PHYSICS 232
Fall 2014
Waves, Optics, and Modern Physics

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General Information

Lecture Hours	3:35 – 4:25 pm Mon/Wed/Fri
Location	PHY304
Office Hours	5:00-6:00 pm Monday or by appointment PHY407A
Laboratory Hours	as scheduled for your section
Textbook	Young & Freedman, *University Physics,* 13th Edition with Modern Physics

General Course Description

This course covers fundamental concepts and applications of waves, optics, and modern physics, including chapters 14, 15, 16, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44 in the textbook.

Prerequisites

The course and text presume a familiarity with calculus and calculus concepts. A background in mathematics up to the level of Math 141-142, or equivalent, is highly recommended and is probably necessary for success in the course. PHY231 is also highly recommended before this course.

Course Repetition Policy

If you are repeating the course, please refer to the Laboratory Policy Regarding Repeating a Course (http://www.phys.utk.edu/labs/Lab%20Repeat.pdf)

Announcements, Lecture Notes, Course Updates **https://bblearn.utk.edu**

Aside from in-class discussion, the primary method of communication between you and me will be via Blackboard and/or email. This syllabus and other important information and announcements will be posted there, as well as copies of the slides used in lecture. Your grades of in-class exams will be posted in the Blackboard Grade-book, and your grades will be available for only you to see.

The homework website is entered from the tools menu on Blackboard. At the end of the semester, your homework and laboratory grades will also be posted on Blackboard, along with your final grade. To log into Blackboard, you use your university username and password. The course name is: Phys232-fa2014merged

It will be your responsibility to be aware of the content of any communication taking place in class, be it an announcement or anything related to the course material, in case you missed a class.

Grading Policy

The semester Grade will be based on a Weighted Averages of the homework assignments, the laboratory, two one-hour tests, and the final examination as follows:

Homework	**25%**
Laboratory	**25%**
Two 1-Hour In-Class Tests	**30%**
Final Examination (2-Hour test)	**20%**

Homework sets will be assigned On-Line using WebAssign. The homework website, WebAssign, is entered from the tools menu on Blackboard. One homework will be given for each chapter, when the homework will be assigned and when it will be due will be announced on class and blackboard.

Due dates for problem sets are firm. Please note: No extensions or make-up problem sets will be given. In lieu of extensions, the two lowest scores on homework sets will be dropped from the average. I generally encourage students to work together as far as homework is concerned. The goal is to use homework as one of the most effective ways of assimilating the material. Do not take advantage of the work of other people, and do not let anybody take advantage of your own work: efforts should be shared.

Laboratory attendance is strictly mandatory. Work will be graded by each Lab Instructor independently. An effort will be made to ensure a uniform grading policy between different laboratory sections. Laboratory make-ups are entirely at the Lab instructor's discretion and arrangements for such must be made with the Lab instructor directly. The laboratory exercises are an important and integral part of this course and have to be completed before a final grade will be assigned. You must complete all of the Laboratory assignments. Please note: If you fail the Laboratory part of the course, you automatically fail the entire course. You find the laboratory schedule here: http://www.phys.utk.edu/physlabs.html

The **In-Class Tests** will be open book exams. Questions and Problems on the Short Tests and Final Exam will generally NOT require only a purely numerical answer (like the homework). Short Test and Final questions will generally be similar in character to example problems in the book and example problems given in lectures. For the Short Tests and Final Exam you are required to bring a pencil and a non-programmable pocket calculator. In particular, no laptops, cell phones, or other means of communication are allowed. The **Final Exam** is mandatory. Missing the final exam is very serious and may well result in failure of the course.

NO MAKE-UP 1-HOUR TESTS WILL BE GIVEN.

No Short Tests score will be dropped and ordinarily make-up Short Texts will NOT be given. Missing the final exam is very serious and may well result in failure of the course. However, if there are extremely serious circumstances supported by proper documentation, a make-up for Short Tests and/or Final may be considered at my discretion.

Conversion to Letter Grades

A	90 - 100
A-	85 - 89
B+	80 - 84
B	75 - 79
B-	70 - 74
C+	65 - 69
C	60 - 64
C-	55 - 59
D+	50 - 54
D	45 - 49
D-	40 - 44
F	0 - 39

Textbook

We will use "University Physics with Modern Physics", by H. D. Young, R. A. Freedman. 13th edition, Addison-Wesley, ISBN-13: 978-0-321-69686-1. If you already have the previous edition (12th), you do NOT need to purchase the new edition. Nonetheless, please be aware that when referring to the text, I will implicitly refer to the content of the 13th edition. It will be your responsibility to keep track of possible changes with respect to previous editions.

