PHYS 1402: College Physics Syllabus
Dallas College Richland Campus

Contacting your instructor
Instructors typically respond to emails from students with 24 hours however over the weekend and holiday periods responses maybe delayed. Find out more about contacting your instructor.

Instructor Contact Information
Name: Olena Erhardt, PhD
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Office Phone: 972-238-6140
Office Location: Room SH227
Office Hours: T, R, 2-3 pm, Online via e-campus

Course Information
Course Title: College Physics II
Course Number: PHYS-1402
Section Number: 81001
Semester/Year: Fall/2020
Credit Hours: 4
Class Meeting Time/Location: M (only 08/24), every T, R, 2-3 pm, Online via e-campus
Certification Date: Saturday, September 5, 2020
Last Day to Withdraw: Thursday, November 12, 2020
Course Prerequisites: PHYS 1401.

Course Description
The second semester of an algebra and trigonometry - based fundamental principles of physics sequence. The principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics are studied with emphasis on problem solving. Laboratory
experiments supporting the topics are included. (3 Lec., 3 Lab.)

Coordinating Board Academic Approval Number 4008015303

Student Learning Outcomes

- Develop techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
- Demonstrate the collections, analysis, and reporting of data using the scientific method.
- Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.
- Solve problems involving the inter-relationship of fundamental charged particles, and electrical forces, fields, and currents.
- Apply Kirchhoff’s Rules to analysis of circuits with potential sources, capacitance, inductance, and resistance, including parallel and series capacitance and resistance.
- Solve problems in the electrostatic interaction of point charges through the application of Coulomb’s Law.
- Solve problems involving the effects of magnetic fields on moving charges or currents, and the relationship of magnetic fields to the currents which produce them.
- Use Faraday’s and Lenz’s laws to determine electromotive forces and solve problems involving electromagnetic induction.
- Articulate and Solve problems applying the principles of reflection, refraction, diffraction, interference, and superposition of waves.
- Solve practical problems involving optics, lenses, mirrors, and optical instruments.
- Describe the characteristics of light and the electromagnetic spectrum.

Texas Core Objectives

The College defines essential knowledge and skills that students need to develop during their college experience. These general education competencies parallel the Texas Core Objectives for Student Learning. In this course, the activities you engage in will give you the opportunity to practice two or more of the following core competencies:

1. **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. **Communication Skills** - to include effective development, interpretation, and expression of ideas through written, oral, and visual communication
3. **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal
5. **Personal Responsibility** - to include the ability to connect choices, actions, and consequences to ethical decision-making
6. **Social Responsibility** - to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities

**Required Course Materials**

If your Dallas College course requires learning materials they will be provided as part of the IncludED program (see [dcccd.edu/included](http://dcccd.edu/included)) or as free materials you can access in your online course shell.

If you opt out of the IncludED program, you are responsible for obtaining all your required learning materials by the first day of the class (for more details: [Institutional Policies](#)).


Sapling Learning online homework and tutorial system account

Lab manual on eCampus (free)

Scientific calculator

Computer with internet

**Graded Work**

The tables below provide a summary of the graded work in this course and an explanation of how your final course grade will be calculated.

**Summary of Graded Work**

<table>
<thead>
<tr>
<th>Activities</th>
<th>Weighted Percentage</th>
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<tbody>
<tr>
<td>Tests and Quizes</td>
<td>40%</td>
</tr>
<tr>
<td>Labs</td>
<td>20%</td>
</tr>
<tr>
<td>Discussions</td>
<td>20%</td>
</tr>
<tr>
<td>HWs and Assignments</td>
<td>20%</td>
</tr>
</tbody>
</table>

**TOTAL: 100%**

**Final Grade**

<table>
<thead>
<tr>
<th>Percentages</th>
<th>Letter Grade</th>
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</thead>
<tbody>
<tr>
<td>90-100%</td>
<td>A</td>
</tr>
<tr>
<td>80-89%</td>
<td>B</td>
</tr>
<tr>
<td>70-79%</td>
<td>C</td>
</tr>
<tr>
<td>60-69%</td>
<td>D</td>
</tr>
<tr>
<td>0-59%</td>
<td>F</td>
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</table>
Description of Graded Work

Homework: We will be utilizing Open Stax and Sapling Learning for online homework, it is part of your tuition. To login, always use the link found on eCampus. HWs should be handwritten.

Labs: Most of the labs will consist of a virtual experiment and a submitted, handwritten lab report, which is due at the end of day (11:55 p.m.) each Friday. The report must include a completed cover sheet and the lab results with math work shown and questions answered.

Discussions: Participation in live lectures on Black Board Collaborate. If you can’t attend a lecture you can write a good summary of missed class topic (very close to the textbook, with main formulae, laws, and sample problems.

Exams: There will be 4 term exams. The final exam is comprehensive.

Attendance and Your Final Grade
I highly recommend attending all live lectures.

