Dr. Goderya: Physics 105

PHY 105 College Physics:
Class Section 10 Lab. Section 510 and 520
Syllabus- Tentative 1/13/14

Instructor: Dr. Shaukat Goderya
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E-mail: goderya@tarleton.edu
Office Hours*: MWF 11-12AM
or by appointment, or during lab period

*Due to other commitments, I may not be available on some office hours. Please call and make appointments.

Class Web Page:
The syllabus and other relevant material can be accessed through the class web page.
http://faculty.tarleton.edu/goderya/documents/Teaching/phy105/index.html

Course
This is an introduction to electricity, magnetism and optics. It is a trigonometry and algebra-based physics course for students majoring in either biology or a pre-professional field.

Student Learning Goals:
1. Acquire conceptual knowledge of electricity, magnetism and optics, and the role these topics play in their choice of careers by way of applications and examples.
2. Acquire mathematical and analytical problem solving skills: Using trigonometry, algebra and geometry. Drawing suitable diagrams, identifying relevant concept and setting up problems algebraically to synthesize equations to determine the unknowns, and to check the validity of answers (does it make sense) in correct units. Be able to solve problems that involve multiple concepts, including those learned in the prerequisite course(s). Be able to solve conceptual and numerical problems often asked in standardized test (like MCAT). The topics for this particular course are:
   a. Electric forces and fields
   b. Electric energy and capacitance
   c. Electric current and resistance
   d. Direct current circuits
   e. Magnetism and inductance
   f. Alternating current circuits
   g. Reflection and refraction of light
   h. Mirrors and lenses
   i. Optical instruments
   j. Wave optics
3. Acquire experimental skills: Students are expected to complete several laboratory experiments over topics covered in the course. In these experiments student are expected to setup up equipment, draw diagrams and/or circuits with appropriate symbols, use technology for, data collection and data analysis, calculate percentage error do elementary error analysis and prepare reports.
4. Overall ability: Students should be able to integrate the ideas covered in different topics along with ideas from geometry, trigonometry, and algebra to develop solutions to problems involving more than one idea.
Pre-requisites
Physics 104

Class Activity Materials
1. Required - Text Book. Physics The First Science by Peter Lindenfeld and Suzanne White Brahmia
2. Required – WebAssign Account: Details will be on class web page.
3. Required any good scientific calculator, Notebook or file folder for lecture notes and pencils and pen, graph paper.
4. Supplementary Text: Student Study guide for the text, Schaum’s outline for College Physics
5. Supplementary Text: College Physics, Serway and Vuille/Brooks Cole, 8th edition or later.

Class Activities/Rules/ Policies and Procedures
The class consists of two essential parts, “learning” and “assessment”. Learning occurs in Lectures, homework, laboratory and your own study sessions. Assessment is done via exams. The course grade is computed from the assessment portion of the class and not the learning portion of the class. Naturally the quality of grades and ability of students to learn are related and the student alone is in the position to decide what he/she needs to do to earn a good grade.

1. Lectures: Section 10 meets MWF from 1:00 to 1:50 PM in Science 110. Class lectures are composed of demonstrations, illustrations and inquiry based instructions. It will cover most essential concepts with representative examples in problem solving.

2. Your own Study: You are expected to put considerable time in study and investigations on your own by reading the textbook and solving problems (2-3 hours daily). No lecture notes will be provided on the class web page. Consider the possibility of making study groups from within your class mates. Some of you may need to seek additional tutoring.

3. Homework: I will assign homework’s problems on WebAssign. You are expected to complete the homework assignment to develop the confidence that you can solve the problems on your own in exams, since that is what counts the most. A small percentage of the course grade will be assigned to Homework’s. You are allowed to work on homework problems with other class students and seek help from tutors or other sources, but remember, if you don’t know how to tackle homework problems yourself, you would find the exams questions challenging. Late homework’s will be accepted but will incur penalty. It may vary homework by homework.

