

OPTI 380A: Intermediate Optics Lab I Syllabus (Fall 2026)

Instructor:

- Prof. Yeran Bai, College of Optical Sciences, Meinel 650
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- Office hour: By appointment.

Teaching Assistants:

- Mayank Mishra mayank1@arizona.edu
- Diego Torres dtorresb@arizona.edu

Lab Schedule (Meinel 450):

Course section	Meeting time	Teaching assistant
OPTI 380A-001B	Tuesday, 2:00–4:50 p.m.	Diego Torres
OPTI 380A-001C	Tuesday, 5:30–8:20 p.m.	Mayank Mishra
OPTI 380A-001E	Wednesday, 5:00–7:50 p.m.	Diego Torres
OPTI 380A-001F	Thursday, 8:00–10:50 a.m.	Mayank Mishra
OPTI 380A-001G	Thursday, 2:00–4:50 p.m.	Mayank Mishra

Monday Lecture Sessions (noon-12:50pm, Meinel 410):

The Monday lectures will review the lab of the week and discuss issues with previous labs. Attendance is required and will be account for 10% of each lab's total points.

Recorded video lectures from a previous instructor will be available on D2L. Students are strongly encouraged to watch the relevant video before lab to develop the foundational knowledge needed for the experiment.

Course Objectives:

This lab course has been designed to closely follow OPTI 210, Physical Optics. Some materials are related to OPTI 341 Semiconductor Physics and Lasers. It provides hands-on experience with concepts taught in these courses.

Upon successful completion of this course, each student should:

- be able to apply the optical principles discussed in OPTI 210 and OPTI 341.
- be able to clearly and accurately summarize and communicate experimental procedures and results.
- be proficient with data handling and analysis, using a computer.
- learn common optical methods and procedures that are routinely used in the optics industry.
- understand the safe and proper handling of basic optical equipment.

Lab topics:

Polarization
Interference
Diffraction
Semiconductor light sources
Photo detectors

Grading

The course is graded using a total of 100 points. Final scores are rounded to the nearest whole point before letter grades are assigned.

Final course score	Letter grade
90–100 points	A
80–89 points	B
70–79 points	C
60–69 points	D
Below 60 points	E

Course Point Distribution

Course component	Points
11 regular labs, 6 points each	66
Final project report	34
Total	100

Regular Labs

Each regular lab is graded out of 100 points:

Component	Points
Lecture attendance	10
Lab cleanup	10
Video lab report	80
Total	100

Each regular lab is graded out of 100 points and then converted to its 6-point contribution to the final course grade:

Course points earned = (regular lab score ÷ 100) × 6.

Lecture Attendance

At the beginning of each lecture, students must scan the QR code displayed on the screen and submit the requested feedback within the first five minutes. This submission will be used to record lecture attendance.

Lab Cleanup

Before beginning the experiment, take a photograph of the laboratory station to document its original arrangement. After completing the experiment, return all equipment and materials to their original locations and restore the station to its initial condition. Check out with the TA before leaving the laboratory.

Video Lab Report

Video lab reports must follow the requirements provided in the separate Regular Lab Video Report Guidelines. Detailed scoring criteria are provided in the Regular Lab Video Report Grading Rubric.

Please turn in videos on YouTube. I would encourage you to make these videos public access. You will be putting a lot of work into it, and these videos are great outreach and recruiting resources for our college.

Regular Lab Video Report Deadline

The video report link is due by 11:59 p.m. one week after your scheduled lab session. You will receive your score and feedback within one week after the submission deadline.

Late-Submission Policy

Late video reports will receive a deduction of 10 points from the 80-point video report score for each calendar day after the deadline. Video reports submitted more than three calendar days late will not be accepted and will receive a score of zero unless an extension has been approved by the instructor.

For group labs, the late penalty normally applies to all team members because only one video is submitted for the group. However, documented individual circumstances will be considered when appropriate.

Students should contact the instructor or TA as soon as possible if illness, an emergency, or another serious circumstance may prevent timely submission. Approved university absences and accommodations will be honored.

Final Project

Detailed instructions and the grading rubric for the final project report will be provided in separate documents later in the semester.

Textbook:

No required text. Supplements and additional materials are available at the class website, which will be updated periodically during the semester:

D2L website: www.d2l.arizona.edu

Course Policies:

Attendance for all of your scheduled lab sessions is mandatory. If you miss a lab session, it may not be made up unless you have a documented medical or family emergency. Please contact your TA for possibly switch lab groups the week you are absent.

During laboratories, cell phone conversations should take place in the hall outside the laboratory. NO FOOD OR DRINK IS ALLOWED IN THE LAB AND CLASSROOM.

