The 8.02 Final Exam is scheduled for Monday May 22 from 9 am - 12 noon at the Johnson Athletic Center Track 2nd floor.

**Final Exam Preparation:** The final exam will cover everything we have discussed this semester. Although the emphasis will be on the new topics discussed since Exam 2, exam problems will involve the application of several concepts some of which have been introduced earlier in the semester: for example calculating electric fields using Gauss’s Law and calculating magnetic fields using Ampere’s Law. We suggest that you review and understand how to solve all the in-class problems, worked examples, concept questions and the Friday problem solving sessions, because those problems represent the foundation on which more complicated problems are built. We also suggest that you review the problem sets. You may find that the lecture slides provide concise summaries of longer discussions in the text and the lightboard videos may also be helpful.

There will be a set of review problems that we will work on during the W15D2 class with answer checkers.

**Final Review Sessions:** Friday May 19 in 26-152

2-4 pm
4-6 pm

**New Topics Covered Since Exam 2:**

1. dc Circuits with batteries and resistors
2. RC and RL Circuits
3. Undriven LC Circuits
4. Driven ac circuits
5. Resonance in driven RLC ac circuits
6. Maxwell-Ampere Law, and Displacement Current,
7. Maxwell’s Equations
8. Electromagnetic Plane Waves, Plane Waves and Standing Waves,
10. Poynting Vector and Energy Flow (Non radiative examples)
11. Radiation Pressure and Force
12. Radiation Pattern and Polarization for Dipole Antenna,
13. Interference and Diffraction

**Topics on Exam 1**

1. Coulomb’s Law and Electric Fields for Point Charges and Continuous Distributions of Charge
2. Gauss’s Law
3. Applications of Newton’s Second Law for Electrostatics
Topics on Exam 2

1. Current, Resistance, and Ohm’s Law
2. Magnetic Field
3. Magnetic Force
4. Magnetic Dipole Moment Vector
5. Torque and Force on a Magnetic Dipole in an External Magnetic Field
6. Calculating Magnetic Fields Using Biot-Savart Law
7. Ampere’s Law
8. Faraday’s Law
9. Mutual and Self-Induction
10. Energy Stored in Magnetic Fields

Study Guide For each of these topics, we suggest you write up a study guide that consists of three sections

Part 1: Conceptual Explanation of Key Concepts. You may want to print up Concept Questions from Class or Old Exams and add them here.

Part II: A summary of methodological approaches to problem solving. Many students do not apply enough detail and hence make errors on exam questions even though they have understood the concept. Applying the concept is much harder and you need to be very careful. You can compare your summaries with problem set solutions and in-class problem solutions to see if your summary is comprehensive enough.

Part III: Write up a set of solutions to problems that illustrate all the basic cases. You can draw from the in-class problems, and the problem sets. This part is critical. If you have enough examples that cover the concept, then when taking practice tests you have a basis of knowledge to draw on.

Reviewing Solutions You should print up and review solutions to all the in-class problems. Friday problem solving, and problem sets!

Additional Resources

Go to anyone's office hours (see website for times)
Go to Sunday tutoring in 26-152
Go to Final Exam Review Sessions