

Senior Laboratory

PHYS 493L, Spring 2024

Lab Time: Tuesdays & Thursdays, 8am-10:50am

Lectures: most Tuesdays (PAIS 1405)

Lab Location: PAIS 1417

Instructor: Tara Drake

Email: drakete@unm.edu

Offices: PAIS 2234 and CHTM 118B

Teaching Assistant: Ameen Zerrad

Email: azerrad151@unm.edu

Office Hours: arrange meeting with instructor or TA via email

Coming up:

Week	Tasks/Responsibilities
March 19	<ul style="list-style-type: none"><li data-bbox="738 492 1182 535">• Lab Report 2 due
March 7 – April 4	<ul style="list-style-type: none"><li data-bbox="738 622 1101 665">• Experiment 3
April 11	<ul style="list-style-type: none"><li data-bbox="738 769 1182 812">• Lab Report 3 due
April 2 – April 30	<ul style="list-style-type: none"><li data-bbox="738 928 1116 971">• Presentations

Presentations:

- **Goal:** teach your classmates about an important topic related to senior lab experiments
 - A “lesson” (rather than a report of what you did)
 - Sharing an expertise
- **Details:**
 - 20 minutes long
 - Include information you learned in an experiment(s) and/or what you researched on your own
 - Will finish with a quick assignment for your peers
 - 1-3 questions, can be analysis of data collected in lab
 - Students will spend 20 minutes working on it together and with you after your presentation.
 - This is meant to reenforce and practice the material in the lesson.

Possible presentations:

- Hyperfine structure in atoms
- Lasers (types of lasers, incl ECDLs)
- Detection of light (photomultiplication, impedance/bandwidth, photon counting, etc.)
- Doppler broadening and laser techniques
- A better single (or few) photon experiment
- Statistics of light (shot noise, squeezed light, ...)
- Propose one to me!

Presentation: preparation

1. Brainstorm topics today.
2. See me the week of March 18 with your topic and for a suggested outline.
3. Meet with me to go through your presentation in full at least once before you give it.
4. Give me the assignment on the class before you present.

Presentation: what I'm looking for

- Content:
 - Clear understanding and explanations of presented physics and data
 - Formulas, figures, etc. are explained well (intuitively/didactically).
 - Also, as with papers, figures and text must legible, and figures must have axes with units.
 - Completeness
- Presentation:
 - The information is well-organized and easy for your classmates to follow.
 - Slides have the appropriate amount of information (not too much on one slide).
- Slide format:
 - Each slide should be numbered with a descriptive title.
 - Each slide has the same format (background, text, color, etc.).
 - A title, outline, and summary slide are used.
 - A summary slide should review the 3-ish main pieces of knowledge that your classmates should take away from your presentation.
- Assignment

Practice presentations: timeline

- The presentations will be given in the last 4 weeks of class: April 2 – April 30
- You are required to give me a full practice presentation and a copy of the assignment for the class the Thursday before your presentation.

Questions?