Safety

Safety is EXTREMELY important. We strongly urge you to always follow prescribed safety instructions- if you are unsure about anything, especially when dealing with high-intensity light sources (such as lasers), or with high-voltage power supplies (such as those found powering lasers or other laboratory equipment), ask someone who knows (namely the lab staff). You will receive training in how to deal with lasers and optics. However, some basic pointers to remember are listed below.

1. Laser Safety Requirements

- Never look directly into a laser source, never point laser at anyone, even low-power lasers can blind!
- Keep track of all stray light (and then block it).
- Keep all high-intensity light beams at table-level.
- Always keep your eyes a couple feet above table level. If you violate this exclusion zone, you will be asked to either leave the laboratory for the day, or you will be excluded from working on your project or laboratory exercise.
- Wear safety glasses when appropriate. You MUST wear them when working with IR and UV laser light, as well as with mercury discharge lamps and strong light sources.
- Keep your colleagues notified - tell them what you are doing so that they may protect themselves (and you). Always notify them if you turn on a laser or change the direction of the beam. Precautions also include closing the laboratory door, closing the window drapes (if appropriate), as well as turning on the laser warning light (light switch behind the chemical cabinet).
- Always listen to the suggestions of the laboratory staff and your colleagues.
- Keep your optics clean.
- Practice good common sense.
- All people working with high-voltage should work in pairs. (see high voltage safety requirements below).
- No drinking or eating is allowed in the lab. Hands must be washed before handling optics or electronics.
- You may not work in the lab without supervision of a TA.

2. High Voltage Safety Requirements

- **SHIELDING:** Live parts of all electrical equipment must be completely enclosed or otherwise guarded against accidental contact.
- **INTERLOCKING:** Where continual maintenance or adjustments must be performed, enclosing shields must be provided with interlocks which will disconnect all power to conductors and short out capacitors when the shield is removed or opened.
- **DISCONNECTS:** Provide an accessible, labeled main power disconnect switch.
- **GROUNDING:** Ground all exposed non-current carrying parts. (Metallic optical table tops should be grounded to the nearest water pipe.)
- **BONDING:** All grounded parts must be bonded to each other to keep them at the same grounded electrical potential.
- **INSULATORS:** Adjustment mechanisms must be insulated from live electrical parts or be made of nonconductive material.
- **SPACE:** A minimum of 30 inches width should be maintained on all working sides of equipment operating at 600 volts or less; 36 inches if over 600 volts.
- **WORKING ALONE:** Working alone at any time is not allowed.
- **CPR:** It is recommended that all persons working with lasers have training in cardiopulmonary resuscitation, available through the Safety Office, through the American Red Cross or through the American Heart Association.

Note: Violation of safety rules, if severe enough, may lead to automatic dismissal from the class. Such dismissible offenses include roughhousing, as well as moderate or serious injury due to careless action. Severe safety violations will lead to an automatic failing grade as well as possible action by the university as well as possible criminal liability. Some general rules follow:

For minor safety violations, you will receive a warning. After two warnings, you will be asked to leave the lab and come back on the next lab day (if it exists). If you are asked to leave due to an accumulation of minor safety violations (more than twice), you will receive an incomplete for the current lab, and therefore will not be able to receive a passing grade for the class.

Safety violations can be caused by a lack of sleep, alcohol, drug use (antihistamines, pain killers, alcohol, etc.), or emotional strife (daydreaming, family illness, etc.). Therefore, temporary dismissal from the lab is not meant to be punishment, but rather an opportunity for you to remedy what ails you. You may discuss your temporary dismissal with the lab staff AFTER the lab day. However, no excuses or arguments will be accepted at the time of dismissal - arguing will only result in disciplinary measures. So far, we have never had to dismiss a student for safety violations... please don't be the first.

Additional Information

Academic

According to the Arizona Code of Academic Integrity

Integrity

(<https://deanofstudents.arizona.edu/policies/code-academic-integrity>), “Integrity and ethical behavior are expected of every student in all academic work. This Academic Integrity principle stands for honesty in all class work, and ethical conduct in all labs and clinical assignments.” Work must be completed independently unless an assignment is explicitly designated as group work. Lab 1 is an individual assignment. Labs 2–11 and their video reports are authorized group work. All submitted work must accurately represent each student’s contribution, and all outside sources must be acknowledged.

Misconduct of any kind will be prosecuted and may result in any or all of the following:

- Reduction of grade
- Failing grade
- Referral to the Dean of Students for consideration of additional penalty, i.e. notation on a student’s transcript re. academic integrity violation, etc.

Students with a Learning Disability

Accessibility and Accommodations: *At the University of Arizona, we strive to make learning experiences as accessible as possible. If you anticipate or experience barriers based on disability or pregnancy, please contact the Disability Resource Center (520-621-3268, <https://drc.arizona.edu>) to establish reasonable accommodations.*

Information in this syllabus, other than the grade and absence policies, may be changed with reasonable advance notice by the instructor.