4. Laboratory: Activities are in Science 234 on Monday 2:00 – 4:50 PM for students in Section 510 and from 5:00 – 7:50 PM for students in section 520. Most Lab periods will be real-time; Hands-on physics experiments or computer simulations or other class related activities. The instructor will be present for guidance and facilitation only. Instructions for each lab activity will be on the class webpage. Labs may be done with group partners as there are limited numbers of setups for each lab. Each student is expected to learn how to set up the equipment and use it to complete the experiment. Makeup’s for a few missed labs will be allowed under General Exceptions (see below). I strongly advice against missing lab periods or bunking out earlier. There will be laboratory questions on the exams in which you will have to do the experiment by yourself. After each Lab, specific material will be collected from the students to determine the weight for extra credit (see details below).

5. Exams: There will be 2 exams during the semester and will be held during the class and laboratory period on the same day.
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a. **Class Exams:** The class exam will be held during the class period. The class exams will be multiple choices and it will be closed book and no notes or equation sheets will be allowed. Calculators are allowed and you will also need a number 2 pencil and a green scantron sheet to provide your answers to multiple choice questions.

b. **Lab Exam:** will be held during the lab period and will have long questions like the homework problems in which you will be expected to show a clear and complete solution of the problem. In addition there may be questions that address how physics relates to science, and society and life in general. Each student will also be asked to perform experiment(s), collect and analyze data and/or obtain results with required precision and answer questions related to laboratory experiments. Questions related to the laboratory activities will be about 40-50 percent of the Lab exam. Each student may be asked to perform a different experiment/and or questions compared to other students. Lab exams will be open book and students can use any normal calculators. Cell phones are **disallowed.** See General Exceptions for Makeup’s.

6. **Final Exams:** Final is required and comprehensive in the sense that you will get problems from all the material covered in the semester. It will be only multiple choice questions.

7. Extra Credit: You have the opportunity to earn extra credit as much as 1.5% of the total grade or more if I decide to increase it later. The weight of extra credit will be based on Lab attendance. To earn full extra credit you must satisfy the conditions 6a, and 6b, if conditions 6a is not satisfied, your extra credit will be percentage of your lab attendance.

   a. Have 90% or more of all the Labs, not counting the lab exams and
   b. At no point during the semester I have to warn you of cheating during the exams or misbehavior during the class or lab time thus disturbing the class.

8. **General Exceptions:** If you are absent in class because of a legitimate reason and subsequently cannot complete the required activities, then you need to inform me of your absence as soon as possible (hopefully in advance). I will consider each case on individual basis and on the nature of the reason. Legitimate reasons are sickness, family emergencies, and University sponsored athletic event. In these cases a legitimate excuse note from a doctor, athletics coach or parent (for family emergencies) is required. All makeup that will be allowed due to general exceptions must be completed **within 1 week** of the missed activity. Also no makeup is allowed after the thanks-giving break. There is no makeup for the final although you may be able to reschedule the exam for an earlier date.

9. **ADA accommodations:** In compliance with the American Disabilities Act (ADA), reasonable accommodations will be made for any student with documented physical or learning disabilities. 
*Students with disabilities may request appropriate accommodation by contacting the Director of Student Disability Services in the Mathematics Building, Room 201, at 254-968-9400 or at disability@tarleton.edu*

10. **Drop Policy:** A student who withdraws from a course before the thirteenth class day of a regular semester or before the fifth class day in summer term receives no grade, and the course will not be listed on that student’s permanent record. A student who withdraws from the course before the end of the tenth week of a regular semester or the fourteenth class day of a summer term receives a grade of W (TSUSH).
11. **University Closure**: In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time. For final exams specific details will be announced later and may involve determining the grades based on current performance in class.

12. **Recording Devices**: Students registered in the class have permission to do voice recording of lectures for their personal class study use. Video recording of lectures is not allowed.

