

PHYSICS 274
GENERAL PHYSICS III

FALL 2015 / Watanabe Hall 420 / MWF, 12:30 PM - 1:20 PM
Monday, August 24 – Friday, December 18

Instructor

Dr. Chester Vause
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Office Hours: See instructor after class to make an appointment.

Prerequisites

Phys 152 or Phys 272, and Math 243 or 253A

Textbook (Required)

University Physics, Volume 3 (13th edition), and Chapters 35-36, Volume 2 (13th edition),
Hugh Young and Roger Freedman (Pearson Addison Wesley, 2012)

Textbook Chapters

Selected topics in textbook chapters:

35-36	Wave Optics
37	Relativity
38	Photons: Light Waves Behaving as Particles
39	Particles Behaving as Waves
40	Quantum Mechanics
41	Atomic Structure
42	Molecules and Condensed Matter
43	Nuclear Physics
44	Particle Physics and Cosmology

Omitted sections in chapters to be announced in class.

Student Learning Outcomes

Among the student learning outcomes of this course are the abilities to:

- (a) Describe the interplay between experimental observations and mathematical models in the development of the physical theory of the universe
- (b) Understand the origin and necessity of the mathematical foundations of Special Relativity and Quantum Mechanics in order to explain the microscopic world
- (c) Gain experience using mathematical methods such as complex variables, and differential equations in the solution of quantum mechanical problems
- (d) Apply Special Relativity and Quantum Mechanics to explain the physics of atoms, molecules, nuclear and sub-nuclear particles

Homework Assignments

Suggested problems will be assigned. Selected problems will be graded. Some problems will be worked-out in class. Homework is 8% of the final grade total score.

Exams

Exams are closed-book, two student-generated note pages per new material (2 for Exam 1, 4 for Exam 2, 6 for Exam 3, 8 for Final Exam), and scientific calculator, only. No internet devices or electronic storage media. Exam dates are:

Exam 1	Monday	September 21, 2015
Exam 2	Monday	October 19, 2015
Exam 3	Monday	November 16, 2015
Final Exam	Monday	December 14, 2015, 12:00PM-2:00PM

Each Exam (including the Final Exam) is based on material covered since the previous Exam. Each Exam is worth 23% of the final grade total score:

$$\text{TOTAL SCORE}(\%) = 23\%(\text{EX1}(\%) + \text{EX2}(\%) + \text{EX3}(\%) + \text{FNL}(\%)) + 8\% \text{HMWK}(5)$$

Grade Scale

Letter grade is determined from the total score according to the following scale:

A- (86%-90%)	A (91%-95%)	A+ (96%-100%)
B- (61%-70%)	B (71%-80%)	B+ (81%-85%)
C- (31%-40%)	C (41%-50%)	C+ (51%-60%)
	F (0%-20%)	D (21%-30%)

NO INCOMPLETE GRADE GIVEN

NOTICE

Be prepared to take the tests in-class as assigned. This is not negotiable. If you have time conflicts, decide if this course is your first priority. I do not “work around” student’s personal plans (travel and otherwise) and schedules.

This course is a lecture format. If you come to class, plan to stay. Excessive coming and going will not be tolerated. If you are late, enter quietly through the back door. Do not disturb the class.

No electronic recording and no electronic storage of any kind of lectures and lecture board writing.

No internet devices (electronic smart phones, pads/tablets, computers, etc.). Turn off your wireless telephones, etc., and PUT THESE AWAY. Do not attend to these during class (no texting, etc.) as such behavior is distracting to the instructor and your classmates.