PHYS 212 MWF 9-9:50    S09 Study Guide for Final
Final exam will consist of multiple choice questions, regular questions, derivations, and problems.

It will cover the materials from Tests 2, 3, & 4 and Chapters 33 & 34.

Tests 2, 3, & 4

Study old Tests 2,3,and 4.

Chaps 21, 22, & 23:
Understanding and using Coulomb’s law ( ) in problem solving.
Understanding and using Gauss’ Law ($∮\_{}^{}\vec{E}∙\vec{dA}=q\_{enc}$) in problem solving.

Defining electric field and determining the net electric field due to multiple point charges.
 
Determining strength and polarity of electric charges from electric field lines.

Chaps 24, 25, & 26:

1. **Capacitors: ** ****
2. Current (i), current density (J), resistance (R), and power (P):

   
Ohm’s law: v = iR Power:   

3. Estimating the cost of electricity.

Chap 27:



Analyzing circuits using loop rule and junction rule.

Chap 28: Net force on a moving charge in electric and magnetic fields: $\vec{F}=q\vec{E}+q\vec{v}×\vec{B}$

A Charged Particle Circulating in a Magnetic Field:

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| **Chap 29: Magnetic Field of a Long Straight Wire:**  |
| http://edugen.wiley.com/edugen/courses/crs1650/art/math/halliday8019c29/math011.gif  |    |
| http://edugen.wiley.com/edugen/courses/crs1650/art/common/pixel.gif |



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| **Chap 30: Magnetic Flux:**  |
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| http://edugen.wiley.com/edugen/courses/crs1650/art/common/pixel.gif |
| **Faraday's Law of Induction** and Lenz’s law. |
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Chapters 33 & 34

1. Chapter Reading: Find the answers to chapter opening puzzlers for 33 & 34.
2. Practice WileyPlus assignments for Chapters 33 & 34.
3. Electromagnetic spectrum.

4. Reflection and refraction.



1. Total internal reflection and critical angle.



1. Use of mirror/lens equation and the equation for magnification in solving image formation problems with plane, concave, and convex mirrors and lenses.

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1. Drawing ray diagrams to show the focal point and focal length of spherical mirrors and lenses.
2. Drawing ray diagrams to show the formation of images in spherical mirrors and lenses.