Welcome to Physical Science 110A

- I love physics!
  - Yes, the elegance of the math but more importantly the concepts.
  - The concepts help us understand the world around us.
- In this class we heavily stress concepts.
- I hope you come to class with a curiosity to know about science. I will try to help you enjoy the experience.

Brigham Young’s thoughts on science

I want to have schools to entertain the minds of the people and draw them out to learn the arts and sciences. ... there is nothing I would like better than to learn chemistry, botany, geology, and mineralogy.

Brigham Young’s thoughts on science

If we will not lay to heart the rules of education which our Teacher gives us to study and continue to advance from one branch of learning to another, we never can be scholars of the first class and become endowed with the science, power, excellency, brightness and glory of the heavenly host; and unless we are educated as they are we cannot associate with them.

Gordon B. Hinckley
General Conference, April 1996

“We go to school to learn and to equip ourselves for the work which we will do in the future. It is imperative that we take advantage of the opportunity to learn. The Lord has said concerning us of this Church that He expects us to study and learn. I know of no other church that has scripture instructing its people to pursue secular knowledge as well as spiritual knowledge.”
Should you be in this class?

Ways to Satisfy G.E. Science Core:
A. Physical Science 100
   1. Take PS 100 and pass it
   2. Take PS 110A & 110B and pass them
   3. Take PS 100 Exemption Exam and pass it
      (In Testing Center up to add/drop deadline, Jan. 16)
B. Two Course Sequence of Phys, Chem, and/or Geol Classes (two different subjects)
   (see Class Schedule for details)

Who Should Take this Class?
Those who have had little chemistry, physics, and geology in high school and who don’t expect to take them here.
Prerequisite: basic skills, no previous science
Mathophobes: conceptual, calculations occasionally
Recommended for Elementary and Early Childhood Education – has a lab component, teaching aids.

Who Should Take the Exam?
Those who have a good background in chemistry, physics, and geology but are not expecting to take additional courses in these subjects at BYU.

Should You Take Class or Exam?

• This material is stuff I learned in high school. Why do I have to sit through it again in college?
  • Response: You don’t! Take the Exemption Exam.

Today:
An Introduction to PS 110A
1. Course organization and procedures
2. Course objectives
3. Indicate preparation for next lecture

Resources to Help You Succeed in this Course

1. Course Syllabus (available here in class as the handout and also available online)
   Course Information Summary
   Class identification numbers
   Lecture Schedule
   Exam Schedule and Grading Policies
   Read the syllabus completely and carefully.
   (Follow along in it this morning as we hit some main points.)

Syllabus Handout
It includes:
1. 1 copy of the Course Syllabus (salmon)
2. 1 copy of Quiz Recording Sheet (white)
3. 4 Quiz Reporting Forms (green)
4. 6 copies of Lab Report Sheet (yellow)
5. 6 copies of Homework Sheet (pink)
Resources (cont.)


Read chapter BEFORE class each day.

*Practice the questions at the end of chapters, especially the focus questions.*

We cover chapters 1-23, 25 and 34; 25 chapters total.

Textbook 2

Resources (cont.)


Contains the experiments you will do and is a great resource for the course.

Contains chapter notes, review questions, sample tests, additional course materials.

The labs are designed so they can be used in elementary school with very little equipment.

Resources (cont.)

4. Class Meetings (TTh 9:00-10:15 am)

- roll is not taken
- announcements given here (as well as on the web)
- ex. credit reading quizzes given at the first of the class
- variety of demonstrations (our toys)
- ex. credit practice questions during the lecture

5. Course web page (go there)

- direct link to server [http://gardner.byu.edu/110w](http://gardner.byu.edu/110w)
- another link through department home page, then to course [http://www.physics.byu.edu](http://www.physics.byu.edu)

Resources (cont.)

6. Teaching Assistants: C251 ESC

- schedule 8:00-6:00 M,T,W,Th,F
- lab experiments at your scheduled time
- pickup returned quiz sheets, homework, etc.
  
  - go to TA’s first with questions on concepts, grading, and lab

See me if you need any additional help.

Resources (cont.)

Teaching Assistants for this semester:

- Irene Howe
- Lori Lund
- Sarah Means
- Susan Riggs
- Robin Shaw
- Stacia Woodworth

Pictures are on the web page.
Info on Me & You

N350 ESC
Tel: 422-2427
email: hatchd@byu.edu
Office Hrs: T, Th 10:15-11:00 am

Elem Teachers, where from, HS biology, chemistry, geology, physics?

