# Phy.203-201 2012 Spring (4749) Syllabus (General Physics II)

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office hours: MWF 9:30-11:30+3-4:30pm , TR 11:30-12:00+3-4:30pm , and by appointment

Phy.203 is : a 3-credit undergrad course, intended for Natural (not Physical) Science majors.
Chem and Geology and Math majors should consider Phy.213+320 instead of Phy.203 .
You are expected to enroll in Phy.204 Laboratory during the same term as Phy.203

Class meets M_W_F 8:00 – 8:50, from Jan.09 – Apr.27 in Sci.277 … final Exam Apr.30 8am
Lectures will include many in-class exercises – the class is customized for participants.
Implication : if you do not routinely participate during class, any complaint is not valid.

Absences: if you miss a Quiz or Exam, schedule with me before the next class to make it up – otherwise the make-up assessment will probably not be of similar difficulty (oral?).
see "summaries" *via* course web site: www.science.marshall.edu/foltzc/p20312sw.htm

Prerequisites: PHY 201
Most students finish 201 with a few bad habits and poor understanding of *some* topics.
Do NOT try to hide these by blindly copying someone else's work or a textbook example!
Rather, mention them in class (or after class) so we can fix the situation right away.

Required textbook: *Sears & Zemansky's College Physics* 9th ed. by Hugh Young … Volume 2
from Pearson/AddisonWesley (2012) … (readings will be from Ch.17 – Ch.30, in vol.2)
calculator : non-programmable, with keys (not menu) for EE/EXP, $x^2$, $\sqrt{x}$ , *cos x*, $sin^{-1}\ x$, $e^x$
web browser : for our Phy.203 web site (on CoS server) and to useful links beyond it
(Muonline, KohnAcademy, PhysicsForums)
attendance: (with pen or pencil, calculator, textbook) at each class meeting, ready to learn
time & effort: in class and out, ≈ 8 effective hours/week to read, do assignments, ponder
MU email access: I'll use your Marshall address as an official communication channel.

Recommended: notebook with blank pages … extremely useful ! (out-of-class and in-class)
courage … to ask for help before you're hopelessly lost (in class) … or between classes
study partner … it's way more fun than by yourself, & can be more thorough (peer view)

Maybe try: a workbook not-for-dummies (Shaum's *Outline*, orBoone's *MCAT Physics Guide*).
A different textbook's treatment (Drinko or Sci.159) might be helpful for some topic(s)
(by *Walker* or *Knight* for serious self-study; by *Hewitt* or *Dixon* for easy-read concepts).
Color-coding your concept map (in notebook) alongside your Physics I concept map.

Schedule Plan: the course will split into 4 Units (each contains about 3 chapters)
(1) Electricity ; (2) Magnetism & AC ; (3) Optics ; (4) Atoms & Nuclei
see www.science.marshall.edu/foltzc/p20312sw.htm for current schedule detail.

A Unit Exam – 60 minute, closed-book, closed-notes solo event, to relate topics of that Unit to each other and to topics of previous Units (Exams are essentially "comprehensive").
Exam page 1 includes key formulas, not equations. NO 3×5 cards, NO graphing calculators
Exam 1 (45 pt) Feb.03 (F); Ex.2 (30) Feb.22 (W); Ex.3 (45) Apr.02 (M); Ex.4 (45) Apr.30 (M)

A topic Quiz – 15 minute, closed-book, closed-notes solo event, will *focus on* the recent topic. completion/mult.choice for vocabulary, units, facts; a couple "plug & chug" scenarios; one or two indirect (4-6 sentence or 2-3 equation) scenarios.

Homework assignments will be posted on each Topic web page, linked to from p203 page. "Suggested practice" will not be graded, but should guide our classroom activities. Most graded homework will be via MUonline, and should inform your study activities.

Overview: Physics 203 is the second half of a two-semester sequence, introducing concepts & principles which describe and explain the physical world's behavior. Students should expect explanations for change to be based on objects interacting via their environment.

In Physical Theory, Fundamental Fields (Gravity, Electric, Magnetic, Strong) are made by sources, and cause influence to another object's modifiable properties (*via* Force); each conserved quantity (momentum & Energy, Angular momentum, mass, charge) has a current (*via* geometry) which does *Least Action* as it travels.

Students will apply theories to simplified scenarios in diverse situations (involving biology, chemistry, technology) to arrive at conceptual and quantitative descriptions of processes which would ensue. Students will use diagrams to represent the invisible, graphs to show relationships, cause-effect wording to describe processes; will translate words & diagrams to and from symbolic forms (equations & formulae), will manipulate symbols to obtain new statements, and will interpret their calculated results in terms of predicted behavior in the original scenario. Students will become familiar with typical magnitudes for important quantities, on several scales.

Equations and formulae are much easier to apply correctly if one knows the vocabulary and geometry; they are much easier to remember if one understands why each term is "as it is". My approach to Physics II is to make this explicit, as early as is feasible.

Before class to start a topic, study the pictures & their captions, to dissect the equations. Ask in class when you don't understand what we're doing and why it works; how to tell? Do some exercises before trying the problems that are graded! (it saves time, eventually). Do some practice problems before the Quiz … do some different ones before the Exam. Set-up twice as many answers as you solve; read twice as many problems as you set up. Before a Quiz or Exam, use summaries, notes, vocabulary, and concept maps to make up questions that might be on it; can you correctly answer your study partner's practice Q?

Point Plan: 4 exams × 41 points/exam = 165 points (half the total course grade)
10 quizzes × 10 points/quiz = 100 points (30% of the course grade)
16 home-works × 4 pts/hw = 64 points (20% of the course grade)

The quizzes and home-works count is approximate … if the count decreases, then the "points each" will remain constant, so total points (and %) in that category will change; if the count increases, I'll drop your lowest quiz or homework score.

Letter Plan: 100% > A > 85% > B > 75% > C > 65% > D > 55% > F

I may adjust any letter boundary(ies) downward at any time without advance notice.

Statements that are valid for ALL Classes at Marshall:

Academic Dishonesty Policy : honesty is the foundation of science. see pp.66-70 in the catalog : www.marshall.edu/catalog/undergraduate/ug_10-11_published.pdf

Affirmative Action Policy : equal opportunity at Marshall is on pp.63-64 of the catalog

Computing Services' Acceptable Use Policy : don't "lend" your account to others ; don't send spam from it, or solicit from it. see www.marshall.edu/ucs/CS/accptuse.asp

Incomplete Grade Policy: to receive a grade "I", you must have done ¾ of the course work, at an acceptable (passing) proficiency (percentage) ; see pp.86-87 in the catalog.

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

Inclement Weather Policy: don't overly-risk your safety trying to get to or from class in a blizzard, flood, or tornado. See pg.64 in the catalog.