

PHY 3710**Modern Physics****Fall 2018****113 HH****Tuesday, Thursday 3:00-4:47**

Instructor: Wei Zhang, Assistant Professor, Physics Dept
<https://sites.google.com/a/oakland.edu/zwei/>

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 Office hours: Tuesday 5:00-5:45 pm or by appointment
Email is a very reliable way to communicate with me, as well as the likely way that I will use to communicate with the class. It is good to get in the habit of checking your email on a regular basis, if you don't already do so.

Textbook: *Modern Physics* (third edition) by Kenneth Krane

Topics: Chapter 1-7, and selective content from the rest chapters.

Homework: Assigned roughly bi-weekly, and usually due the following week in class.
 No late work will be accepted.

In-class examinations: There will be two in class exams on **Thursday, October 11, and Tuesday, November 13 (tentative)**. Exam is closed book, and closed notes.

Both homework and in-class exams are good practice. Homework and exams will be graded to give "partial credit". A final correct answer (or a wrong one) is NOT the only part of the grade. So please make sure your work is clear and easy to follow.

Final exam: **Tuesday, December 11, at 12pm**. Exam is closed book, and closed notes.

Your goal: LEARN the material and DEMONSTRATE your ability to use them for solving real world problems. It is important to UNDERSTAND than to just MEMORIZE.

Grades: Your grade will be based on the exams and homework as follows:

In Class Exams: 20% each, Homework: 30%, Final Exam: 30%.

The relation between the overall percentage and the grade is as follows:

50% -- 1.0, 60% -- 2.0, 75% -- 3.0, 95% -- 4.0

Letter Grade	4.0 Scale	Percent Scale	Letter Grade	4.0 Scale	Percent Scale
A	4.0	95-100	C+	2.3 – 2.6	65 – 69
A-	3.7 – 3.9	88 – 94	C	2.0 – 2.2	60 – 64
B+	3.3 – 3.6	81 – 87	C-	1.7 – 1.9	57 – 59
B	3.0 – 3.2	75 – 80	D+	1.3 – 1.6	53 – 56
B-	2.7 – 2.9	70 – 74	D	1.0 – 1.2	50 – 52
			F	0.0	<50

Schedule:

		Tuesday		Thursday
Week 1			6 _{Sept}	Introductions, overviews
Week 2	11	Black body radiation	13	Photoelectric, Compton
Week 3	18	de Broglie, 3 exp. for electron	20	Uncertainty principle
Week 4	25	Group velocity	27	Matter waves, Fourier Transform
Week 5	2 _{Oct}	Schrodinger Eq. & infinite Well	4	Potential steps, Degeneracy
Week 6	9	Review for Test 1	11	Test 1
Week 7	16	Rutherford model	18	Bohr model
Week 8	23	H atom, radial and angular	25	Spin and Zeeman
Week 9	30	Pauli principle, Lasers	1 _{Nov}	Metal, band theory, Fermi level
Week 10	6	Semiconductors, p-n junction	8	Review for Test 2
Week 11	13	Test 2	15	Application of "spin", Part 1
Week 12	20	Application of "spin", Part 2	22	No class (Thanksgiving)
Week 13	27	Catch-up day	29	Relativity 1
Week 14	4 _{Dec}	Relativity 2	6	Review
Week 15	11	Final exam, 12pm		

This schedule is tentative.

CLASS POLICIES (OAKLAND UNIVERSITY):

1. **Academic conduct policy:** All members of the academic community at Oakland University are expected to practice and uphold standards of academic integrity and honesty. Academic integrity means representing oneself and one's work honestly. Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned. Following are some examples of academic dishonesty:

a. **Cheating on examinations.** This includes using materials such as books and/or notes when not authorized by the instructor, copying from someone else's paper, helping someone else copy work, substituting another's work as one's own, theft of exam copies, or other forms of misconduct on exams.

b. **Plagiarizing the work of others.** Plagiarism is using someone else's work or ideas without giving that person credit; by doing this students are, in effect, claiming credit for someone else's thinking. Whether students have read or heard the information used, they must document the source of information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce information from the source word-for-word within quotation marks) and paraphrases (which digest the source of information and produce it in the student's own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense or select from another person's work, the ideas are still the other person's, and failure to give credit constitutes misrepresentation of the student's actual work and plagiarism of another's ideas. Buying a paper or using information from the World Wide Web or Internet without attribution and handing it in as one's own work is plagiarism.

c. **Cheating on lab reports by falsifying data or submitting data not based on the student's own work.**

d. **Falsifying records or providing misinformation regarding one's credentials.**

e. **Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs, including modifying computer files created by others and representing that work as one's own.**

2. **Add/Drops:** The university policy will be explicitly followed. It is the student's responsibility to be aware of deadline dates for dropping courses.

3. **Special Considerations:** Students with disabilities who may require special accommodations should make an appointment with campus Disability Support Services, 106 North Foundation Hall, phone 248 370-3266. Students should also bring their needs to the attention of the instructor as soon as possible by providing the "Letter of Accommodations" created by DSS. For academic help, such as study and reading skills, contact the Academic Skills/Tutoring Center, 103 North Foundation Hall, phone 248 370-4215.

4. **Excused Absence Policy:** This policy for university excused absences applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee.

Students shall inform their instructors of dates they will miss class due to an excused absence prior to the date of that anticipated absence. For activities such as athletic competitions who schedules are known prior to the start of a term, students must provide their instructors during the first week of each term a

written schedule showing days they expect to miss classes. For other university excused absences students must provide each instructor at the earliest possible time the dates that they will miss.

Make-up work

- Students are responsible for all material covered in classes that they miss, even when their absences are excused, as defined above.
- Missed classroom activities will be rescheduled at the discretion of the instructor.

Emergency Preparedness

In the event of an emergency arising on campus, the instructor will notify you of actions that may be required to ensure your safety. It is the responsibility of each student to understand the evacuation and “lockdown” guidelines to follow when an emergency is declared. These simple steps are a good place to start:

- OU uses an emergency notification system through text, email, and landline. These notifications include campus closures, evacuation, lockdowns and other emergencies. **Register for these notifications at oakland.edu/uts/emergencynotification**
- Based on the **class cellphone policy**, ensure that one cellphone is on in order to receive and share emergency notifications with the instructor in class.
- If an emergency arises on campus, call the OUPD at **248-370-3331**. Save this number in your phone, and put it in an easy-to-find spot in your contacts.
- Review protocol for evacuation, lockdown, and other emergencies via the classroom’s red books (hanging on the wall) and **oakland.edu/prepared**.
- Review with the instructor and class what to do in an emergency (evacuation, lockdown, snow emergency).