

## Physics 211 : Introductory Physics I 2010 Spring ( 3644) Syllabus

Meets Mon+Tue+Wed+Fri 11<sup>00</sup> – 11<sup>50</sup>, in Sci.277 (58 classes + final exam)

PHY 211 is a 4-credit course for undergrad majors in Physical Science or Engineering.

You are expected to enroll in Phy202 (or 212) during the same term as Phy211.

Instructor : Dr. Curt Foltz ... Science 159 ... foltzc@marshall.edu ... 696-2519

Office hours: MWF 9<sup>30</sup>-10<sup>30</sup>, 1<sup>30</sup>-2<sup>30</sup>; T 10<sup>30</sup>-12, 12<sup>30</sup>-2, 4<sup>30</sup>-5<sup>30</sup>; W 12<sup>30</sup>-2<sup>30</sup>, 4<sup>30</sup>-5<sup>30</sup>

Do stop by my office, anytime 9-9. I'll put a note on my office door if I'm elsewhere.

Regular Attendance - Diligent Preparation expected - Tenacious Attention anticipated

- My lectures will usually show a different perspective than our textbook has.
- Classmates' discussion can usually not be reproduced to the same effect.
- Necessary recitation / practice / exercise is not as much fun outside of class.
- Commentary that accompanies an example problem solution is important.

Prerequisites: Mth229 (calculus I with analytic geometry)

When you encounter ideas that are hazy, try to sharpen them

(textbook? a study partner can be much more help here – see me if they are not).

Required: *Physics for Engineers and Scientists* Ohanian & Markert (3<sup>rd</sup> ed, Norton 2007)

web browser : course home page: [www.science.marshall.edu/foltzc/Phy2111.htm](http://www.science.marshall.edu/foltzc/Phy2111.htm)

email access : I'll use your marshall address for all official communications

attendance : at each class meeting ready to learn (pen or pencil, calculator, textbook)

time & effort: outside of class, 6-8 effective hours per week to do the assignments

Recommended : notebook with empty pages (to use in class, and outside of class)

non-programmable calculator : buttons (not menu) for EXP/EE, sin,  $\sqrt{x}$ ,  $x^2$ ,  $e^x$ ,  $1/x$

study partner : it's usually more fun and more thorough than studying by yourself

occasional access to a different book, for a new perspective on a sticky topic

(*concepts*: Lightman, Mills, Beiser, Dixon, Barrett ; *practicals*: Schaum's Outline

(*different*: Tom Moore, Reese, ProjectPhysics ; *advanced*: Feynman, Symon

Objectives: Phy.211 is part one in a three-semester sequence introducing the concepts and

principles which describe and explain the physical world's behavior. Theories relate properties of an object, and conditions of its environment, to changes that will occur.

Physical system models approximate how these conditions are changed by processes.

Students will simplify scenarios (from bio, chem, geology, space, technology, *etc*), to obtain conceptual and quantitative descriptions (Force, Work, Impulse, Action, *etc*).

Students will represent invisible quantities on diagrams, will graph relationships, and use cause-effect wording to describe processes. Students will translate freely between

words, diagrams, and symbolic forms. Students will manipulate symbols to obtain

new statements, will interpret calculations as they relate to various scenario, and will

recognize typical magnitudes for quantities on atomic, human, and planetary scales.

We'll have graded homework every 2–3 classes, Quizzes or Exam about every 2 weeks.

150 pts = 3 Exams x 50 pts/Exam ( mid-Feb , end-Mar , May03@3pm )

72 pts = 6 Quizzes x 12 pts/Quiz

80 pts = 16 HW sets x 5 pts/HW     $A > 87 > B > 78 > C > 70 > D > 62\%$

300 pts => ( letter grade boundaries will be approximately 260, 235, 210, 185 )

Rules : If you miss a quiz or exam, contact me before the next class to arrange a make-up.

If you miss a homework due date, email me to see about getting it to me for grading.

Late homework will be out of 3-4 points (not 5) ; out of 1-2 after that set is returned.

Homework assignments will be posted : [www.science.marshall.edu/foltzc/Phy2111.htm](http://www.science.marshall.edu/foltzc/Phy2111.htm)

“suggested as practice” will not be graded, but should guide our classroom activities.

“paperwork” solutions must show an intermediate step for the answer to be counted.

(“webwork” questions will probably be only as review for exams, not for grading.)

do some practice before the graded problems; some before a quiz, some before exam

Physics I digs deeply into the *properties* and *behavior* of physical *objects* and *quantities*.

Distinguish intrinsic properties (mass, length) from conditional ones (weight, speed) and distinguish physical quantities (Energy, momentum, Force) from their objects.

Phy211 describes what an object does, and tries to explain why it does that process.

We might spend 40% of our effort on quantities, 30% on the math, 20% on objects.

We will use object vectors, and take derivatives of functions, with no hesitation.

We will integrate functions and change integration variables, with commentary.

Suggestions: look at the chapter pictures & read the captions, before class begins.

ask questions in class when you don't understand what we're doing, and why

try a few practice problems, before next class – participate in discussion of them

We engage in recitation activities whenever we need our memories stirred.

Statements that are valid for ALL Classes at Marshall:

Academic Dishonesty Policy : honesty is the foundation of science. see pp.106-109 in the undergrad catalog : [www.marshall.edu/catalog/ug\\_08-09\\_published.pdf](http://www.marshall.edu/catalog/ug_08-09_published.pdf)

Students with Disability Policy : the student must initiate procedures ... first, see info at [www.marshall.edu/disabled/](http://www.marshall.edu/disabled/) ... then, contact the Office of Disabled Student Services in Prichard Hall 117 (696-2271) , which will communicate with me.

Affirmative Action Policy : equal opportunity at Marshall Univ is spelled out on p.93 of the undergrad catalog : [www.marshall.edu/catalog/ug\\_08-09\\_published.pdf](http://www.marshall.edu/catalog/ug_08-09_published.pdf)

Computing Services' Acceptable Use Policy: don't lend your account, or spam, or solicit see [www.marshall.edu/ucs/CS/acceptuse.asp](http://www.marshall.edu/ucs/CS/acceptuse.asp)

Inclement Weather Policy: don't over-risk your safety trying to get to class in a blizzard.

See pp.95-96 of the catalog, here [www.marshall.edu/catalog/ug\\_08-09\\_published.pdf](http://www.marshall.edu/catalog/ug_08-09_published.pdf)