

Course Outline

PHYSICS 103

Spring 2013

Instructor: Trevor A. Tyson
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Course Web Page: <http://web.njit.edu/~tyson/physics103.html>

Office Hours: Tuesday 3:00 PM – 4:00 PM
Thursday 1:00 PM – 2:00 PM
or by appointment

Lecture	PHYS 103-002, 004	Tiernan Lecture Hall – 2	Thursday	11:30 AM -12:55 PM
Lecture / Recitation	PHYS 103-002 -004	Tiernan 113 Tiernan 105	Tuesday Tuesday	8:30 AM– 9:55 AM 4:00 PM – 5:25 PM

COURSE MATERIAL

Course Materials : **Textbook:** College Physics, by Serway/Faughn/Vuille, NJIT Phys 103 (The chapters for this custom edition are extracted from the eighth edition of College Physics)
Electronic Homework: Be sure that your textbook is sold bundled with a WebAssign access coupon. Each student must enroll in the course specified by his/her instructor. Homework assignments will be posted on-line in WebAssign Students login, download and solve the assigned problems, and submit answers to the automated grading system. (<http://www.webassign.net>)

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COURSE REQUISITES

Prerequisite: Phys 102

Laboratory Course: The associated laboratory course, Physics 103 A, must be taken concurrently unless you have previously taken and passed Physics 103 A. The grading for the laboratory is separate from the course/recitation and the grades are given by the laboratory instructor. The Physics 103A Laboratory Manual, 4th Edition is required for the experiments.

YOU MUST REGISTER FOR THE LECTURE/RECITATION (Phys 103) AND THE LABORATORY COURSE (Phys 103 A) SEPARATELY. WITHDRAWAL FROM ONE OF THESE WILL CAUSE A SIMULTANEOUS WITHDRAWAL FROM BOTH OF THE COURSES.

Honor Code Violations/Disruptive Behavior:

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Freshman Studies. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent records. Avoid situations where honorable behavior could be misinterpreted.

NO EATING or DRINKING is allowed at the lectures, recitations and laboratories.
CELLULAR PHONES MUST BE TURNED OFF during the lecture, recitation and laboratory hours.

COURSE OBJECTIVES

1. To improve physical intuition, analytical reasoning and problem-solving skills.
2. To comprehend the nature of the experiments and theories to bring interpretations to some daily phenomena pertinent to the concepts of fluid motion, heat, thermodynamics, sound, wave motion, electricity, illumination, geometric and physical optics, and color.

GRADING

Commitment and preparedness are critical to success in Physics 103. Reading assigned material and working out assigned problems before they are discussed in class will positively affect your performance.

The final grade in Phys 103 will be composed of the following items:

- 1) Common Exams: Three common exams will be given during the semester. The test schedule is given below. The problems in the Common exams will consist of multiple-choice problems. (15% each; 45% total)

Exam Schedule:	Date	Time
Common Exam 1	Monday, February 25th	4:15 – 5:45 PM
Common Exam 2	Monday, March 25th	4:15 – 5:45 PM
Common Exam 3	Monday, April 15th	4:15 – 5:45 PM

- 2) Lecture Quizzes: Truncated versions of the common quizzes will be given during the lecture or recitation hours periodically throughout the semester. These quizzes will help you be in step with the flow of the course and serve you as preparation tools for the common exams and the final. These quizzes will cover the concepts of the preceding weeks' lecture and related homework problems. (15%)
- 3) Homework: Will be posted on WebAssign
- 4) Final Exam: A comprehensive test on the semester's work will be given during the Finals week. (30%)

The grading scale for the course is:

80% and more - A
70% - 79 % - B – B+
55% - 69% - C – C+
50% - 54% - D
49% and less - F

Final Letter Grades : Here are the approximate weights to be used for calculating the composite score:

- **51%** for all three common exams (17% each)
- **29%** for the final exam
- **12%** for the total of homework work
- **8%** for the all in-class quizzes

RESOURCES:

University Learning Center: The University Learning Center, located in 200 KUPF, is staffed with specially trained Teaching Assistants. All Physics students are invited. Students are also encouraged to meet with their instructor during posted office hours. The physics department will also provide additional tutoring for this course (to be announced).

