

Course Instructor: Prof. Jelena Maricic (jelena@phys.hawaii.edu, WAT-311)
Office hours: Wed: 11-12 am and per appointment

Textbooks: UNIVERSITY PHYSICS: Volume 3 from OpenStax

Course Website: <https://laulima.hawaii.edu>

Learning Outcomes

On completion successful students will be able to:

- a) Demonstrate mastery of problem solving skills in general
- b) Mastering interference and diffraction concepts
- c) Understand the basic principles of modern physics: Einstein theory of Relativity, Quantum theory of light, Particle nature of matter, Quantum mechanics in one dimension, basics of Solid State Physics, nuclear and particle physics and their applications.
- d) Develop a comprehension of the current basis of broad knowledge in Modern physics.

NOTES:

The course week starts with the Tuesday lecture. (1:30 – 2:45 pm, BIL 150). Lectures will be held every Tuesday and Thursday.

Preparation prior to EACH course session:

- a) Read the relevant sections in the textbook.
- b) Review problems (by doing them by yourself independently) discussed in the previous lecture session.
- c) Review examples in the textbook, for the material covered in previous lecture.

Weekly homework:

Homework will be assigned from the WebAssign website (required) for each chapter.
Written homework will be assigned for each chapter.
Deadline extended under special circumstances upon request.

Web Assign course code: **hawaii 5538 8095**

iClickers (required): iClickers are available at the UH Bookstore. They will be used for in-class quizzes and questions. iClickers should be brought to EVERY course session.
Answers on paper will NOT be accepted.

Week - 1 (01/07/19)

Chapter 3
Interference

Week - 2 (01/14/19)

Chapter 3
Interference

Week - 3 (01/21/19)

Chapter 4
Diffraction

Week - 4 (01/28/19)

Chapter 5
Special relativity

Week - 5 (02/04/19)

Chapter 5
Special relativity

Week - 6 (02/11/19)

Chapter 6
Photons and matter waves

MIDTERM EXAM #1

Week - 7 (02/18/19)

Chapter 6
Photons and matter waves

Week - 8 (02/25/19)

Chapter 7
Quantum mechanics

Week - 9 (03/04/19)

Chapter 7
Quantum mechanics

Week - 10 (03/11/19)

Chapter 8
Atomic structure

Week - 11 (03/25/19)

Chapter 8
Atomic structure

Week -12 (04/01/19)

Chapter 9
Condensed matter physics
MIDTERM EXAM#2

Week -13 (04/08/19)

Chapter 9

Condensed matter physics

Week -14 (04/15/19)

Chapter 10

Nuclear physics

Week -15 (04/22/19)

Chapter 11

Particle physics and cosmology

Week -16 (04/29/19)

Chapter 11

Particle physics and cosmology + review

Note: Minor changes may be made to the Syllabus whenever considered appropriate.

QUIZZES: Students use ONLY iClickers for the in-class quizzes (responses written on paper will not be accepted). These quizzes last approximately 15 minutes and consist of 3-6 multiple choice questions (A...E or A...D for most questions, and True/False for others) that can be answered in 2-3 minutes: either conceptual or simple calculation problems. The students have to work alone, with no talking during the quiz. Quizzes will take place at the beginning of lectures from time to time, to check the student preparation for the class.

In-class 2-minute problems are of a conceptual nature involving application of principles being discussed in each lecture. The questions are multiple choice, very similar to the quizzes. However, in contrast to the quizzes, students are encouraged to discuss the possible answers among themselves before clicking.

The same grading scheme is used for 2-minute problems and for quizzes: 4 points for a correct answer; 1 point for an incorrect answer (a point for participation and effort).

MIDTERMS Two in-class 75-min. midterms will be given during the term. If you miss a midterm and have a documented, valid reason for doing so, please come and discuss it with me as soon as possible. It is not enough just to send an e-mail message about your absence from a midterm. You should state in writing why you missed a midterm (the fill-out form is at the end of the syllabus). A single make-up midterm with material covering chapters 3 - 11 will be given toward the end of the term. In case that no form is received, a score of zero will automatically be assigned for the missed midterm.

TENTATIVE MIDTERM SCHEDULE

WEEK	Date/Time	Rooms
6	Tue. Or Thur. 02/12/19 or 02/14/19	In-class
12	Tue. Or Thur. 04/02/19 or 02/04/19	In-class

(NOTE: If you are going to be away on a scheduled UH-related activity and miss a midterm, it is your responsibility to discuss it with me at least two weeks before such expected absence.

FINAL EXAM: The final exam is comprehensive – it will be based on all the subject material covered in the course. However, the material covered during the second half of the term is given more emphasis.

Grading: The final course grade will be based on the following weights.

Quizzes/Midterm 1/Midterm 2	10%/25%/25%
Web Assign Homework	5% EXTRA CREDIT
Written Homework	5%
Final Exam	35%
In-class 2-minute problems	5% EXTRA CREDIT

Grade assignment guidelines:	A 90-100
	B 80 - 90
	C 70-80
	D 60-70
	F < 60

Minor adjustments to the grading scale are possible and will be applied as needed at the end of the term. Grades like A+, A-, B+, B-, C+, C-, D+, D- will also be assigned. The ranges for these grades will be determined at the end of the term, when the final grades are assigned.

PERMISSION TO TAKE THE MAKE-UP MIDTERM

Name _____

(please print)

Student ID: _____

MIDTERM missed:
(circle one)

MIDTERM-I

MIDTERM-II

Reason for missing the midterm: (please be very brief)

By submitting this form, I understand that if I miss the make-up midterm for any reason whatsoever my grade in the missed midterm will be zero.

Signature: _____