Instructor Information
- Prof. Hong Hua, Rm 727 (west wing)
- Email: hhua@optics.arizona.edu (Preferred method of contact)
- Phone: 520-626-8703

TA Information
- TBD
- TBD

Course Overview
OPTI471B. Advanced Optics Laboratory (2) II. Gaussian beam optics; Optical element testing; On-axis and Off-axis aberration testing; MTF measurement; Interferometry; Imaging system calibration; Human visual system.

Pre-requisites
- Opti 471A, OPTI 340

Course Objectives
- Be able to apply the optical principles discussed in the junior and senior level optics courses to experimental situations and observe laboratory phenomena;
- Develop skills in assembly and alignment of optical systems in the laboratory (students will assemble their labs themselves);
- Learn to clearly and accurately summarize and communicate experimental procedures and results;
- Learn to operate as a team.

Topics to Cover
- Gaussian beams:
  o Beam alignment
  o Propagation and profiling
  o Filtering, expanding, imaging, collimation and propagation
- Optical element testing:
  o Radius of curvature testing of optical elements with interferometers
  o Liquid crystal cells
- Aberrations and optical testing:
- Measurement of spherical aberration;
- Measurement of off-axis aberrations;
- Measurement of the Modulation Transfer Function
- Aberration testing with interferometers

- Imaging system calibration
  - Imaging system calibration
  - Image acquisition, analysis and processing
- Human visual system and perception

**Class/Laboratory Schedule**
- One 4-hour lab session per week, 15-week semester;
- One 50-minute recitation session per week.

**Text & Readings**
- No text required
- Selected readings will be assigned. They will be available for downloading through the course website.
- Instructor’s lecture notes and lab instructions will be available for downloading through the course website.

**Assignments and Grading Policy**
The final grade will be based on attendance, pre-lab assignments, lab notebooks, video presentations, and quiz.
- Pre-lab assignments (30%)
- Post-lab assignments (10%)
- Team lab notebook (15%)
- Weekly video presentation (15%)
- Quiz (20%)
- Final Lab Report (5%)
- Mandatory attendance (Lecture and lab): 5%

**Late submission policy**
- No late submission is accepted for pre-lab assignments

**Office Hours**
- Instructor: Monday: 10:30AM~Noon or by appointment if other times are needed.
- TAs: Friday morning 8~9AM, West Wing 8th floor open area
# Week-by-week lab schedules

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