

Senior Laboratory

PHYS 493L, Fall 2026

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

Lab Location: PAIS 1417

Lectures and Group Meetings: as needed during
10am-10:50am (PAIS 3205)

Instructor: Tara Drake

Email: drakete@unm.edu

Offices: PAIS 2234 and CHTM 118B

Teaching Assistant: Yinmiao Wang

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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:

- “Lecture” is 15 minutes long
- Can include information you learned during an experiment 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 ~10 minutes working on it together and with you after your presentation.
 - This is meant to reinforce and practice the material in the lesson.

Possible presentations:

- Hyperfine structure in atoms XX
- Lasers (types, ECDLs, coherence length)
- 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: 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 for class

Practice presentations: timeline

The final presentations will be given in the final class hour on November 3 – Nov 19. Two students will present each day.

You are required to give me a full practice presentation prior to November 3 and email me a copy of the in-class assignment 1 week before your presentation.

I will schedule both your presentation and your practice presentation time. Unfortunately, I cannot accommodate any delays/changes in schedule this year.

Coming up:

Date	Tasks/Responsibilities
October 1 (today)	Final day for experiment 1
October 6	Manuscript 1 returned
October 8	No class
October 13	Manuscript 2 due
October 15	Presentation topic due to me
October 20	Revised manuscript 1 due (option for increased grade)
November 5	Manuscript 3 due
December 3	Manuscript 4 due
December 1 & 3	No class, except by request

Questions?