Course Material

The class covers most of the materials described in Chapters 14, 15-16, 32-44 of the textbook. Anyhow, this course consists of several components: lectures, laboratories, homework problems, and reading assignments in the textbook. The material you will be expected to learn and will be tested on during the exams will be taught to you as part of all of these course components. In particular, I stress the importance of problem solving and carefully working (not just reading) your way through all the parts of the textbook. Reading the relevant chapter or sections for each week's lectures (i.e. Reading assignments) is a compulsory and vital part of the course. **The lectures will NOT just repeat the material in the textbook,** but will be rather used to discuss the course material in a variety of ways. Some lectures will follow the textbook, some other will discuss topics not covered in the textbook, and/or discuss them in a different manner.

Questions and Appeals

I encourage you to ask questions during the lecture or/and talk to me during my office hours (Monday or by appointment – just ask after class) about the subject. You can discuss with me and/or complain to me about the grading of a given assignment, be it homework, Lab grade, Short Tests or Final Exam. Any appeal will be entertained if it is raised no later than one week after the date on which the graded Exam/ Lab/ Tests /HW are made available for return to the class. After this "appeal period" of one week, exam grades will be considered final and will not be altered. Any appeal concerning a grade in the Laboratory should directly be discussed with your Lab. instructor.

For students with disabilities

If you need course adaptations or accommodations because of a documented disability, please contact the Office of Disability Services at 2227 Dunford Hall (telephone/TTY 865-974-6087; e-mail ods@utk.edu) by January 16. This will ensure that you are properly registered for services.

Academic Honesty

All work submitted by a student is expected to represent his/her own work. Students are expected to enter their own homework without assistance from others. Students are expected to perform all work in conformance with the University policies regarding Academic Honesty.

Schedule: The class meets 42 times. There will be 40 class sessions, 2 midterm exams (administered at the normal class time) and a cumulative final exam. There is no class on Mon, Sept. 1 (Labor Day), Fri, Oct. 17 (Fall break), and Fri, Nov. 28 (Thanksgiving day). The final will be given according to the university schedule (Tuesday, Dec. 9, 2:45-4:45 pm.)

The class schedule is tentative: **I reserve the right to change the class sessions when content is taught or when midterms are administered; updates will be made in class and online. One homework will be assigned for one chapter. There are 16 homeworks, the assign day and due day will be announced on class and blackboard.**

Class sessions:
1. W Aug. 20 Introduction
2-3. F Aug. 22, M Aug. 25, Chapter 14
4-5. W Aug. 27, F Aug. 29, Chapter 15
6-7. W Sep. 3, F Sep. 5, Chapter 16
8-9. M Sep. 8, W Sep. 10, Chapter 32
10. F Sep. 12, Review Chapters 14-16, 32
11. M Sep. 15 First midterm exam (Chapters 14-16, 32)

12-13. W Sep. 17, F Sep. 19, Chapter 33
14-16. M Sep. 22, W Sep. 24, F. Sep. 26, Chapter 34
17-18. M Sep. 29, W Oct. 1, Chapter 35
19-20. F Oct. 3, M Oct. 6, Chapter 36
21. W Oct. 8, Review Chapters 33-36
22. F Oct. 11 Second midterm exam (Chapters 33-36)

23-24. M Oct. 13, W Oct. 15, Chapter 37
25. M Oct. 20 Chapter 38
26-28. W Oct. 22, F Oct. 24, M Oct. 27, Chapter 39
29-30. W Oct. 29, F Nov. 31, Chapter 40
31-33. M Nov. 3, W Nov. 5, F Nov. 7, Chapter 41
34-35. M Nov. 10, W Nov. 12 Chapter 42
36. F Nov. 14, Single Crystal
37. M Nov. 17, Geometrically frustrated magnets
38-39. W Nov. 19, F Nov. 21, Chapter 43
40-41. M Nov. 24, W Nov. 26, Chapter 44
42. M Dec. 1 Review Chapters 37-44
Tuesday Dec. 9, 5:00 – 7:00 PM PHY304
TWO-HOUR CUMULATIVE FINAL (Chapters 37 - 44)