Phys 202 GeneralPhysics II Spring 2010

Text Book: Physisces 8th Edition (Wiley, 2009)

Professor: **Dr. Mesgun Sebhatu,** Sims 203. Office hrs: 10 - 10:50 MWF or by appointment

Brief description of the course and some advice: The PHYS 201-202 sequence covers the major branches of classical physics: PHYS 201 deals with mostly mechanics while PHYS 202 covers thermodynamics, electromagnetism, and optics. The course emphasizes understanding of fundamental physics concepts and principles as well as the development of conceptual and analytical problem solving skills by using physics concepts, principles and mathematics in the solution of various interesting and challenging real world problems. This course should also help you review and master your algebra, trigonometry, and enable you to appreciate your calculus by putting it to work in physics. In this course, rote memorization is discouraged. Formulas and constants will be provided even during a test. Use of **calculators** is encouraged. In fact, it would be difficult to survive the course without a good scientific calculator and the skill needed to use it to solve problems. PHYS 201-202 is primarily intended for students in the life and health sciences. PHYS 201 is the first semester of a one-year general physics (PHYS 201-202) course that utilizes algebra and trigonometry. PHYS201 and 202 have the lab components PHYS 201L and 202L respectively. One must take PHYS 201 and 201L concurrently to get the 4-hour credit for PHYS 201.

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The major objectives and expected outcomes of PHYS 201-202 are:

- Develop an understanding of basic concepts and principles in physics that are the foundation for all science and technology
- Develop conceptual and analytical problem solving skills that are indispensable for any professional in the life and health sciences
- Develop an understanding of the role physics plays in everyday life and in technology
- Develop the ability to express scientific ideas clearly and concisely both quantitatively and in words

In the labs (Phys 201L-202L) the major objective is for students to practice the scientific method hands on.

Given a purpose, they test a hypothesis or a principle of physics. They are expected to learn how:

- To perform a series of experiments and acquire sets of data using a computer and/or direct observation every week for three hours.
- To statically analyze their data using a spreadsheet or other software for calculations and curve fitting.
- To compare their experimental values with expected values and calculate % errors.
- To arrive at a conclusion that relates to a hypothesis (or purpose) and writes a concise and clear conclusion.
- To learn how collaborate. i.e., suggest ideas, agree and disagree with their peers and even their instructor.

You will use WileyPlus to practice as well to submit homework that will be graded.

(Please click on the link **<WileyPlus>** and register immediately)

Study Tips for Introductory Physics Students

Tentative Course Outline and Test Schedule

The course is divided into four convenient parts (I to IV). For each part, detailed study guides will be available on this website prior to each test. The study guides will be updated as needed from time to time. Please revist the course website to have a current study guide and test date. Changes in the tentative schedule will be announced in class or via e-mail at least a day in advance.

Tentative Course Outline and Test Schedule

The course is divided into four convenient units. There will be a test on each unit. Study guides will be posted for each unit.

Unit I: Thermodynamics

Ch. 12 **Temperature, and Heat** Ch. 13. **The Transfer of Heat**	**Ch. 14 The Ideal Gas Law and Kinetic Theory** Ch.15 **. Thermodynamics**	Study Gude I **Test 1: Tuesday, Feb.18**

Unit II: Electrostatics

h 22 & 23. Electric Charges and Electric Fields **Ch. 18 Electric Forces and FieldS** **Ch. 19 Electric Potential and Electric Potential Energy**	**Ch. 20 Electric Circuits**	Study Guide II **Test 2 Tuesday , March 11**

Unit III: Electromagnetism

Ch. 21 Magnetic Forces and Fields	**Ch. 22.** Electromagnetic Induction	**Study Guide III** **Test 3: Thursday, April 15**

Unit IV: Optics

Ch, 25. The Reflection of Light: Mirrors **Ch. 26. The Refraction of Light : Lenses and Optical Instruments**	**Ch 30.2 Hydrogen Spectra, 30.3 The Bohr model**	Test 4: will be on Optics . It will be based on lab work and self-study. Thursday April 22
		Study Guide IV

A Comprehensive Final Exam on units I. to IV. Wednesday April 28 8:00AM -10:30AM

Computation of Final Grades : The best three test grades will contribute 12 % each (total from tests = 36%). Homework via Problems (14%). The weekly lab grades will be averaged and contribute 25%. The comprehensive final will contribute 25%.

36 % (Best 3 Tests) +14%(Home Work) + 25% (Lab) + 25%(final) = 100 %

Even though class grade distribution may affect the assignment of the letter grades will be as follows:

Above 90% is an "A", 80% - 84% is a "B", 85%-89% is a"B+",70% - 74% is a "C", 75%-79% is a "C+" 60% - 64% is a "D", 65%-69% is a "D+" and below 60% is an "F".

Makeup Tests: If a student misses one monthly test, he obtains a "0" for it and loses the opportunity to have his worst test score dropped. It will be dangerous to miss more than one test. There are no provisions for makeup tests under normal circumstances.

Class Attendance Policy: The attendance policy followed in this course is the same as that which appears in the current Winthrop University Catalog. Briefly, "If a student's absences in a course total 25% or more of the class meetings for the course, the student will receive a grade of N, F, or U, which ever is appropriate." Please read your catalog for details. The professor will determine when taking attendance is appropriate. If all the members of the class are present, there is no need to take attendance. Students who leave early or come excessively late for reasons that are not clear to the instructor may be marked absent. Class participation is a major requirement. The course will use a Personal Response System that records the participation of each student.

Please refrain from using cell phones and laptops in calls.

Some Helpful Physics Links

PheT –Physics Education Technology from U of Colorado

Multimedia Physics

hyperphysics

Favorite Physics Links

Study Tips for Introductory Physics Students