

Earth Science 105

Winter 2008

New Textbook:

Conceptual Physical Science, 4th ed.

Hewitt, Suchocki and Hewitt

Lab Manual:

Earth Science 105 Lab Manual

By Western Oregon University Earth
Science Instructors

Karen Brown

- 3 years at Western Oregon University
- 10 years previous college instructing
- MS geochemistry, stratigraphy 1987
- WOU Earth Science 100 series lab coordinator

Earth Science 105

- Get textbook: there will be one or two in library on 2-hour reserve if you cannot afford to buy one at the bookstore
- Attend class regularly
- Do NOT miss lab: it is worth 25% of your grade, and you cannot pass the class if you get less than 60% of the lab points
- Labs start next week, and meet weekly. Your lab instructor will give you a schedule and syllabus next week.

This class

- Meets twice per week: 9:30 to 10:50 AM or 3:30 to 4:50 PM. You may attend later lecture occasionally if you have unexpected conflicts.
- Contact and grading information in the syllabus
- Online syllabus has hyperlinks to the review questions, and catalog information

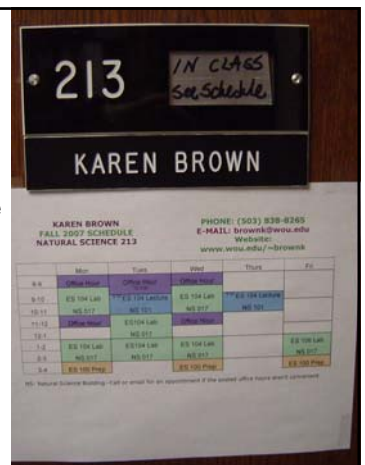
Contact Information

- Office hours:
 - Monday 8 to 9 AM
 - Tuesday 8 to 9:30 AM
 - Wednesday 3 to 4 PM
 - Thursday 2 to 3:30 PM
- Drop in or phone during office hours
- NS 213:
 - up the south stairs, 2nd door on right
- Phone 503-838-8265 (88265 on campus)

Notice the sign on the office door!

May also say

- Gone See Schedule
- Went for Coffee ETA
- Downstairs Be Right Back
- In NS017 Come Find Me
- HERE Please Knock
- Etc.



Emailing me: brownk@wou.edu

- Please, please use the time of this class IN THE SUBJECT of the email
 - ES 105 TR 9:30
- It helps orient me, and makes me be in a better mood.
- Email if you know in advance if you will miss an exam, are having difficulties with course materials, have personal issues that make attending class difficult, are going on a road trip with a team, troupe, club, etc.

I may email you

- If you prefer an address other than the .wou address, send me a note this week from that other address, so I can change it on my spreadsheet
- I may contact you if I notice you are missing class, have done poorly on an exam, or for good reasons too: to recommend you for department recognition, etc.
- I recommend you reply so I know you got the note, and so we can resolve what ever it was that caused me to sent the note

Resources

- Your textbook: buy it, write your name in it, read it often—and pay attention when you are reading
- Me: call, come by, or email
- My website
- Your lab instructor
- Tutoring at the Learning Center
- Peer Led Team Learning

Textbook

- *Conceptual Physical Science, 4th Ed.* By Paul Hewitt, John Suchocki, and Leslie Hewitt, 2008: ISBN 13-978-0-321-51695-4
- Review questions are there,
- Textbook website access is also there

My Website

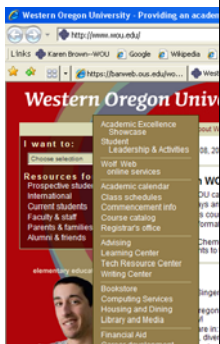
- www.wou.edu/~brownk
- Lecture notes, copies of slide shows, keys to in-class activities, midterms, review questions, extra credit opportunities
- Online syllabus with hyperlinks to review questions

Your lab instructor

- Start lab next week
- Bring your lab manual, your textbook, and a calculator to every lab: your cell phone is not appropriate—get a scientific calculator that does sine, cosine and square root!!
- Lab is intended to give you hands-on experience with the material I present in lecture

Tutoring Center

- Make an appointment
 - APS 401
 - call 503-838-8428
 - Email tutoring@wou.edu
- Tutors: get to know them early in the term
 - Teresa, Dallas, Avery
- In the AALC (across the street)



Peer Led Team Learning

- PLTL
- ES105x
- CRN 21016
- Day, time and location to be arranged
- Teresa Trump?

