

Section # 40038

**Modern Physics Lab**

Fall, 2008

**Y. Xia**  
**276 Hannah Hall, 370-3420****Classes**

Fridays 1:30 - 5:30 pm @ 68 SEB

**Office Hours**

Fridays, by appointment

**Aims:**

- **Learn the Exciting Frontiers of Modern Physics**
- **Learn to Conduct Independent Physics Experiments**

You can view this upper-level undergraduate lab as the middle point between the introductory Phys 158 lab where all material and equipment have been prepared for you before you come to the lab and a helping hand is always available whenever you have a question, and the real world where the investigators have to do their own thinking, to make their own designs, to manufacture their own parts, and to assemble their own equipment. In this Phys 317 lab, we prepare each experiment by assembling a folder with plenty of background information and a list of the basic requirements for the experiment. We leave most details for you to 'discover' while reading the materials and trying to do the experiment *yourself*. We believe that this approach provides you with a critical thinking and hand-on independence, and better prepares you for your future real-world jobs.

You will find out that most experiments in this lab are open-ended. In other words, after you finish the basic requirements, there are always more experiments that you can do with the available equipment and new set-ups. You can either just complete the basic requirements, or choose to do more experiments (or even design your own experiment!). I guess that there will always be a time when we have to stop to take care of other things in our life; but I do hope that you will find lots of fun and exciting moments in this lab that you just want to do one more experiment or measurement!

**Course Outline:**

<i>Week</i>	<i>Activities</i>
1	Introduction, Lab Safety, Form groups, Select 1st experiment
2, 3, 4	Exp #1
5, 6, 7	Exp #2
8, 9, 10	Exp #3
11, 12, 13, 14	Exp #4, any makeup

**Format:**

- Form a group of two, and work together on any experiment.
- Choose any four experiments from the list provided.
- Do a different experiment from the other groups' at the same week session.
- Try to complete the experiment within two weeks, and finish up the report in the 3rd week.
- The lab reports are due at the following week after that experiment is completed.
  - *The total grade will be reduced by 25% for each week's delay.*
- Each student is expected to write the lab report independently.
- No final exam or other tests.
- Each experiment is worth up to 20% of the final score.
- 20% of the final score will be given according to each student's attendance, attitude, activity, motivation, independence, extra effort, etc., in doing the experiments.