

## PHYS 122: Reading Assignment Cycle 1

Monday, January 12, 2009

### Reading assignment:

For Cycle 1 there are *ten* lectures before the first hour exam on **Friday, February 6th**. Each lecture has an associated reading assignment of selected sections from *Physics for Scientists and Engineers* Third Edition, Volume 2 by Ohanian and Markert.

**I strongly recommend that you complete each reading assignment prior to the associated lecture.** The lectures will be presented under the assumption that you have already read the assigned text. (excepting Jan 12th).

- **Wed Jan 14: Review Vector Algebra**, particularly the concept of *vector notation using unit vectors*. We will use this kind of notation all of the time in Physics 122. If you have Volume 1 of the Markert and Ohanian text, **Review Chapter 3**, for example, but especially the material on unit vectors on **pages 79 through 81**. If you do not have Volume 1 handy, the following URL has a nice discussion of these: <http://hyperphysics.phy-astr.gsu.edu/hbase/vbas.html>.

**Also: Read parts of Chapter 22:** Particularly **Sections 22.1, 22.2, and 22.3, and 22.5**. Your goal here is to understand that any time we have a set of charged particles, we can calculate the force on any given charge due to the other charges. Also, you want to be able to discern the critical properties of **insulators** and **conductors**.

**Also: Read parts of Chapter 23:** Particularly **Sections 23.1 and 23.3**. Do not read Section 23.2. You want to understand that this “thing” we call the “Electric Field” is really just a mathematical representation of “the force per unit charge on a positive point test charge.” Your goal is to be able to determine at any place in space the electric field given an arbitrary arrangement of point charges. Take a good look at the field diagrams on pages 737-738 for different distributions of point charges.

- **Fri Jan 16: Read parts of Chapter 24** – In particular read **Section 24.5 but only read page 774**.

**Also: Read parts of Chapter 25, particularly Sections 25.1 and 25.5 but only through Example 11 on page 812** Compare and contrast the concepts of Electric Potential and Potential Energy. Compare and contrast the concepts of the Electric Potential and the Electric Field.

- **Wed Jan 21: Read parts of Chapter 27** In particular read **Sections 27.1, 27.2, and 27.4** Your goal here is to get comfortable with interpreting circuit diagrams.
- **Fri Jan 23: Read parts of Chapter 28** – In particular read **Section 28.1, 28.3, 28.5, and 28.6, but do not read the subsection entitled “The Wheatstone Bridge”**. You want to get a good strong understanding of what we mean by the idea of “voltage drop” across a resistor.

- **Mon Jan 26: Read parts of Chapter 29** – In particular read **Sections 29.1 and 29.2**. Magnetic fields apply a force to moving charges. They are also created by currents.
- **Wed Jan 28: Read parts of Chapter 30** – In particular read **Sections 30.1 and 30.2**. Magnetic fields will apply force to a wire carrying current.
- **Fri Jan 30: Read parts of Chapter 31** – In particular **read Section 31.1** and **skim Section 31.2**. Your goal is to get an understanding of how Faraday's Law works.
- **Mon Feb 02: Read Parts of Chapter 33** – In particular, read **Skim Sections 33.1 and 33.2**. Don't worry about the math yet. Our goal here is to see how changing fields create waves.
- **Wed Feb 04: Review** – No reading. Review Session. Tie it together.
- **Fri Feb 06: First Hour Exam** – Cycle 1 Exam.