Instructor: Dr. Otto Linsuain
Office: Frable 223
Office Hours: MW 10:00-10:50, WF. 11:00-11:50, or by appointment
Class times and places:
Lecture: WF 11:00-11:50, Frable 227;
Laboratory: M 11:00-12:50, Frable 223
Lecture and Laboratory attendance is mandatory. Minimum prerequisite: Math 141, Phys 211 and PHYS 212.


Goals and Objectives: Upon successful completion of this course, the student should:

a) have a conceptual understanding of the propagation of electromagnetic waves,
b) visualize light as an electromagnetic wave,
c) have a working knowledge of geometrical optics,
d) understand optical interference phenomena as related to the wave nature of light,
e) understand the photoelectric effect as related to the quantum nature of light,
f) have a basic knowledge of the fundamental ideas of quantum mechanics and the Bohr model of the atoms,
g) explore topics in solid state and nuclear physics.

Course contents: The (ambitious) official description for the course (taken from the online version of the Penn State bluebook at http://www.psu.edu/bulletins/bluebook/long/phys/214.htm) reads:

“Calculus-based introduction to the basic concepts of wave motion, geometrical optics, interference phenomena, photons, wave mechanics, and the structure of matter, including such topics as: electromagnetic waves: Poynting Vector, polarization and reflection, geometrical optics: mirrors, refraction, lenses, optical instruments, interference and diffraction, photons and matter waves, energy quantization, structure of matter: hydrogen atom, conduction of electrons in solids, and nuclear physics and nuclear energy.”

I have designed the course to try to touch upon all of these topics. We shall cover most of the material in chapters 33 through 42 of the book, skipping chapter 37.
Tentative course outline and exam schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Dates</th>
<th>Chapter(s)</th>
<th>Exams scheduled?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mar 14-18</td>
<td>33</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>Mar 21-25</td>
<td>34</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>Mar 28-Apr 1</td>
<td>35</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Apr 4-8</td>
<td>36</td>
<td>MidTerm Exam Apr 6</td>
</tr>
<tr>
<td>5</td>
<td>Apr 11-15</td>
<td>38, 39</td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>Apr 18-22</td>
<td>39, 41</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Apr 25-29</td>
<td>41, 42</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>May 2-6</td>
<td></td>
<td><strong>FINAL EXAM</strong> Date to be announced</td>
</tr>
</tbody>
</table>

Important notes on exams:

- In case of class cancellation because of whether conditions or any other unforeseen circumstances, any exam scheduled for that day is automatically postponed for the next class meeting.

- Please understand that Midterm Exams are meant to last one class period. Allowing extra time would be unfair to the students that must leave to attend other commitments.

- Make-up exams will not be scheduled. If you miss an exam for a valid reason, then the weight of that exam will be distributed evenly among any future midterm exams and the final. In no case will the weight be laid on a previous exam. DON’T MISS THE FINAL!!

- The Final Exam will cover material for the entire course and according to university regulations should last 110 minutes.

In addition to exams, there will be homework and quizzes and labs. The homework will be assigned weekly and will be collected and some of the problems will be graded. The quizzes will be given at the beginning of lectures, so it is crucial that you come to class on time, every time. You will also hand in laboratory reports for the experiments we do in the lab. Those will be graded and will count toward your final grades. I will say more about those in the lab.

Grades: Your percent grade will be computed using the following weights:

- Midterm Exam 1 25 %
- Homework Total 10 %
- Quizzes Total 10 %
- Labs Total 15 %
- Final Exam 40 %

100 %

Please notice that I cannot modify the grading scheme to accommodate an individual student who did not perform as he or she may have expected in a particular test. This implies that I cannot improvise extra credit projects to help you make up for a bad grade. There are, however, plenty of opportunities to improve your grade in the grading scheme as given above.

I anticipate that we will follow the schedule I have outlined here, but I may make adjustments based on what actually happens in class. Be sure to check with a classmate after an absence to see if assignments have changed. I may also change basis for the course grade; if I do so, I will so inform you in writing.
Remaining in the course after reading this syllabus will signal that you accept the possibility of changes and responsibility for being aware of them.

Penn State is committed to providing access to a quality education for all students, including those with documented disabilities. If a student has a disability and wishes an accommodation for a course, it is the student’s responsibility to obtain a University letter confirming the disability and suggesting appropriate accommodation. This letter can be requested from the campus Disability Contact Liaison, Victoria Garwood.

Students are encouraged to request accommodation early in the semester so that, once identified, reasonable accommodation can be implemented in a timely manner.

Academic Integrity: All students are expected to act with civility, personal integrity; respect other students’ dignity, rights and property; and help create and maintain an environment in which all can succeed through the fruits of their own efforts. An environment of academic integrity is requisite to respect for self and others and a civil community.

Academic integrity includes a commitment to not engage in or tolerate acts of falsification, misrepresentation or deception. Such acts of dishonesty include cheating or copying, plagiarizing, submitting another persons’ work as one’s own, using Internet sources without citation, fabricating field data or citations, “ghosting” (taking or having another student take an exam), stealing examinations, tampering with the academic work of another student, facilitating other students’ acts of academic dishonesty, etc.

Students charged with a breach of academic integrity will receive due process and, if the charge is found valid, academic sanctions may range, depending on the severity of the offense, from F for the assignment to F for the course.

The University’s statement on academic integrity, from which the above statement is drawn, is available at http://www.psu.edu/dept/oue/aappm/G-9.html