

**University of Massachusetts, Boston, Summer, 2009**  
**NOTES ON THE SYLLABUS FOR PHYSICS 108**

Instructor: Dr. Anand T. N. Kumar  
 Email: [anand.kumar@umb.edu](mailto:anand.kumar@umb.edu)  
 Course website: <http://www.nmr.mgh.harvard.edu/~ankumar/phy108>

The textbook for this course is *Physics, Sixth Edition*, Douglas C. Giancoli (Prentice Hall, New Jersey, 2005). Optional study materials may be available at the Bookstore.

- The subject matter of the course will cover chapters 14 - 25, and chapter 27, extending from thermodynamics, electricity, magnetism, electromagnetism, electrical circuits, electromagnetic waves, light, geometrical optics, physical optics, to quantum physics. But the exact order of the material covered, and the extent each subject will be covered, might be altered.

Particularly, I prefer to teach chapters 16 – 24 first, covering electromagnetic theory and optics, since it forms a coherent unit. Chapters 14 and 15, which cover thermodynamics, will be dealt with at the end of the course, depending on the availability of time.

**Overview of the topic covered in this course:**

1. Electric charge and electric field
  2. Electric potential
  3. Electric currents
  4. DC circuits
  5. Magnetism
  6. Electromagnetic induction and Faradays law
  7. Electromagnetic waves
  8. Light: Geometrical optics
  9. The wave nature of light
  10. Optical instruments
  11. Thermodynamics (if time permits)
  12. Special relativity and quantum mechanics (if time permits)
- Lectures will fairly cover the text material although the order in which I present the lecture may not exactly follow the order in the text. You should read all the chapters in the syllabus completely, and contact me or the TA's if you have any questions. You should also work out the problems given in the text and understand them.

I will work out several problems in class. The optional problems, some of which will be worked during discussion sections, are intended to represent the range and scope of problem situations you should become familiar with. **Both the optional**

**and the assigned problems will be the basis of the problems that appear on the examinations.**

- The assigned problems, two per chapter, should be handed in on the due dates given. If slippage of the syllabus occurs, or if the schedule is changed for any other reason, due dates for homework will be changed accordingly. **Homework will never be due before the material it is based on has been covered in class.**
- There are three exams including the final. These are given in weeks 3, 5, and 6. The final exam takes place on the last class period of the semester, August 21, 2007.

### **SOME GROUND RULES FOR THIS COURSE**

- A homework assignment should be handed in on its due date. There is too little time during the summer sessions to allow late homework. It then is not graded and handed back in a timely fashion. I'll try to make homework solutions available right after an assignment is due but that doesn't always happen.
- Each student should do his or her own individual homework. Homework should not be the joint effort of two or more students. Students may, and should work together to understand homework, but what you hand in should be your own individual work. Homework that appears to be the joint effort of two or more students will not be accepted. The Physics 108 Tutors will not assist with assigned homework problems until *after* the due dates.

### **COMPOSITION OF THE FINAL GRADE**

The final grade will be determined as follows (This is subject to change depending on the overall class performance):

- A. The average score from the home works will constitute 20% of the final grade
- B. Each of the two 1-hour exams carries a weight of 20%
- C. The final 2 hour exam carries a weight of 40%

### **POLICY ON MAKE-UP EXAMS**

**Make-up exams WILL NOT be given unless the circumstances are exceptional.**

**PHY 108 SYLLABUS schedule 2009 (preliminary)**  
**Anand Kumar**

Text: *Physics, Sixth Edition*, Douglas C. Giancoli (Prentice Hall, 2005)

| <b>Week of</b> | <b>Day</b>                       | <b>Chapter:</b>   | <b>HW Problems</b> | <b>HW Due Dates</b> | <b>Comments</b>           |
|----------------|----------------------------------|---|--------------------|---------------------|---------------------------|
| 7/13/2009      | 7/13<br>7/14<br>7/15<br>7/16     | <b>16</b><br><b>16</b><br><b>17</b><br><b>18</b>                  |                    |                     |                           |
| 7/20/2009      | 7/20<br>7/21<br>7/22<br>7/23     | <b>18</b><br><b>19</b><br><b>20</b><br><b>20</b>                  |                    |                     |                           |
| 7/27/2009      | 7/27<br>7/28<br>7/29<br>7/30     | <b>Exam #1</b><br><b>20</b><br><b>21</b><br><b>21</b>             |                    |                     | → <b>Hour exam</b>        |
| 8/3/2009       | 8/3<br>8/4<br>8/5<br>8/6         | <b>21/22</b><br><b>22/23</b><br><b>23</b><br><b>23</b>            |                    |                     |                           |
| 8/10/2009      | 8/10<br>8/11<br>8/12<br>8/13     | <b>Exam #2</b><br><b>24/25</b><br><b>25</b><br><b>26 or 15</b>    |                    |                     | → <b>Hour exam</b>        |
| 8/17/2009      | 8/17<br>8/18<br>8/19<br><br>8/20 | <b>26 and review</b><br>Review<br>Review<br><br><b>Final Exam</b> |                    |                     | <b>Final is 2-hr exam</b> |