

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

Textbooks: UNIVERSITY PHYSICS: by H. D. Young and R. A. Freedman, 13th ed.
Pearson/Addison Wesley.

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, nuclear physics and its 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, MSB 114). 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.

Weekly homework:

A weekly problem set will be due each Thursday at the beginning of the class. Homework will be assigned from the *Mastering Physics* website (required). In addition, written homework due each Tuesday will be assigned weekly.

Mastering Physics course code: **MPMARICIC94670**

iClickers (required): iClickers are available at the UH Bookstore. They will be used for in-class quizzes and 2-minute problems. iClickers should be brought to **EVERY** course session. Answers on paper will NOT be accepted.

Week-1 (01/08/18)
Lectures Chapter 35
Interference

Week-2 (01/15/18)
Lectures Chapter 36
Diffraction

Week-3 (01/22/18)
Lectures Chapter 37
Special relativity

Week-4 (01/29/18)
Lectures Chapter 37
Special relativity continued

Week-5 (02/05/18)
Lectures Chapter 38
General relativity, photons, photoelectric effect, etc.

Week-6 (02/12/18)
Chapter 39

Week-7 (02/19/18)
Chapter 39
Heisenberg uncertainty principle, Bohr
model, etc
MIDTERM EXAM #1: 02/20/18, CH35-38

Week-8 (02/26/17)
Chapter 40
Quantum Mechanics

Week-9 (03/05/18)
Chapter 40
Quantum Mechanics

Week-10 (03/12/18)
Chapter 41

Atomic structure

Week -11 (03/19/18)
Lectures Chapter 41
Atomic structure

Week -12 (03/26/18)
SPRING BREAK

Week -13 (04/02/18)
Chapter 42
Molecular structure
MIDTERM EXAM#2: 04/03/18, CH39-41

Week -14 (04/09/18)
Chapter 42
Molecular structure

Week -15 (04/16/18)
Chapter 43
Nuclear physics

Week -16 (04/23/18)
Chapter 44
Particle physics and astrophysics

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 35 - 41 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	Thur., 02/20/18	In-class
12	Thur., 04/03/18	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%/ 20%/ 20%
MP Homework	10%
Written Homework	10%
Final Exam	30%
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: MIDTERM-I MIDTERM-II
(circle one)

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: _____