

PHYS 1112 – Introductory Physics II

Spring 2009, MWF: 10:10 – 11:05, 109 Rogers Hall

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Office Hours: MWF: 8:00 – 9:00, 11:10 – 11:40, TR: 10:10 – 11:05

Catalog Description: Prerequisite: PHYS 1111. The introductory physics sequence (PHYS 1111 and PHYS 1112) is a survey of the primary fields of physics: mechanics, electromagnetism, optics, thermodynamics, and modern physics. Elementary algebra and trigonometry will be used in this course. The first course of the sequence will focus on the field of classical mechanics and its applications. (3 credit hours)

Text: The main textbook for this course is: College Physics, Vol. II, 2nd Ed., by Giambattista, Richardson and Richardson. It is available to buy from the university bookstore. There are some times when I may refer to another text, but I will make copies of these other texts for you.

Course Syllabus

Course Calendar*:

January 7 th	Course Introduction
January 9 th – January 16 th	Chapter 16: Electric Forces and Fields: elementary charge, Coulomb's law, electric fields, Gauss's law.
January 21 st – January 28 th	Chapter 17: Electric Potential: electric potential energy, electric potential, equipotential surfaces, potential difference, capacitors, energy stored in a capacitor.
January 30 th – February 9 th	Chapter 18: Electric Current and Circuits: electric current, circuits, resistance & resistivity, Kirchhoff's rules, RC circuits.
February 11 th – February 20 th	Chapter 19: Magnetic Forces and Fields: magnetic fields, magnetic force, Ampere's law.
February 23 rd – March 2 nd	Chapter 20: Electromagnetic Induction: motional emf, generators, Faraday's law, Lenz's law, transformers, mutual inductance, self inductance, energy stored in an inductor, LR circuits.
March 4 th – March 9 th	Chapter 21: Alternating Current: capacitors and inductors in AC circuits, household circuits, resonance, diodes.
March 11 th – March 23 rd	Chapter 22: Electromagnetic Waves: EM waves, Maxwell's laws, EM spectrum, speed of light, polarization of EM waves.
March 25 th – March 30 th	Chapter 23: Reflection and Refraction of Light: laws of reflection & refraction, total internal reflection, mirrors, thin lenses.
April 1 st	Chapter 24: Optical Instruments: camera, eye, microscope, telescope.
April 3 rd – April 8 th	Chapter 25: Interference and Diffraction: constructive & destructive interference, Young's double-slit experiment, diffraction, x-ray diffraction, holograms.
April 10 th – April 17 th	Chapter 27: Early Quantum Physics and the Photon: quantization, blackbody radiation, photoelectric effect, x-ray production, Compton scattering, atomic spectroscopy, early models of the atom.

Exams:

Exam 1	Chapters 16 – 18	February 13 th
Exam 2	Chapters 19 – 21	March 13 th
Exam 3	Chapters 22 – 25	April 13 th
Final Exam	Comprehensive	April 22 nd , Wednesday, 10:30 AM – 12:30 PM

* All dates are tentative and subject to change.

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Resources: Course Webpage

The course webpage provides course information, assignments, online discussion forums, announcements, and handouts. You can access the course webpage at:

<http://polaris.deas.harvard.edu/galileo/students/?courseID=2111>

In the upper right corner of the course webpage, click the *Sign In* link. This is where you will register. Below the *Login* button, click *Not registered? Enroll* to set up your account. Please register your account today! Your first reading assignment is already posted.

WebAssign Webpage

Problem sets for each chapter will be assigned and submitted through WebAssign. You can access this page through a link on the course webpage, or directly:

<https://www.webassign.net/login.html>.

I have already created a WebAssign account for you. Your username is the same as your NGCSU email ID. The institution is NGCSU. The first time you login, your password will be your NGCSU ID# (ie: your 9000#). You must change your password the first time you login.

Homework: You will be responsible for two types of homework assignments in this course: Lecture warm-ups and WebAssign problems.

1. Lecture warm-ups. When you login to the course webpage, you will be able to access your reading assignments by clicking the READINGS title at the top of the page. There will be a reading assignment before every lecture. Along with the reading, there will be 3-5 questions to answer about the reading, *a.k.a.* the lecture warm-up. Your answers will be submitted electronically via the course webpage. **All warm-ups are due no later than 8:10 A.M. on the day of lecture.**

2. WebAssign problems. Problem sets for each chapter will be posted on a webpage (using WebAssign). This is also where you will complete the problem sets. There will be extensive homework assignments with each chapter covered. Each assignment will consist of approximately 8 - 10 problems and will be due on the specified due-date. **Do not wait until the last minute to complete the assignment**, you will regret it. Homework problems are intended for you to learn how to apply the skills you are taught in class. Therefore, it is useful to work on the problems while we are covering the corresponding material in lecture. No late homework assignments will be accepted.

Attendance: Regular class attendance and class participation is essential to satisfactory completion of this course. If you miss a lecture, you will be responsible for the material covered that day and for the homework assigned. A grade of WF may be given for six or more absences at the discretion of the instructor.

Exams: There will be three in-class exams and one two-hour final exam given. The final exam will be comprehensive. A calculator may be used during the exams, but calculators cannot be shared. A cell-phone cannot be used as a calculator.

Absence from any exam will result in an automatic grade of zero. The only exception is if you notify me at least one day prior to the exam with a reasonable excuse for missing the exam and I approve your excuse. If you are sick the day of the exam, you will be allowed to make up the exam with some written proof of your illness, such as a Dr.'s note with the doctor's phone number.

Grading: Each in-class exam will be worth 20% of your final grade. Homework will be worth 15%. The final exam will be worth 25%. A = 90 -100; B = 80 – 89; C = 70 – 79; D = 60 – 69; F = < 60.

Class Evaluations: Class evaluations at NGCSU are now conducted on-line through Banner. Evaluation of the class is considered a component of the course and students will not be permitted to access their course grade until the evaluation has been completed. The evaluations will be accessible beginning one week prior to Final Exam week.

Early Intervention: I am committed to your success in this course and at this university. I may, therefore, refer you to other persons and/or services available to help you achieve academic success. In turn, if you are referred, you will be expected to comply with the referrals. Please understand that such referrals are not a form of punishment, rather, they are intended to help you.

Academic Honesty: NGCSU's integrity code- "On my honor, I will not lie, cheat, steal, plagiarize, evade the truth, or tolerate those who do" -reflects the university's commitment to academic integrity. The "Academic Integrity Policy" (2004-2006 Undergraduate Bulletin, pp. 78-81) is incorporated herein by reference.