Brazosport College

Syllabus for PHYS 1302 - College Physics II

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I. COURSE DESCRIPTION

PHYS 1302 College Physics II. CIP 4008015303
The second of a two-semester sequence of algebra-based introductory physics. Topics include the principles of electricity, magnetism light and modern (atomic) physics. (3 SCH, 3 lecture, 0 lab)

__________________________________    ________________________________
John Cooper                           Gary Hicks

__________________________________
Jeff Detrick

January 2017
A. **Prerequisite:** PHYS 1301 or the equivalent or approval of the division chair.  
**Required skill level:** College-level reading, writing and math.

II. **COURSE OBJECTIVES**
The general objectives of this introductory physics course are twofold: to provide the student with a clear and logical presentation of the basic concepts and principles of physics, and to strengthen an understanding of these concepts and principles through a broad range of interesting applications. In order to meet these objectives, emphasis is placed on sound physical arguments and discussions of everyday experiences. At the same time, an attempt is made to motivate the student through practical examples that demonstrate the role of physics in other disciplines. Additionally, College Physics II is a problem-solving course, and a student’s progress is demonstrated by the ability to solve problems mathematically (using algebra), and not just to quote facts, laws, or formulas.

III. **STUDENT LEARNING OUTCOMES**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Method of Assessment</th>
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<tbody>
<tr>
<td>1. Calculate the electric force vector and electric field vector at a specific location due to a given electric charge distribution.</td>
<td>The average of homework sets for chapter 15 and Test 1 must be greater than 70%.</td>
</tr>
<tr>
<td>2. Calculate the electric potential due to a given charge distribution. Make calculations involving capacitance are related factors (voltage, energy).</td>
<td>The average of homework sets for chapter 16 and Test 1 must be greater than 70%.</td>
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<tr>
<td>3. Solve problems using Ohm's law for series and parallel circuits.</td>
<td>The average of homework sets for chapter 17 and 18 and Test 1 must be greater than 70%.</td>
</tr>
<tr>
<td>4. Calculate the magnitude and direction of magnetic force on moving charges and current-carrying wires. Calculate the magnetic field created by currents in wires. Apply Faraday's Law to circuits in which the magnetic flux changes.</td>
<td>The average of homework sets for chapter 19 and 20 and Test 2 must be greater than 70%.</td>
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<tr>
<td>5. Using the principles of geometric optics, solve problems involving reflection and refraction of light. Determine the location of images formed by lenses and mirrors.</td>
<td>The average of homework sets for chapters 22 and 23 and Test 3 must be greater than 70%.</td>
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<tr>
<td>6. Apply the wave nature of light to problems concerning interference of light waves.</td>
<td>The average of homework sets for chapter 24 and Test 3 must be greater than 70%.</td>
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<tr>
<td>7. Solve problems of quantum physics such as photoelectric effect and Compton scattering.</td>
<td>The average of homework sets for chapters 27 and 28 and Test 4 must be greater than 70%.</td>
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<tr>
<td>8. Solve energy/mass equations for typical nuclear fission and nuclear fusion reactions.</td>
<td>The average of homework sets for chapters 29 and 30 and Test 4 must be greater than 70%.</td>
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IV. TEXTBOOK OR COURSE MATERIAL INFORMATION

A. Textbook

   ISBN: 978-12858584-8-7

A hard-copy of the textbook is not required. Homework is done through an online service called WebAssign. Students are required to purchase an access code. This access code allows the student to create a personal account in WebAssign which includes an e-book copy of the textbook. Students do not need to purchase the access code prior to the start of the class. Instructions regarding the WebAssign service are given during the first class meeting, and students registered in the course have a two week “grace” period (starting with the first day of class) before the code must be purchased.

Required course materials are available at the Brazosport College bookstore, on campus or online at http://www.brazosport.edu/bookstore. Students are not under any obligation to purchase a textbook from the college bookstore. The same textbook is/may also be available from an independent retailer, including an online retailer.

For Distance Education Courses include the following: Contact the Brazosport College Bookstore with a credit card for course materials. Phone: 979.230.3651. Fax: 979.230.3653. Email: bookstore@brazosport.edu. Website: http://www.brazosport.edu/bookstore.

B. Course Outline

This is a sample outline which may vary with individual instructors. It will also vary based on whether the course is a summer course or a fall/spring course. Students should contact their instructor for the outline of the course they are taking.

<table>
<thead>
<tr>
<th>Date</th>
<th>Chapter</th>
<th>Date</th>
<th>Chapter</th>
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<tbody>
<tr>
<td>Jan. 17</td>
<td>15</td>
<td>Mar. 21</td>
<td>22</td>
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<td>19</td>
<td>15</td>
<td>23</td>
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<td>Apr. 04</td>
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<td>Feb. 02</td>
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<td>07</td>
<td>18</td>
<td>11</td>
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<td>09</td>
<td>18</td>
<td>13</td>
<td>Test 3</td>
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<tr>
<td>14</td>
<td>Test 1</td>
<td>18</td>
<td>27</td>
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<td>16</td>
<td>19</td>
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<td>27</td>
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<td>28</td>
<td>20</td>
<td>May 02</td>
<td>30</td>
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<tr>
<td>Mar. 02</td>
<td>20</td>
<td>04</td>
<td>Final Exam</td>
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<tr>
<td>07</td>
<td>20</td>
<td></td>
<td>(Test 4)</td>
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<tr>
<td>09</td>
<td>Test 2</td>
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Topics for each chapter:

Chapter 15: Electric forces and electric fields.
Chapter 16: Electrical energy and capacitance.
Chapter 17: Current and resistance.
Chapter 18: Direct-current circuits.
Test 1 covers chapters 15, 16, 17, & 18.
Chapter 19: Magnetism.
Chapter 20: Induced voltages and inductance.
Test 2 covers chapters 19 & 20.
Chapter 22: Reflection and refraction of light.
Chapter 23: Mirrors and lenses.
Chapter 24: Wave optics (interference & diffraction).
Test 3 covers chapters 22, 23, & 24.
Chapter 27: Quantum physics.
Chapter 28: Atomic physics.
Chapter 29: Nuclear physics.
Chapter 30: Nuclear energy.
Test 4 covers chapters 27, 28, 29, & 30.

**Important Semester Date:**
Last Day to withdraw from classes– March 30th

V. **STUDENTS WITH DISABILITIES**
Brazosport College is committed to providing equal education opportunities to every student. Brazosport College offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software to assist students with special needs. Please contact the Special Populations Counselor, 979.230.3236, for further information.

VI. **ACADEMIC HONESTY**
Brazosport College assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the Brazosport College Student Guide for more information. This is available online at [http://www.brazosport.edu](http://www.brazosport.edu). Click on the CATALOGS AND SCHEDULES link under STUDENTS.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services.
VII. ATTENDANCE AND WITHDRAWAL POLICIES
Class attendance contributes to your final grade, but you must attend class to successfully complete the course. If you are unable to complete this course, you must complete and submit a withdrawal form with the registrar’s office. If the student decides to drop out of the class it is the responsibility of the student to initiate a withdrawal before the withdrawal deadline in order to get a “W” on their transcript. If this is not done the student will receive a grade based on test grades and class grades earned during their attendance and absence (i.e. zeros on all missed materials, exams, skills tests, and final exam).

VIII. COURSE REQUIREMENTS AND GRADING POLICY
TESTING MAKE-UP POLICY
Your grade will be determined by your work on tests, laboratory exercises, and homework.
- The average of your test grades will count 40% of the course grade.
- The average of your homework grades will count 40% of the grade.
- Laboratory performance will complete the grade 20%.

Your grade is determined according to the following scale:

\[ 90\% \leq A \leq 100\% \]; \[ 80\% \leq B < 90\% \]; \[ 70\% \leq C < 80\% \]; \[ 60\% \leq D < 70\% \]; \[ 0 \leq F < 60\% \].

Grades are assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Final Average</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>Below 60</td>
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</tbody>
</table>

A. Testing
Tests occur at the end of groups of chapters, and the test’s problems are similar to problems students have worked for homework. Tests are done in class, not online. A hand-held calculator is allowed for the test, but not a device that is internet-capable (smartphone or tablet computer). The exact number of tests, and their content, can vary by instructor.

B. Make-Up Policy
If you are absent, contact your instructor (in person, by phone, by email) as soon as you are able; do not wait until the next class meeting. You are responsible for any assignments given during your absence. If your absence occurs during a test, then a make-up test can be given at the discretion of the instructor (usually only for excused absences).

Physics 1302 College Physics II
C. Assignments
Homework will be assigned for each chapter. Homework is assigned and submitted online through WebAssign (http://www.webassign.net). Since we are progressing through the semester according to a schedule, it is important that you complete the homework on time. Each homework assignment has a due date, and is posted online with each assignment. (As a general rule, a chapter’s homework is due when we start the next chapter, or, if a test occurs before the next chapter, then the homework is due on the day of the test.)

IX. STUDENT RESPONSIBILITIES
Students are expected to fully participate in this course. The following criteria are intended to assist you in being successful in this course:

1. understand the syllabus requirements
2. use appropriate time management skills
3. communicate with the instructor
4. complete course work on time, and
5. utilize online components (such as Desire2Learn) as required.

Have a dedicated notebook for this physics class. A 3-ring loose-leaf notebook is best, though you might prefer a spiral-bound notebook (but read on…). Bring it each day to class, and take notes of the day’s discussion. Additionally, you will be given “handout pages” with extra discussions and example problems. (Inserting these handout pages into your own notes when you are taking notes in a spiral-bound notebook becomes a problem.)

Video or audio recording of class activities is prohibited, unless specific permission is given by the instructor.

X. OTHER STUDENT SERVICES INFORMATION
Information about the Library is available at http://www.brazosport.edu/library or by calling 979.230.3310.

For assistance with online courses, an open computer lab, online and make-up testing, audio/visual services, and study skills, visit Learning Services next to the Library, call 979.230.3253, or visit http://www.brazosport.edu/learningservices.

For drop-in math tutoring, the writing center, supplemental instruction and other tutoring including e-tutoring, visit the Student Success Center, call 979.230.3527, or visit http://www.brazosport.edu/studentsuccesscenter.

To contact the Physical Science and Process Technologies Department call 979.230.3618.

The Student Services provides assistance in the following:

Counseling and Advising  979.230.3040
Financial Aid  979.230.3294
Student Life  979.230.3555
To reach the Information Technology Department for computer, email, or other technical assistance call the Helpdesk at 979.230.3266.

Get the information you need – when you need it. Click http://geni.us/BRAZO to install BC Connect on your mobile device to receive reminders, explore careers, map your educational plan, be in the know about events, find out about scholarships, achieve your goals and much more.