PHY2054C, College Physics - II
Fall 2008, Tu, Th 3:00 PM - 4:15 PM, Section 002, MAP 0359
Instructor: Dr. Aniket Bhattacharya
Office: MAP 322
Office Hours: Tu & Th 2:00 PM - 3:00 PM
or by appointment
Phone: 823-5206
Email: aniket@physics.ucf.edu
Web: www.physics.ucf.edu/~aniket
Teaching Assistant: Mr. Christopher Lorscher (MAP 307)
e-mail: christopher12642@aim.com
TA Office hours: Tu: 11:30 AM - 1:00 PM, W 1:00 PM - 2:30 PM

• Course Outline & Objectives:
PHY 2054C is the second of two-semester sequence in introductory physics offered primarily for students majoring in information technology, the biological science and pre-health professions. Emphasis is placed on understanding major principles, and mathematics is used to clarify concepts. Students should have a good working knowledge of algebra and trigonometry.

• Course Text & related materials:
– Text: College Physics: Vol-II (Chapter 17 - 30), Eighth Edition (required)
  Authors: Young & Geller.
  Publisher: Pearson, Addison Wesley.
– A MasteringPhysics is required as a component of the course to solve homework problems.
– Clickers will be used for more active involvement and feedback on a regular basis. The details will be discussed during the lecture.

• Course Organization & expectation:
The course is quite intense and it will require you to invest considerable amount of time in studying and problem solving. The course will consist of a set of class lectures with demonstrations. Ideally, class time will be used to clarify the concepts that you have read in the text and to work out examples to show and help avoid common pitfalls. To obtain maximum benefit from this course you should read the materials before and after they are covered in class. It is very difficult to catch up if you fall behind. Experience has shown that problem solving done in class is helpful for everybody only if the majority of the students are familiar with the topic. Class attendance is very important since some of the quizzes, test questions will be drawn from the class lectures, demonstrations, and discussions. Thus, reading the material prior to class attendance is not only required but will be helpful to yourself, and also to the rest of the class.

• Homework:
Homework will be assigned, submitted and graded online through MasteringPhysics (www.masteringphysics.com). Several new assignments will be posted each week. Please drop by my office or see the teaching assistance if you are having difficulties in doing the homework.

• Quizzes:
In general the quizzes will not be announced in advance. Quizzes will be based on previously covered material up to and including the quiz day reading assignment and lecture. It is anticipated that 10-12 quizzes will be given during the semester. The best 8-10 scores will be used to compute your quiz grade. There will be NO MAKE UP Quizzes.

• Examinations:
There will be 2 mid-term exams and a comprehensive final exam in this course. All exam grades count toward your final grade. The comprehensive final will cover all the materials covered during the lectures.
• Methods of evaluation & Grades:
The final grade will be based upon Homework, in class Quizzes, two Midterms, the comprehensive final examination and your lab grade. Tests and quizzes will assess student’s grasp of physics concept and analytical problem solving skills, using basic concepts of algebra, trigonometry, and geometry. Students are expected to be proficient in basic mathematics. The final letter grade (including $\pm$ grades) will be determined based on the following proposed breakdown:

<table>
<thead>
<tr>
<th>Homework</th>
<th>Quizzes</th>
<th>Midterm-I</th>
<th>Midterm-II</th>
<th>Final</th>
<th>Lab</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
<td>$\left(\frac{1}{6}\right) \times 100%$</td>
</tr>
</tbody>
</table>

Final grades will be given according to the following scale:

- A $> 85\%$
- $82\% \leq A- < 85\%$
- $80\% \leq B+ < 82\%$
- $78\% \leq B < 80\%$
- $75\% \leq B- < 78\%$
- $70\% \leq C+ < 74\%$
- $65\% \leq C < 70\%$
- $60\% \leq C- < 65\%$
- $50\% \leq D < 60\%$
- $F < 50\%$

• Policies:
1. For missed work, please refer to the attached “PHYSICS DEPARTMENT MISSED WORK POLICY” disclosure.
2. Questions regarding returned quizzes or tests must be brought to the instructor’s attention within 6 days.
3. Picture ID is required in quizzes and tests.
4. As one or more quizzes will be dropped from the final grade, there will be no make-up quizzes!
5. Scientific calculators with trigonometric capabilities are allowed in quizzes and tests. However, calculators must not have any pre-programmed physics information.
6. Grades are not given out in response to e-mail or telephone calls.