Course Objectives

We will study the physical universe
- search for truths in the physical realm
- study the small number of fundamental rules and models to see how science works
- help make the universe more familiar to you
- give you concepts and examples to help you teach effectively
- the concepts are not trivial, some of the most profound ever advanced

Should take PS 110B (geology) in addition to this course.

Class ID

Each of you will have a personal CID number
- protects your privacy
- ID used on homework, lab assignments, quizzes, and exams
- if you were registered in the class before this week, you should already have it. Go to your RouteY email.
- do you know your CID number?

If you do not have a CID, go to the class web site. Follow directions given in the Syllabus. Don’t forget your CID number!

Course Schedule

shown in your class syllabus (transparency)

Reading assignments/quizzes for each lecture
- do reading (text and supplement) on the chapter before we discuss it in class
- do your own grading of quizzes/practice and record scores
- missed quizzes/practice can’t be made up
- counts up to 3%

Could raise your letter grade if you are just below a cutoff.

Homework Assignments

Homework problems are in the class syllabus (transparency)
- H.W. is due the class following discussion of chapter, e.g. Chapter 1 in the schedule
- use a pink homework cover sheet (circle Chap. #, transparency)
- late homework accepted only for unusual conditions, you must get my okay
- problems are graded on content and on composition, grammar, spelling
- must be your own work

Laboratory

Laboratory is in C251 ESC
- open 8-6 Monday through Friday
- attend during the time of your registered section
- no labs this week
- roll is taken
- simple experiments, to be used later by you in your teaching
- also, you will go over homework and concepts in your lab (TA’s available)
Laboratory (cont.)
- reports are due weekly, at the beginning of next lab period and must be your own work
- use cover sheet when you hand them in (circle lab #)
- requirements and format for each lab will be given to you
- at end of semester you will hand in all completed lab work as a portfolio

Laboratory (cont.)
- lab 11 is a home experiment and four astronomical observations. Do not leave this until the end of semester
- extra credit is possible, equivalent to one lab

Personal Assistance
- TAs are former PS 110A students
- they help in lab and course homework, concepts, etc.
- available most of the time during normal daytime hours
- lab telephone is 422-9288
- go to lab first with questions, but see me if special help is needed

Halftime entertainment

Exams
Three Midterm Exams
- taken at testing center, see syllabus for scheduling (transparency)
- 24 multiple choice questions and three short essay
- total of 30 points
Final Exam (comprehensive)
- total of 75 points
- all multiple choice questions
All exams are closed book, closed notes, and no time limit

Exams (cont.)
Must know testing center schedule and rules
- hours are usually M 10:00 am - 10:00 pm, T-F 8:00 - 10:00, S 10:00 - 4:00
- exam will not be handed out after one hour before closing http://testing.byu.edu/
- must present picture ID
- must comply with BYU standards
Exams are to be taken when scheduled, no makeups. They are confidential, not to be discussed with anyone, at any time.
Grading

Four possible weightings to determine letter grade

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<td>HW</td>
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We use the highest of these for your final grade.
During the semester we use the first column with a rescaling of percentages (final hasn’t been taken).

Grading (cont.)

Letter grade cutoffs are shown in the syllabus (transparency)
- during the semester scores and grades will be available on course homepage
- they are identified by CID and BYUID
- check those entries often to spot mistakes in recording

Grade Distribution for a Previous Semester

Schedule, and Assignments

Schedule for reading, homework, etc. is given in the syllabus.
- reading quizzes at start of lecture (transp)
- labs and due dates are shown (transp)
- homework problems are due at next lecture after chapter discussion (transp)
- pick up homework, quiz sheets, etc. in lab

Use pink cover sheets for homework, yellow cover sheets for lab, and green for quiz reporting forms.

How to Get an “A” in PS 110A

- Read the chapters before coming to class
- Attend class and labs faithfully
  – science is hierarchical
  – review within a day of class
- Do all the assigned homework
- Work all the synthesis questions
  – these are the basis for many exam questions
- Get extra help if you need it; get it early!
- Be part of a study group.

A few rules

1. Class starts at 9:00 am.
2. If you don’t have the floor, please HUSH!
3. Engaged persons must sit in separate seats.
PS 110A “Grand Outline”

- Why do things move the way they do?
- What is “stuff” made of?
- What is the nature of space and time (scale magnitudes)?
- How do the heavens work?
- Test some of these things out in the lab.

Sample Reading Quiz

1. There is a web site for the course. (a) true (b) false
2. TAs are available to help you understand (a) homework questions, (b) lab assignments, (c) conceptual questions, (d) all of the above.
3. You need to know your class ID number immediately. (a) true, (b) false

Physical Science 110A

1. Read Chap 1 before next class.
2. No homework due next class.
3. Yes there is a reading quiz!

Koooool!