

Intermediate Experimental Physics I
(aka Physics III Lab)
Fall 2016

Professor

Frank A. Moscatelli

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Office Hours: M. 1PM – 3PM

Tu. Anytime by appointment

Wed. 11AM – 12 noon

Office: Meyer 703

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Lectures: Wed. 3:15 – 4:30, Meyer 122. Recall, Intermediate Experimental Physics I is a separate, credit awarding, graded, course from Phys III. Attendance is as requires as Phys III lecture. In the lectures I will explain all the physics involved in the lab of the week and also other topics, such as error analysis, that are important in experimental physics in general.

Lab Meeting Times: Tu. 9:15 – 12:15; Wed. 1:00 – 4:00

Location: Meyer 223 or 221

Teaching Assistant:

David Mykytyn ; dwm261@nyu.edu.

Office: Meyer 537

(Labs start the week of Sept. 19th, but THERE IS a lecture on M. Sept. 12)

- There will always be a T.A. and sometimes me there to help with the labs
- Teams (2 or 3 people) can do experiment together / share data
- Everyone turns in their own lab report, but indicate your partner(s) name.
- Hand each lab report to your TA in lab section 1 week from when you do the experiment (so **first report is due week of Sept. 26rd**)
- No textbook, but plenty of info on the web (use web-search / web-encyclopedia!), lab manuals, and lecture notes

For a good grade on a lab report, want to see:

1. A well written report that shows you understood the experiment and performed it properly (8/10 points)
2. Tried something interesting not in the lab instructions (*safely, and without breaking anything!*) and tried to understand that effect (+1 point)
3. Identified the limiting factor of the equipment / procedure for the precision of the experiment (largest systematic uncertainty or statistical uncertainty), and suggested ways to improve the experiment for a better result (+1 point)

Grading:

Average of lab reports: 75%

Final take-home exam on lecture material / physics content: 25%

Intermediate Experimental Physics I
List of Experiments

| <u>Experiment</u> | <u>Week of</u> |
|--|----------------|
| 1. Ideal Gas Law | Sep 19 |
| 2. Mechanical Equivalent of Heat | Sep 26 |
| 3. Heat Engines | Oct 3 |
| 4. Coupled Pendulums | Oct 24 |
| 5. Waves on a String | Oct 31 |
| 6. Resonance Tube | Nov 6 |
| 7. Thin Lenses | Nov 14 |
| 8. Diffraction and Interference of Light | Nov 28 |
| 9. Atomic Spectroscopy | Dec 5 |

A very nice website showing the experiments with links to the manuals is here:

http://physics.nyu.edu/~physlab/GenPhysII_PhysIII/phys3.html