Web Site: www.science.marshall.edu/foltzc/phy2013.htm

Instructor: Dr. Curt Foltz ; foltzc@marshall.edu ; Science 159 ; (304) 696-2519
office hours: T 9–11:30, 2:30–4:30; W 8:30–9:30, 12:30–1:30, 4:30–6; R 10:30–12:30, 2:30–6
other times by appointment or chance; see www.science.marshall.edu/foltzc

Class meets TR 1:00pm – 2:15pm, from Aug.24 – Dec.08 (except holidays) in Science 277
and will meet in Sci.277 for our Final Exam on Dec.15 from 12:45 – 2:45pm
You are expected to enroll in Phy.202 (Laboratory) during the same semester as Phy.201.

Phy.201 is a 3-credit lecture course; with 202 Lab it is the first half of a 2-semester sequence,
intended to survey the Physical Universe at a level appropriate for Natural Science majors;
Physical Science majors (Chem, Geology, Math) should consider Phy.211+213+320 instead.
Phy.201 builds a foundation for Phy.203, which contains most of the 20th Century topics;
students seeking a 1-semester overview should consider Phy.101, PS 109, or PS 400.

Goals: habitually identify physical quantities in scenarios that you encounter or contemplate
Creatively combine disparate concepts to describe more complicated scenarios, and
deconstruct overly-complicated situations into smaller pieces with simple interactions
Routinely construct simplified mental models of these scenarios, in order to:
* estimate the values of the physical quantities, at various stages or situations
* notice unusually large or small values, when they are encountered
  - recognize that unusual values might restrict the viability of a contemplated process
  - realize that unusual values might indicate an invalid model
* recognize the interplay (tradeoff, increase/decrease) between one quantity and another
* appreciate arrangements in which desirable quantities are optimally balanced
Consistently consider complicated phenomena from multiple perspectives and whether
* preconceptions are plausible
* logical structure is valid
* resulting situation is sustainable (long-term)
* positive or negative feedback loops are important

Prerequisites: Math (130+122) or (127+122) or 132 … or 140, or 229
Always, we will represent the result of a measurement procedure as a Real number of Units.
Routinely, we’ll abbreviate each physical quantity as a letter (with adjectives as subscripts);
we’ll translate statements about Nature between their verbal, graphic, and symbolic forms;
we’ll algebraically manipulate these symbols (Mth.127 or 130) to reword relationships;
we will factor physical quantities into formulae so their functional dependence is explicit;
we’ll substitute numerical values for physical quantities to compute calculated predictions.
More gently, we’ll develop and apply the geometry & functions of Trigonometry (Mth.122).
If your math skills are rusty or shaky, plan on 3 hours extra per week for the first 5 weeks.
calculator: non-programmable, with buttons (not menu) for EE or EXP, x², √x, cos, sin⁻¹  
web browser … to see our Phy.201 web site content, to use MUonline, and to link beyond  
attendance: (with pen or pencil, calculator, textbook) at each class meeting, ready to learn  
time & effort: outside of class, about 6 effective hours/week to undertake assignments  

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) … email between classes  
study partner … it’s more fun than by yourself; if you miss class, find out what we did!  
MU email access … I will use it as an official communication channel (if schedule slips)  
a workbook (e.g. Shaum’s Outline, or Boone’s MCAT Physics Guide) … might help some  
a different author’s treatment of some topic might be right up your alley (Drinko or 159)  

Overview: Phy.201 introduces the concepts and principles by which we describe and explain  
the physical world’s behavior. Theories based on fields and other non-material quantities  
(Force; Energy & momentum; Action & Entropy) will be applied to simplified scenarios in  
biology, geology, space, technology, etc. Vector cancellation allows balance, repetitious  
behavior, or deformation/breakage. Imbalance causes conserved quantities to transform or  
transfer (via current flow) during the processes which ensue. Changes that occur during a  
process will be dealt with using algebra (ratios) rather than calculus (functions). Phy.203  
(next semester) is permeated with invisible field quantities, microscopic topics, and abstract  
non-intuitive concepts; be ready.  

Schedule Plan: We will split the course into 4 Units, with each Unit composed of 2 or 3 topics.  
A typical topic will include 1 chapter in Serway plus an additional aspect (section) or two.  
schedule detail is updated at www.science.marshall.edu/foltzc/phy2013.htm  

Homework assignments will be posted to www.science.marshall.edu/foltzc/phy2013.htm  
“suggested exercises” will not be graded, but should guide our classroom activities.  
most “web-work” will be done via MUonline, and should inform your study activities.  
“paper-work” will be turned in (legible form) for grading, comments and partial credit.  

A topic Quiz will focus on the most recent topic (but cannot ignore previous foundations)  
… concepts, vocabulary, units, facts, and techniques; 1 (hard) or 2 (easy) essay scenarios  
Each Quiz will be a closed-book, closed-notes solo event that should take 15-20 minutes.  

A Unit Exam will focus on the topics of that Unit - how they relate to each other – 75 minutes.  
I will list formulas (no =) on each Exam. Exams will be late Sep, mid Oct, early Nov, Dec.15  

Point Plan: 4 exams x 50 points/exam = 200 points (50% of course grade; 12½% each)  
10 topic quizzes x 10 points/quiz = 100 points (25% … 2½ % = ¼ letter)  
14 chap. home-works x 5 points/hw = 70 points (17½% … 1¼ % each)  
15 in-class-works x 2 points/cw = 30 points (7½% … ¼% each; low-stakes)  
class-work & home-work count is approximate … so total points (and category %) are, also.  

Letter Plan: 100% > A > 85% > B > 75% > C > 65% > D > 55% > F  
I may change any letter boundary at any time, by any negative amount (no changes >0)
**Absences**: if you miss a quiz or an exam, you must schedule with me to make it up before the next class meeting – otherwise the make-up will probably not be of similar difficulty.

**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**: and equal opportunity at Marshall University 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/acptuse.asp](http://www.marshall.edu/ucs/CS/acptuse.asp)

**Inclement Weather Policy**: don’t overly-risk your safety trying to get to class thru 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)