



OSE 5041: Introduction to Wave Optics

CREOL: The College of Optics and Photonics, University of Central Florida

COURSE SYLLABUS

Instructor:	Prof. Shin-Tson Wu	Term:	Fall 2022
Office:	CREOL Rm 280	Class Meeting Days:	Mon. & Wed.
Phone:	407-823-4763	Class Meeting Hours:	10:00-11:15 AM
E-Mail:	swu@creol.ucf.edu	Class Location:	A214
Website:	http://lcd.creol.ucf.edu	Lab Location:	No Lab
Office Hours:	Date and time: 10:00-11:00 AM, Tuesdays		

I. Welcome!

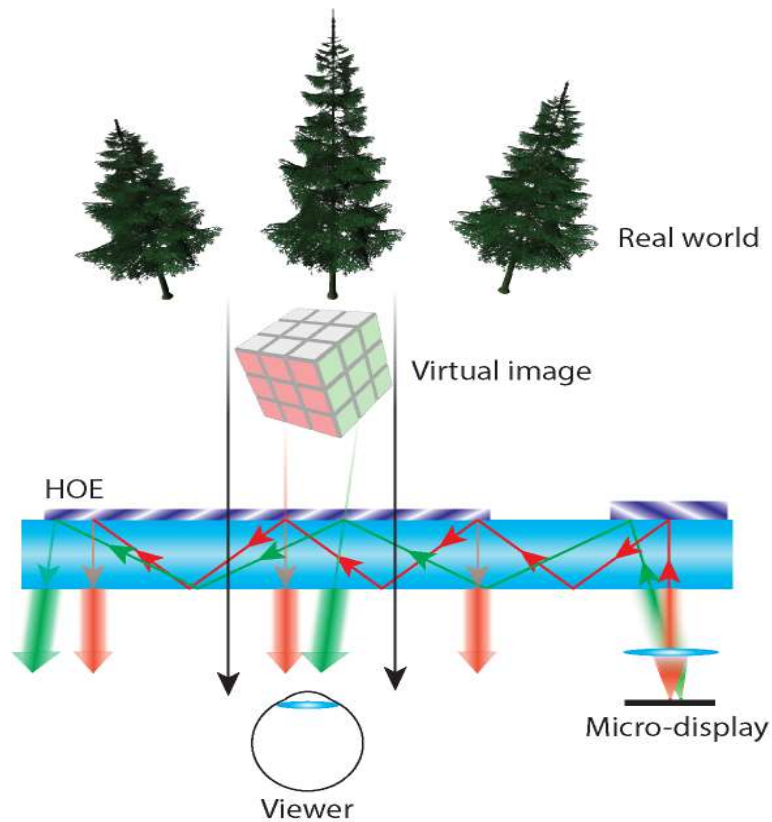
In this course, students will learn the basic properties of light, including electromagnetic theory, the propagation of light such as refraction and reflection, geometrical optics, the superposition of waves, polarization, interference, and diffraction. Students will also apply the learned knowledge to emerging display devices, such as virtual reality and augmented reality.

II. University Course Catalog Description

Wave motion, electromagnetic theory, refraction, reflection, and scattering, mirrors and lenses, polarization, interference, diffraction, and optics for augmented reality and virtual reality.

III. Course Overview

This course is intended for the first-year master students and advanced senior undergraduate students, who would like to learn the basic properties of light, electromagnetic theory, the propagation of light, such as scattering, refraction and reflection, geometrical optics including image formation, polarization, interference, and diffraction. To illustrate the useful applications, the optical systems of virtual reality and augmented reality will be discussed.



Optical system of an augmented reality display

IV. Course Objectives

- Wave motion
- Electromagnetic theory
- The propagation of light
- Geometrical optics
- The superposition of waves
- Polarization
- Interference
- Diffraction
- Augmented reality and virtual reality

V. Course Prerequisites

Students should have some college-level physics background.

VI. Course Credits

3 credit hours

VII. Required Texts and Materials

Lecture notes will be provided one day before class.

VIII. Supplementary (Optional) Texts and Materials

Reference: E. Hecht, Optics, 4th Ed. (Addison Wesley, 2002)

IX. Basis for Final Grade

Assessment	Percent of Final Grade
Homework	25%
Midterm 1 & 2	50%
Final	25%
	100%

Grading Scale (%)	
95-100	A
90-94	A-
85-89	B+
80-84	B
75-79	B-
70-74	C+
65-69	C
60-64	C-
0 - 59	F

X. Grade Dissemination

Graded tests and materials in this course will be returned individually only by request. You can access your scores at any time using "myUCF Grades" in the portal. Please note that scores returned mid-semester are unofficial grades. If you need help accessing myUCF Grades, see the online tutorial: <https://myucfgrades.ucf.edu/help/>.

XI. Course Policies: Grades

Late Work Policy:

There are no make-ups for in-class quizzes, the midterm, or the final exam. Homework turned in late will be assessed a penalty: maximum 70% of original score if it is two days late. Homework will not be accepted if overdue by more than seven days.

Extra Credit Policy: No extra credit is expected in this course.

Grades of "Incomplete":

The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

XII. Course Policies: Technology and Media

Email: Distant students can turn in homework assignments by emails. I will also send my lecture notes by email.

Webcourses: This class will be conducted face-to-face with video recording.

Laptop Usage: Students are encouraged to use a laptop during lecture. I will email students my lecture notes in pdf file. Students are welcome to download the presentation files and bring their tablets to class.

Classroom Devices: Students can bring calculators to class, but not tape recorders, or other audio devices.

XIII. Course Policies: Student Expectations

Disability Access:

The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. Students who need accommodations must be registered with Student Disability Services (<http://sds.sdes.ucf.edu/>), Ferrell Commons Room 185, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.

Financial Aid & Attendance Policy: As of Fall 2014, all faculty members are required to document students' academic activity at the beginning of each course. I will be adhering to this policy by taking attendance at each class meeting.

Professionalism Policy:

Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings.

Academic Conduct Policy:

Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (<http://www.goldenrule.sdes.ucf.edu/>) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University

XIV. Important Dates to Remember

The following dates and assignments are tentative and can be changed at the discretion of the professor.

Drop/Swap Deadline:	Friday, Aug. 26, 2022
Grade Forgiveness Deadline:	Friday, Dec. 2, 2022
Midterm Exam 1:	Wednesday, Sept. 28, 2022
Midterm Exam 2:	Wednesday, Nov. 2, 2022
Withdrawal Deadline:	Friday, Oct. 28, 2022
Final exam:	Wednesday, Dec. 7, 2022

Religious Observances

Students are expected to notify their instructor in advance if they intend to miss class to observe a holy day of their religious faith. For a current schedule of major religious holidays, see the Faculty Center's main web page under "Calendars," and for additional information, contact the Office of Diversity Initiatives at 407-823-6479.