Late Work Policy
Late work will only be accepted on rare occasion, with permission, and will not be accepted once it has been graded and returned to the rest of class.

Other Course Policies
Etiquette: Professional and mature behavior is expected and required at all times, both in and out of class, towards all members of the class.

Institutional Policies
Institutional Policies include information about tutoring, Disabilities Services, class drop and repeat options, Title IX, and more.

Course Schedule
Units of Instruction/Class Calendar: (Problems and Exercises are denoted with Pr.)
*Tentative Lecture, Exam, and Lab Schedule, Phys1402-81001
- This is a tentative schedule. The date and the proposed topics might be changed.
- The assigned homework is the problems of your book.

<table>
<thead>
<tr>
<th>Week #: Dates</th>
<th>Lab # Due</th>
<th>Readings &amp; Assignments</th>
<th>TEST</th>
<th>Test- Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2: 8/31 – 9/4</td>
<td>2</td>
<td>Ch 20 Electric Current, Resistance and Ohm’s Law HW Ch 20: Pr. 7, 11, 17, 29, 39, 45, 49, 55, 63, 87. Ch 21 Circuits, Bioelectricity, and DC Instruments HW Ch 21: Pr. 5, 11, 15, 23, 29, 35, 37, 45, 51, 75.</td>
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<tr>
<td>3: 9/8 – 11</td>
<td>3</td>
<td>Review for Exam 1: Chapters 18-21. Discussion of Exam 1</td>
<td>Test 1</td>
<td>Test 1 – 9/08</td>
</tr>
</tbody>
</table>
| 4: 9/14 – 18 | 4         | Ch 22 Magnetism  
HW Ch 22: Pr. 1, 3, 9, 13, 17, 25, 31, 37, 43, 59.  
Ch 23 Electromagnetic Induction, AC Circuits, and Electrical Technologies  
HW Ch 23: Pr. 5, 11, 17, 27, 31, 37, 41, 45, 49, 57. | | |
| 5: 9/21 – 25 | 5         | Ch 24 Electromagnetic Waves  
HW Ch 24: Pr. 1, 3, 9, 13, 19, 25, 31, 35, 39, 43.  
Ch 25 Geometric Optics  
HW Ch 25: Pr. 5, 9, 11, 17, 21, 27, 31, 35, 39, 51. | | |
Discussion of Exam 2 | Test 2 | Test 2 – 9/29 |
| 7: 10/5 – 9 | 7         | Ch 26 Vision and Optical Instruments  
HW Ch 26: Pr. 3, 5, 7, 11, 15, 21, 27, 31, 35, 37.  
Ch 27 Wave Optics  
HW Ch 27: Pr. 3, 7, 23, 29, 39, 41, 45, 65, 75, 97. | | |
| 8: 10/12 – 16 | 8     | Ch 28 Special Relativity  
HW Ch 28: Pr. 3, 9, 13, 19, 25, 31, 37, 41, 45, 47.  
Ch 29 Introduction to Quantum Physics  
HW Ch 29: Pr. 1, 3, 5, 13, 21, 29, 33, 39, 45, 59 | | |
| 9: 10/19 – 23 | 9     | Ch 30 Atomic Physics  
HW Ch 30: Pr. 3, 5, 9, 11, 13, 17, 19, 21, 25, 37.  
Ch 31 Radioactivity and Nuclear Physics  
HW Ch 31: Pr. 1, 3, 5, 7, 9, 11, 13, 17, 19, 21, 25. | | |
| 10: 10/26 – 30 | 10    | Review for Exam 3: Chapters 26-31  
Discussion of Exam 3 | Test 3 | Test 3 – 10/27 |
| 11: 11/2 – 6 |           | Ch 32 Medical Applications of Nuclear Physics  
HW Ch 32: Pr. 1, 3, 5, 7, 9, 11, 13, 15, 17, 19.  
Ch 33 Particle Physics  
HW Ch 33: Pr. 1, 3, 5, 7, 9, 11, 13, 15, 19, 23. | | |
| 12: 11/9 – 13 |           | Ch 34 Frontiers of Physics  
HW Ch 34: Pr. 1, 3, 7, 9, 11, 17, 23, 27, 29, 31.  
Problem Solutions on Ch 32-34 | | |
| 13: 11/16 – 20 |           | Problem Solutions on Ch 18-22  
Problem Solutions on Ch 22-25 | | |
| 14: 11/23 – 25 |           | Review for Exam 4: Chapters 32-34  
Discussion of Exam 4 | Test 4 | Test 4 – 11/24 |
| 15: 11/30 – 12/4 |           | Problem solutions and review of Ch. 26-31  
Problem Solutions on Ch 18-34 | | |
| 16: 12/7 - 12/9 |           | Study for Final Exam | Final Exam | Final Exam – 12/9 |

*All items due at 11:59 PM central time.

8/1/20 Version