• Important Dates:
  - Classes begin: Aug 25
  - Withdrawal Deadline: Friday, October 17
  - Classes end Dec 06
  - Final Exam: Dec 11, Thursday, 1:00 PM - 3:50 PM

• Holidays:
  - Labor Day: Mon, Sept 01
  - Veteran’s Day, Tuesday, Nov 11
  - Thanksgiving, Nov 27-29
## Tentative Syllabus and Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Chapter(s)</th>
<th>Topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug 26- Aug 28</td>
<td>Chapter 17</td>
<td>Electric charge &amp; Coulomb’s Law</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 17</td>
<td>Electric field, field lines, potential, dipole</td>
</tr>
<tr>
<td>2</td>
<td>Sept 02 - Sept 04</td>
<td>Chapter 18</td>
<td>Potential energy, Capacitance, parallel plate capacitor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 18</td>
<td>Capacitors in series &amp; parallel, dielectrics</td>
</tr>
<tr>
<td>3</td>
<td>Sept 9 - Sept 11</td>
<td>Chapter 19</td>
<td>Current, Ohm’s law, resistances in series &amp; parallel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 19</td>
<td>Kirchhoff’s rule, electric power</td>
</tr>
<tr>
<td>4</td>
<td>Sept 16 - Sept 18</td>
<td>Chapter 19</td>
<td>Magnetic field, force, charged particle in B-field</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 20</td>
<td>Current carrying wires in B-field</td>
</tr>
<tr>
<td>5</td>
<td>Sept 23 - Sept 25</td>
<td>Chapter 20</td>
<td>Torque on a current carrying loop, solenoid</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 20</td>
<td>Ampere’s law, Exam Review</td>
</tr>
<tr>
<td>6</td>
<td>Sept 30 Oct 02</td>
<td>Chapter 21</td>
<td>Test-I (covers chapters 17, 18, 19, and 20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 21</td>
<td>EM Induction, Faraday + Lenze’s law</td>
</tr>
<tr>
<td>7</td>
<td>Oct 07 - 09</td>
<td>Chapters 21, 22</td>
<td>self &amp; mutual inductance, magnetic field energy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 22</td>
<td>Alternating current R-L, R-C, and R-L-C circuits,</td>
</tr>
<tr>
<td>8</td>
<td>Oct 14 - Oct 16</td>
<td>Chapter 22</td>
<td>Resonance in AC circuit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 22</td>
<td>EM Waves, Sinusoidal waves, energy in EM wave</td>
</tr>
<tr>
<td>9</td>
<td>Oct 21 - Oct 23</td>
<td>Chapter 23, 23</td>
<td>Light, Snell’s law of reflection &amp; refraction,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 23, 23</td>
<td>Dispersion and polarization</td>
</tr>
<tr>
<td>10</td>
<td>Oct 28 - Oct 30</td>
<td>Chapter 24, 24</td>
<td>Plane and Spherical mirror</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 24, 24</td>
<td>Concave and convex lenses</td>
</tr>
<tr>
<td>11</td>
<td>Nov 04 - Nov 06</td>
<td>Chapter 25, 25</td>
<td>Optical Instruments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 25, 25</td>
<td>Human eye, Exam review</td>
</tr>
<tr>
<td>12</td>
<td>Nov 11 Nov 13</td>
<td>Nov 11 - No classes</td>
<td>Test-II (covers chapters 21, 22, 24, &amp; 25)</td>
</tr>
<tr>
<td>13</td>
<td>Nov 18 - Nov 20</td>
<td>Chapter 26, 28</td>
<td>Interference and diffraction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 26, 28</td>
<td>The Photoelectric effect</td>
</tr>
<tr>
<td>14</td>
<td>Nov 25 Nov 27</td>
<td>Chapter 26</td>
<td>The Hydrogen Atom</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chapter 27</td>
<td>No classes</td>
</tr>
<tr>
<td>15</td>
<td>Dec 02 - Dec 04</td>
<td>Chapter 27</td>
<td>Einstein’s Special Theory of Relativity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Comprehensive Final Exam Review</td>
</tr>
<tr>
<td>16</td>
<td>Dec 11 MAP 359</td>
<td>Final Exam</td>
<td>Covers Chapters 17 - 30</td>
</tr>
</tbody>
</table>