Course Syllabus – Read Me!!!

Applied Optics and Optical Measurements, PHYS652A, Spring 2021

Instructor: Cosmin Blaga, Office: Cardwell 332.
Email: blaga@phys.ksu.edu
Zoom: https://ksu.zoom.us/j/9167445426
Office hours: by appointment / open door policy
Other help: Class enrollment is small. Thus, I will be able to provide you with all the help you need during the semester. For any course-related question/issue, email me. I’ll try to get back to you as soon as possible. If the issue is small, I’ll email you back. If it requires a discussion, we can set up a Zoom session.

What, when and where:
Recitations: MWF 2:30 - 3:20PM, via Zoom (at least for the first two weeks). After the mandatory university-wide online only two-week period, we will decide together if we want to continue on Zoom or switch to face to face, meeting in Cardwell 312. CW312 is the Optics lab. This class does not have a dedicated lab component, but during the semester I’m hoping we can have several labs AND a series of demonstrations.

Textbooks: Throughout the semester we will discuss a wide range of topics that unfortunately are not all covered in a single textbook. Thus, various textbooks will be used depending on the topic. I do not expect you to buy all textbooks, but there are a small number of textbooks that you should consider getting if you plan a career in optics or lasers. These textbooks are: *Optics* by Eugene Hecht (used in PGYS651 - Introduction to Optics), *Nonlinear Optics* by Robert Boyd, *Lasers* by Peter Milonni and Joseph Eberly (will be our reference textbook in PHYS741 – The Physics of Lasers) and *Fundamentals of Photonics* by B. E. A. Saleh. Other good textbooks are *Frequency-Resolved Optical Gating: The Measurement of Ultrashort Laser Pulses* by Rick Trebino, *Principles of Optics* by Max Born and Emil Wolf, and *Photonics* by Ralf Menzel.

Prerequisites: PHYS651 or equivalent.

Disclaimer: The class takes place during a pandemic that unfortunately is affecting our town and the campus community. All academic activities are under threat of cancellation and last-minute modifications. We must be flexible, understanding and compassionate and adapt quickly when health mandates change. Please be considerate to others and make an active effort to monitor communication channels set forth by the university as an institution and I as an instructor. Remember: if you are not feeling well, stay home and contact health services and get in touch with me. I will make sure you get all relevant course materials.
Topics covered:
- A review of basic concepts of interference and diffraction
- Fourier Optics
- Holography
- Optical Coherence
- Brief Introduction to Lasers
- Laser Beam Propagation and Gaussian Optics
- Introduction to Nonlinear Optics
- Introduction to Ultrafast Optics
- Basics of light-matter interactions

Tentative Exam Schedule: Midterm 1 around first week of March, Midterm 2 early April and Final during final examination week (May 10th-14th)

Grading: Final grade composition will be based on:
Two midterms– 40% of the grade (20% each)
Final exam – 25% of the grade
Homework – 25% of the grade
Lab & lab reports – 10% of the grade ← This will change if we’ll have an online-only course

Homework: Handed out every 3-4 lectures. Homeworks will be comprised of 3-4 problems which you should be able to solve in 6-8 hours. If you get stuck, email me with a picture attachment of your incomplete work. Homeworks will be due in one week. Late policy: -10% of the grade each late day, for three days. Solutions will be handed out three days after due dates. No partial credit after solutions have been posted.

Academic Honesty. Kansas State University has an Honor and Integrity System based on personal integrity, which is presumed to be sufficient assurance that, in academic matters, one's work is performed honestly and without unauthorized assistance. Undergraduate and graduate students, by registration, acknowledge the jurisdiction of the Honor and Integrity System. The policies and procedures of the Honor and Integrity System apply to all full and part-time students enrolled in undergraduate and graduate courses on-campus, off-campus, and via distance learning. A component vital to the Honor and Integrity System is the inclusion of the Honor Pledge which applies to all assignments, examinations, or other course work undertaken by students. The Honor Pledge is implied, whether or not it is stated: "On my honor, as a student, I have neither given nor received unauthorized aid on this academic work." A grade of XF can result from a breach of academic honesty. The F indicates failure in the course; the X indicates the reason is an Honor Pledge violation.

Students with Disabilities. Students with disabilities who need classroom accommodations, access to technology, or information about emergency building/campus evacuation processes should contact the Student Access Center and/or their instructor. Services are available to students with a wide range of disabilities including, but not limited to, physical disabilities, medical conditions, learning disabilities,
attention deficit disorder, depression, and anxiety. If you are a student enrolled in campus/online courses through the Manhattan or Olathe campuses, contact the Student Access Center at accesscenter@k-state.edu, 785-532-6441; for K-State Polytechnic campus, contact Julie Rowe, Diversity, Inclusion and Access Coordinator, at jarowe@ksu.edu or call 785-826-2971.

Statement Defining Expectations for Classroom Conduct. All student activities in the University, including this course, are governed by the Student Judicial Conduct Code as outlined in the Student Governing Association By Laws, Article V, Section 3, number 2. Students who engage in behavior that disrupts the learning environment may be asked to leave the class.

Statement Regarding Wearing of Face Coverings. To protect the health and safety of the K-State community, students, faculty, staff and visitors must wear face coverings over their mouths and noses in all indoor and outdoor spaces while you are on university property unless you are alone in a private office or workspace or alone outdoors. In addition, all new students are required to complete face covering training that also covers COVID-19 transmission, risk mitigation and the Every Wildcat a Wellcat pledge. Students needing accommodations may contact the Student Access Center at accesscenter@k-state.edu.

In classrooms, faculty have the right to deny a student entry into the room if the student is not wearing a face covering. Students not wearing a face covering will be reminded to do so and offered a clean face covering, if one is available. If the student does not comply, the faculty member will ask the student to leave the space, and if available, join the class remotely. As a last resort, campus police will be called. The faculty member will complete the Code of Conduct form and the Office of Student Life will look further into the issue and take the non-compliance with the request to leave into consideration of further accountability measures.

At no point should the professor or other students put themselves into an unsafe situation while attempting to enforce the face-covering policy.

Manhattan campus police: 785-532-6412
Olathe campus security guard: 913-307-7318
Kansas State Polytechnic security officer: 785-826-2909