SYLLABUS P0481
Modern Physics 2
January 3, 2013

COURSE AND INSTRUCTOR INFORMATION

TERM	2132
CATALOG NBR.	0481
CLASS NBR:	11615
INSTRUCTOR:	Prof. David Jasnow
OFFICE:	206 Thaw Hall
EMAIL:	jasnow@pitt.edu
PHONE:	412-624-9029
LECTURES:	MWF 11:00 – 11:50, 11 Thaw Hall

OFFICE HOURS: Monday, Tuesday, 2:00 – 3:30 pm, and by appointment. If you come to my office at other times, I will try to help, or, if I am engaged, we can set up a time to meet.

BRIEF COURSE DESCRIPTION: This course is a continuation of P0479, Modern Physics 1. In a nutshell, in Modern Physics 2 we explore developments in physics and engineering over the past century that were built on three of the revolutions and advances of early twentieth century physics: relativity, quantum mechanics and thermal physics. As such we will explore fundamental particles and their interactions ("high energy physics"), quantum optics and solid state physics, nanoscience, quantum physics and quantum information, exotic quantum phases, astrophysics and cosmology, to name just a few "keywords."

GRADING: Your grade in this course will be determined by your performance on two in-class exams (weighted approximately 25% each), a **required**, cumulative final exam (weighted approximately 35%), and homework (approximately 15%). Content and discussions in the lectures and extra material posted on CourseWeb can appear on the exams.

Exam Schedule:
In-class Exam 1: Wednesday, Feb. 6, 2013
In-class Exam 2: Friday, March 22, 2013
Final Exam: 8:00am – 9:50am, Saturday, April 27, 2013 (Set by Registrar)

NOTE: There will be no make-up examinations. Arrangements involving a re-weighting of other exams will be made in the event of an **excused absence** (e.g., serious illness and/or hospitalization preventing the taking of the exam, accompanied by documentation).

HOMEWORK: Assignments will be posted approximately weekly on CourseWeb. These assignments should be completed and turned in **at the start of class** on their respective deadlines. You are encouraged to discuss questions with your classmates; however, you are expected to work your solutions independently. Selected solutions will be posted on CourseWeb, and, of course, you are encouraged to discuss problems at office hours. (Be prepared to explain your attempts at solution.) It is also a very good idea to practice as many problems and questions as you can in preparation for exams. Alternative textbooks are very useful for this, and I will put some alternative texts on reserve (see below).

> **NOTE:** Doing the homework problems as well as attending lectures are integral ingredients to learning the material in the course. You are expected to do or attempt all of the questions; however, each week **several (typically 3 – 4) selected problems will be graded**. Since only a subset of problems will be graded, there will be an "effort" component to your HW grade up to about 20% of each homework set.

RECOMMENDED TEXT:

Most assigned homework will come from end-of-chapter problems/questions in:
Paul A. Tipler and R. A. Llewellyn, *Modern Physics*, 6th edition (Freeman, N.Y., 2008)

I will put some additional texts on reserve in the Physical Sciences Library in Benedum Hall. The following books/texts and perhaps others will be held on library reserve in the Physical Sciences Library in Benedum Hall.

Modern Physics by Bernstein, Fishbane and Gasiorowicz (Prentice-Hall, NJ, 2000)

Modern Physics 3e by K. Krane (John Wiley & Sons, Hoboken, 2012)

Also, from time to time I may post supplementary material on CourseWeb.

PREREQUISITES and MATHEMATICS LEVEL:
PHYS 0175 (or 0476); Modern Physics 1 (PHYS0479); Physics Co-requisite: MATH 0240

STUDENTS WITH DISABILITIES: If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and Disability Resources and Services, 140 William Pitt Union, (412) 648-7890/(412) 383-7355(TTY), as early as possible this term. DRS will verify your disability and determine reasonable accommodations for this course. (Please see the Academic Policies section for this on CourseWeb.)

ACADEMIC INTEGRITY: All students and instructors in this course are expected to follow the University of Pittsburgh academic integrity guidelines. If you are not aware of

the specifics, you should obtain a copy of these guidelines from the CAS Dean's Office, 140 Thackeray Hall, or look them up online at
http://www.as.pitt.edu//fac/policies/academic-integrity
Violations of these guidelines by a student may result in a zero score for an examination or/and a failing grade for the entire course.
(Please see the Academic Policies section for this course on CourseWeb.)

APPROXIMATE SCHEDULE (for the first several weeks)**:**

WEEK	**TOPICS (CHAPTERS)**
1. January x, y, z	Quantum Statistical Physics (Ch. 8)
2.	
3	
4. January	Molecular Structure and Spectra (Ch. 9)
5.	
6.	