
<td>Optics I</td>
<td>(through masteringphysics)</td>
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<tr>
<td>Fri 1st Dec.</td>
<td>HW9</td>
<td>Optics II</td>
<td>(through masteringphysics)</td>
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<tr>
<td>Fri 11th Dec.</td>
<td>HW10</td>
<td>Diffraction</td>
<td>(through masteringphysics)</td>
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No individual extension of assignment submission dates will be given except in truly exceptional circumstances.

Exams

There will be three midterm exams (the lowest score from the three is dropped) and a final exam. The final exam will contain questions taken from all subject areas covered in the course.

All exams are closed book. You are advised to bring along a scientific calculator. You will be permitted a formula-sheet of your own construction (both sides of a single 8.5” × 11” sheet) which may not contain any words. You must hand in your formula-sheet along with your test and you will lose points if there is anything but formulae and diagrams on your sheet.

The midterms will take place in class. Make-up exams will not be given unless there was a truly unavoidable reason for not attending the scheduled exam. Please let me know (by email) in advance if you absolutely cannot make an exam, or as soon as possible afterwards if you were unexpectedly prevented from attending.

Midterm/Final Exams: Tentative Dates

<table>
<thead>
<tr>
<th>Date</th>
<th>Exam Name</th>
<th>Chapters</th>
<th>Date</th>
<th>Time</th>
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<tbody>
<tr>
<td>Mon. 25th Sep.</td>
<td>Midterm 1</td>
<td>Chapters 17 and 18</td>
<td>12:00pm – 01:15pm</td>
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<tr>
<td>Mon. 23rd Oct.</td>
<td>Midterm 2</td>
<td>Chapters 19 and 20</td>
<td>12:00pm – 01:15pm</td>
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<tr>
<td>Fri. 1st Dec.</td>
<td>Midterm 3</td>
<td>Chapters 21, 23 and 24</td>
<td>12:00pm – 01:15pm</td>
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<tr>
<td>Fri. 15th Dec.</td>
<td>FINAL EXAM</td>
<td>(cumulative)</td>
<td>12:30pm – 3:30pm</td>
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Course Grading

Your final grade will be assembled from your course scores according to a weighting given approximately by

- Class Participation (reading quizzes, clicker questions) - 10%
- Homework - 15%
- Lab - 10%
- Midterms (best two out of three) - 35%
- Final Exam - 30%

You must receive a passing grade from your lab instructor to pass the course.

Grading Scale

The grading policy is non-competitive and lenient, but there will be no curve. A letter grade is determined only at the end of the semester.

\[

g = \begin{cases} 
A & 92 \leq A, \\
A- & 88 \leq A- < 92 , \\
B+ & 84 \leq B+ < 88 , \\
B & 80 \leq B < 84 , \\
B- & 76 \leq B- < 80 , \\
C+ & 72 \leq C+ < 76 , \\
C & 68 \leq C < 72 , \\
C- & 64 \leq C- < 68 , \\
D & 60 \leq D < 64 , \\
F & < 60 
\end{cases}
\]

Getting Help

There are a number of sources of help for this class:

- The Physics Learning Center is a place where students can get together to work on their homework and get assistance, if needed, from physics faculty and grad students. No appointment is necessary. Students in all introductory classes are encouraged to drop by the Learning Center for help on homework, lab, lecture, other course material, or just for a place to work while in the physics building. (Note: staffing of the Physics Learning Center starts the second week of classes). More info, including a detailed staffing schedule, can be found at the following link: [https://www.odu.edu/physics/resources/learning-center](https://www.odu.edu/physics/resources/learning-center)

- We may run optional (but recommended) study sessions in which you can get assistance with the current homework and the upcoming exam. The schedule for these will be announced in class.

- I will also be available by appointment in my office during the working day on Wednesdays and Fridays. Please drop me an email if you would like to meet.

Academic Honesty

You are expected to conform to the University Honor Code in all aspects of your conduct in this course.

You may work with others on the homework assignments, however, what you submit must represent your own understanding of the problem. Submitting answers online for problems that you have not worked out is cheating.

Accessing solution manuals on-line or otherwise is cheating. This includes use of services like Cramster or using Google or similar in order to find worked solutions.


**Allowing other students to copy your solutions is cheating.** You can and should help others if they ask you for help, but by explaining the solution, not by allowing copying of your solution.

**Misconduct of any form will not be tolerated.** If you are ever unsure of what is allowed, please consult with me for clarification.

**Special Accommodations**

Students are encouraged to self-disclose disabilities that have been verified by the Office of Educational Accessibility by providing Accommodation Letters to their instructors early in the semester in order to start receiving accommodations. Accommodations will not be made until the Accommodation Letters are provided to instructors each semester.