Grading

- Three exams:
 - two 50 point midterms
 - one 125 point final
- Three sets of review questions:
 - due on exam days,
 - worth 15 points each
- In-class activities/homework exercises:
 - 10 will count toward your grade,
 - at least 12 will be offered,
 - 3 points each
- Lab is 25% of total grade,
 - you have to pass lab
 - Your lab instructor will give me your percent, and I will use that as 100 points toward your final grade

Exams

- Midterms on January 24 and February 21
- Final on March 18, and will be comprehensive
- Bring a scantron, a pencil and a calculator
- Expect some multiple choice, true/false, matching, and diagrams on the scantron
- There will be a page of exercises, problems and short-answer responses

Missing exams

- If you know in advance, contact me as soon as you know so we can make arrangements for you to take it at another time
- If you miss one due to an emergency situation, you must have some written verification of the event for you to get consideration to take the exam late

Review questions

- Get a LARGE BLUE BOOK or two when you buy your textbooks
- Do the review questions weekly, or more often, instead of waiting until the night before they are due
- Write in independent statements, so the Blue Book is a stand-alone study guide
- Each set is due on each exam day
- No late review questions will be accepted

In-class activities/homework handouts

- There will be many of these, and more than count toward the 30 points available as part of your final grade
- They cannot be made up outside of class: you need to be here to get the points
- They are good examples of exam questions, or note-taking techniques
- Occasional extra credit opportunities can offset missing a few of these

The structure of the class

- Unit 1 will be physics: mass, motion, gravity, satellites, landslides
- Unit 2 will be chemistry: atoms, reactions, compounds, acids and bases, fuels
- Unit 3 will be geology: weathering, streams, sediments, sedimentary rocks, fuel deposits, energy resources

Nature of Science

- Gather knowledge
- Organize it
- Test it

Advances in Science

- Greece 2500 years ago across Mediterranean world
- East Asian astronomy 1500 years ago
- West Asian mathematics, manufacturing glass, paper, metals and chemicals 1000 years ago
- Copernicus proposed Earth orbits Sun ~500 years ago

Math and Conceptual Science

- Science is expressed in mathematical terms
- Unambiguous
- Easier to verify or disprove by experiment when expressed by math

Scientific Method

- Observe
- Question
- Predict
- Test
- Conclude

Scientific Attitude

- Fact: close agreement about same phenomenon
- Hypothesis: educated guess
- Law or principle: tested hypothesis
- Open mind: change concept of law or principle when contradicting information is found
- Single verifiable experiment outweighs authority, regardless of reputation

Theory

- General usage: same meaning as hypothesis
- Scientific theory:
 - summary of large body of information
 - Encompassing well-tested hypotheses
- Hypothesis must be testable to be a scientific hypothesis
- Mistakes and deception require re-examination of the hypothesis

Scientific Hypothesis

- A) atoms are the smallest particles of matter that exist
- B) space is permeated with an essence that is undetectable
- C) Albert Einstein was the greatest physicist that ever lived

Technology

- Lets us use scientific knowledge for practical purposes
- May lead to problems, but is not the problem

The Physical Sciences

- Physics: motion, force, energy, matter, heat, sound, light
- Chemistry: structure of matter, atoms make molecules, molecules make substances
- Earth Science: geology, meteorology, oceanography
- Astronomy: application to planets and stars

Earth System Science

- Practical application of chemistry and physics
- Knowing the rules of science helps you appreciate it more