BROOKHAVEN COLLEGE

Course Syllabus for College Physics I PHYS 1401- Sec 23250
SPRING 2015

Instructor: Godlove Fumbu
E-mail: gfumbu@dcccd.edu

Division Office: 972-860-4750
Chaz Hafey: 972-860-4766
Lecture: Sat 9:00 – 11:40 am, K-254
Lab: Sat 12:00 – 2:40 PM, K-251

Catalog Description
The first semester of an algebra and trigonometry-based physics sequence. Principles and applications of mechanics, wave motion and heat are studied. Laboratory experiments supporting the topics are included. (3 Lec, 3 lab.)

Coordinating Board Academic Approval Number 4008015303

Prerequisites
Two years of high school algebra, including trigonometry, or the equivalent. Developmental Reading 0093 or English as a Second Language (ESOL) 0044 or have met the Texas Success Initiative (TSI) standard in Reading.

Student Learning Outcomes
1. State the principles and laws of physics as they apply to mechanics, wave motion and heat.
2. Identify and use relevant equations applicable to mechanics, wave motion and heat.
3. Apply the concepts learned to solve theoretical problems and explain phenomena in the laboratory and the outside world.
4. Perform laboratory experiments that illustrate important concepts and analyze the data gathered using scientific principles.
5. Develop skills for analytical thinking that are useful for problem solving in physics and other fields.
6. Participate in enrichment activities that lead to an appreciation of how physics has developed, how physics affects other fields, and the relevance of learning physics.

Learning Outcomes from THECB
1. Determine the components of linear motion (displacement, velocity, and acceleration) and especially motion under conditions of constant acceleration.
2. Apply Newton’s laws to physical problems including gravity.
3. Solve problems using principles of energy.
4. Use principles of impulse and linear momentum to solve problems.
5. Solve problems in rotational kinematics and dynamics, including the determination of the center of mass and center of rotation for rigid bodies in motion.
6. Solve problems involving rotational and linear motion.
7. Describe the components of a wave and relate those components to mechanical vibration, sound, and decibel level.
8. Demonstrate an understanding of equilibrium, including the different types of equilibrium.
9. Discuss simple harmonic motion and its application to quantitative problems or qualitative questions.
10. Solve problems using the principles of heat and thermodynamics.
11. Solve basic fluid mechanics problems.
12. Demonstrate techniques to set up and perform experiments, collect data from those experiments, and formulate conclusions from an experiment.
13. Record experimental work completely and accurately in laboratory notebooks, and communicate experimental results clearly in written reports.

Core 2014 Objectives
PHYS 1401 is part of the Life and Physical Sciences Component Area 030.
(i) Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method.
(ii) Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.
(iii) The following four Core Objectives are addressed in this course to fulfill this requirement:
   • **Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
   • **Communication Skills:** to include effective development, interpretation and expression of ideas through written and visual communication.
   • **Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
   • **Teamwork:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

Textbooks


For Labs: Sidhwa, Anahita F.  *Lab Experiments Physics 1401/2425.*  

Course Outline
The course is divided into five units. See the course calendar on page 5 for topics included in each unit. A detailed schedule containing the objectives, dates on which they will be covered, related reading, problems and assignments is distributed separately.

Evaluation
Tests: There will be a test after each unit. Tests will include multiple choice questions, short answers and problem solving. The lowest test grade will be dropped. Students must follow the Brookhaven College code of student conduct at all times during the course and especially during testing. Dishonesty will not be tolerated.

Assessment Tests: There will be an assessment test (multiple-choice) on the theoretical concepts learned towards the end of the semester which will be graded for 50 points. There will also be an assessment of lab techniques and data analysis during the semester, graded for 50 points.
Lab experiments & Reports: There will be 10 experiments during the semester, each worth 30 points. The experiments are chosen to correlate with the lecture material as much as possible and they are designed to illustrate concepts and confirm laws. Making accurate measurements and recording and analyzing data appropriately will be required for the lab report. Format for lab reports will be discussed in lab and it is detailed in the lab manual. Lab reports are due as scheduled and late lab reports will not be accepted without permission. A student must make a passing grade in labs to pass the course.

Assignments: The schedule will contain suggested problems and questions from the textbook. Homework assignments will be due as scheduled. There will also be some open-book assignments and an assessment test during the last week of the semester. Solving problems with understanding and confidence plays an important role in Physics. Please plan to spend lots of time on problem-solving as it is vital to your success.

The final grade will be calculated as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tests (best 4 of 5)</td>
<td>400</td>
</tr>
<tr>
<td>Assessment test</td>
<td>50</td>
</tr>
<tr>
<td>Labs</td>
<td>300</td>
</tr>
<tr>
<td>Lab assessment</td>
<td>50</td>
</tr>
<tr>
<td>Assignments (HW &amp; CW)</td>
<td>200</td>
</tr>
<tr>
<td>Total</td>
<td>1000</td>
</tr>
</tbody>
</table>

Divide the total by 10 to obtain your final grade.