13. **Academic Conduct**:

   a) Students are responsible for knowing and abiding by the policies and information contained in the Tarleton Student Handbook (TSUSH)

   b) In accordance with University’s Academic Dishonesty Policy (See TSUSH) any act of dishonesty, cheating, or plagiarism in pursuing course work will be penalized. Examples include cheating during the exam or on the final and copying answers from someone else in homework projects or laboratory report.

   c) If your classroom is equipped with computers, you should not use computers in any activity (email, internet browsing, chat, etc) during class time, unless the instructor specifically gives you special permission for doing class related work or the computers are used in conjunction with lecture materials.

   d) **Cell phone use is not allowed in lecture class or during exams**. During the lab period you can go out of the room to use your cell phone.

   e) **During the test and exams no electronic devices other than a scientific calculator will be allowed**. Storing answers in calculator memory is considered cheating. You will be allowed to bring an equation sheet.

   f) **Once the Instructors start’s the class you are expected to remain quiet and refrain from any talking with other students until the class is over. You may ask question to the instructor or make relevant comments to other student questions, or if the instructor suggest you consult with your neighbor on a question.**

   g) **It is expected that you will arrive before the class begins and stay until the hour ends. It is disrespectful to class to leave in the middle or arrive very late. Such actions usually do not gain the instructors considerations or good will.**
Grades (subject to change)
Your grade for the academic progress alert will be based on the first exam if it is given before
the grades are due. Your final grade in the class is divided into several parts according to the
following:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Comments</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework’s</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>Exams</td>
<td>2 Class Exams (2x15) =30</td>
<td>2 Lab Exams (2x15) =30</td>
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<tr>
<td>Final Exam</td>
<td>Required</td>
<td>20</td>
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<tr>
<td>Total</td>
<td></td>
<td>100</td>
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Letter Grades will be assigned according to the following scale after rounding your scores to 3
significant digits.
A 90 – 100%
B 80 – 89.9%
C 70 – 79.9%
D 60 – 69.9%
F less than 60%
I reserve the right to decrease the lower boundaries (that is your grade might increase if you are
near a boundary.

Tentative Class Calendar

<table>
<thead>
<tr>
<th>Week</th>
<th>Comments/Activities</th>
<th>Reading/Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 13 No Lab this week</td>
<td>Ch:8</td>
</tr>
<tr>
<td>2</td>
<td>Jan 20 MLK Day - No Lab this week</td>
<td>Ch:8</td>
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<tr>
<td>3</td>
<td>Jan 27 Labs Begin 30th Jan. Last Day to drop class</td>
<td>Ch:9</td>
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<tr>
<td>4</td>
<td>Feb 3</td>
<td>Ch:9</td>
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<tr>
<td>5</td>
<td>Feb 10</td>
<td>Ch:10</td>
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<tr>
<td>6</td>
<td>Feb 17</td>
<td>Ch: 10</td>
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<tr>
<td>7</td>
<td>Feb 24 Exam 1 (tentative)</td>
<td>Ch:11</td>
</tr>
<tr>
<td>8</td>
<td>Mar 3 Midterm grades due March 5th</td>
<td>Ch:11</td>
</tr>
<tr>
<td>9</td>
<td>Mar 10 Spring Break</td>
<td>Ch:11</td>
</tr>
<tr>
<td>10</td>
<td>Mar 17</td>
<td>Ch:11, Ch:12</td>
</tr>
<tr>
<td>11</td>
<td>Mar 24</td>
<td>Ch:12, Ch: 13</td>
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<td>12</td>
<td>Mar 31</td>
<td>Ch:13</td>
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<tr>
<td>13</td>
<td>Apr 7</td>
<td>Ch:13</td>
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<td>14</td>
<td>Apr 14 Friday April 18th No Class</td>
<td>Ch:13, Ch:14</td>
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<tr>
<td>15</td>
<td>Apr 21 Exam 2 (tentative)</td>
<td>Ch:14</td>
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<tr>
<td>16</td>
<td>Apr 28 Last class April 30th</td>
<td>Selected topics Ch: 15</td>
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<tr>
<td>17</td>
<td>Final Wednesday May 7th@11:30-2:00pm</td>
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