TOPIC	TEXT STUDIES	RECOMMENDED PROBLEMS
Week 1 Fluids at Rest	January 22 – January 25 Chapt. 9 Sect. 1-6	p.314 prob. 1, 5, 18, 21, 41, 86, 87
Week 2 Fluids in Motion	January 28 – February 1 Chapt. 9 Sect. 7-9	p. 314 prob. 44, 46, 49, 52, 81
Week 3 Temperature, Thermal Expansion, The Ideal Gas Law	February 4 – February 8 Chapt. 10 Sect. 1-4	p.347 prob. 1, 11, 18, 25, 29, 31, 34, 36, 48, 51, 59
Week 4 Specific Heat, Calorimetry, Latent Heat	February 11 – February 15 Chapt. 11 Sect. 1-4	p.379 prob. 2, 4, 17, 25, 28, 52
Week 5 Latent Heat, Transfer of Heat	Chapt. 11 Sect. 4-5	p. 381 prob. 31, 38, 39, 43, 44, 46, 50
Common Exam 1	Monday, February 25th	4:15 – 5:45 PM
Week 6 Thermodynamics	February 25 – March 1 Chapt. 12 Sect. 1-4	p. 419 prob. 1, 3, 7, 31, 32, 34, 43
Week 7 Simple Harmonic Motion	March 4 – March 8 Chapt. 13 Sect. 1-6	p. 452 prob. 2, 4, 8, 10, 17, 24, 29, 35
Week 8 Waves and Sound	March 11 – March 15 Chapt.13 Sect. 7-10 Chapt.14 Sect. 1-2	p. 455 prob. 41, 42, 43, 44, 51, 56
Spring Break	March 17th - 24th	
Common Exam 2	Monday, March 25th	4:15 – 5:45 PM
Week 9 Sound	March 25– March 29 Chapt. 14 Sect.3-10	p. 491 prob. 1, 10, 14, 23, 25, 35, 38, 39, 46, 53, 54
Week 10 Electric Charges, Electric Field	April 1 – April 5 Chapt.15 Sect.1-5	p. 525 prob. 1, 17, 20, 21
Week 11 Electric circuits	April 8 – April 12 Ch.17 Sect. 1-6, 8 Ch.18 Sect. 1- 4 Ch 21 Sect. 1	p.590 prob. 4, 13, 15, 33, 3, 45 p. 618 prob. 1, 5, 40 p. 726 prob. 1, 2, 3
Common Exam 3	Monday, April 15th	4:15 – 5:45 PM
Week 12 Light: Reflection and Refraction	April 15 – April 19 Chapt. 22 Sect. 1-7	p. 753 prob. 2, 10, 15, 36, 37
Week 13 Light: Lenses	April 22 – April 26 Chapt. 23 Sect. 4 - 6	p. 784 prob. 31, 33, 35
Week 14 Interference, Diffraction Grating, Thin Films Interference, Resolution	April 29 – May 3 Chapt. 24 Sect. 1-6	p. 817 prob. 1, 4, 8, 19, 65
Week 14	May 6– May 7 Review	

Complete 2013 Spring Academic Calendar

Jan. 21	Martin Luther King, Jr. Day
Jan. 22	First day of Spring classes
Jan. 22	Schedule Change Fee Begins (\$25)
Jan. 2	Last day to add/drop a class
Jan. 28	Last day for 100% refund
Jan. 28	W grades posted
Feb. 4	Last day for a refund based on partial withdrawal (Last day of 90% refund)
Feb. 8	Last day for a refund based on partial withdrawal (Last day of 90% refund)
Mar. 11	Last day for a refund based on complete withdrawal (Last of 25% refund)
Mar. 17-24 Spring Recess-No Classes Scheduled University Open	
Mar. 18	Last day for a refund based on complete withdrawal
Mar. 26	Withdrawal Deadline
Mar. 29	Good Friday No Classes
April 15	Summer/Fall Registration Begin
May 7	Classes Follow Friday Schedule
May 8	NJIT Reading Day
May 9-15	Final Exams