A = 90 to 100  B = 80 to 89  C = 70 to 79  D = 60 to 69  F = Below 60

Incomplete grades are given only when an unforeseen emergency prevents a student from completing the course work. Division chairpersons must approve all 'I' grades.

Withdrawal Policies
The deadline for withdrawing from this course is April 16 2015. If you do not file the appropriate forms by this date, you will receive a performance grade which may be an "F."

Financial Aid Statement
Students who are receiving any form of financial aid should check with the Financial Aid Office prior to withdrawing from classes as it may affect your eligibility to receive further aid and could cause you to repay for the current semester. Students who fail to attend or participate after the drop date are also subject to this policy.

Other Policies
1. Students are expected to attend class and lab regularly and complete tests and assignments on time. Please meet with me following an absence so alternate arrangements can be made for lab.
2. Students receiving financial aid must show participation prior to the certification date. Do not drop or stop attending without consulting with the Financial Aid office to prevent adverse consequences.
3. If you are a student with a disability and/or special needs who requires accommodations, please contact the Disability Support Services Office in S-136, 972-80-4673, bhcADAservices@dcccd.edu
4. If you will be absent due to a religious observance, please let your instructor know at the beginning of the semester to make alternate arrangements.
5. Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to cheating on a test, plagiarism and collusion. As a college student, you are
considered a responsible adult. Your enrollment indicates acceptance of the Dallas County Community Colleges Code of Student Conduct published in the college catalog.

6. You will be able to view your grades during the semester on eCampus and your final grade on eConnect after the instructor submits the final grade.

7. Effective Fall 2005, the Dallas County Community Colleges will charge additional tuition to students registering for the same course for a third or subsequent time since Fall 2002.

8. **Stop before you drop!** If you enrolled in a college level course after Fall 2007, you cannot drop more than 6 courses in your entire undergraduate career unless the drop qualifies as an exemption. Please check with the Advising Office in S-113 for more information.

9. The Family Educational Rights and Privacy Act (FERPA) is a Federal Law that protects students and gives you certain rights. These include the right to inspect and review education records, seek amendment of education records, consent to the disclosure of education records, and file a complaint with the FERPA Office in Washington D.C. Please check the DCCCD website under FERPA for more information.

10. NO CELL PHONES and NO TEXTING in class, lab or in the testing center. Cell phones may not be used as calculators.

11. Laptop computers may be used during class only to take notes or if you have an ebook version of the textbook.

12. The instructor reserves the right to amend the syllabus as necessary.

Policies may be accessed at
http://www.brookhavencollege.edu/employees/faculty/Documents/BCSyllabus_Addendum.pdf

**Special Help**
If you need help during the semester, it will be by appointment. Mr. Chaz Hafey is available for assistance with problem-solving during tutoring/open lab hours. His hours are posted in lab K-251. Tutoring is also available in K-255 during posted hours.
## COURSE CALENDAR

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC &amp; CHAPTER</th>
<th>LAB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 24 2015</td>
<td>Introduction Ch 1</td>
<td>Have some Pi</td>
</tr>
<tr>
<td>Jan 31</td>
<td>Kinematics in 1-D Ch 2</td>
<td>Acceleration on an Inclined plane (lab 1)</td>
</tr>
<tr>
<td>Feb 7</td>
<td>Test 1</td>
<td>Velocity &amp; acceleration (lab 2)</td>
</tr>
<tr>
<td>Feb 14</td>
<td>Kinematics in 2-D Ch 3</td>
<td>Projectile Motion (lab 3)</td>
</tr>
<tr>
<td>Feb 21</td>
<td>Newton’s Laws Ch 4</td>
<td>Force table (lab 6)</td>
</tr>
<tr>
<td>Feb 28</td>
<td>Test 2</td>
<td>Friction (lab 8)</td>
</tr>
<tr>
<td>Mar 7</td>
<td>Work, Energy, Power Ch 6</td>
<td>Interconversions of energy (lab 9)</td>
</tr>
<tr>
<td>Mar 21</td>
<td>Momentum Ch 7</td>
<td>Conservation of Momentum (lab 10)</td>
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<tr>
<td>Mar 28</td>
<td>Test 3</td>
<td></td>
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<tr>
<td>Apr 11</td>
<td>Circular Motion &amp; Gravitation Ch 5</td>
<td>Centripetal Force (lab 12)</td>
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<tr>
<td>Apr 18</td>
<td>Rotational Motion Ch 8</td>
<td>Lab assessment</td>
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<tr>
<td>Apr 25</td>
<td>Test 4</td>
<td>Standing waves (lab 14)</td>
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<tr>
<td>May 2</td>
<td>Waves &amp; Sound Ch 11, 12</td>
<td>Latent Heat of Fusion (lab 15)</td>
</tr>
<tr>
<td>May 9</td>
<td>Heat Ch 14</td>
<td>Assessment test</td>
</tr>
<tr>
<td>TBA</td>
<td>Test 5</td>
<td></td>
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</tbody>
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