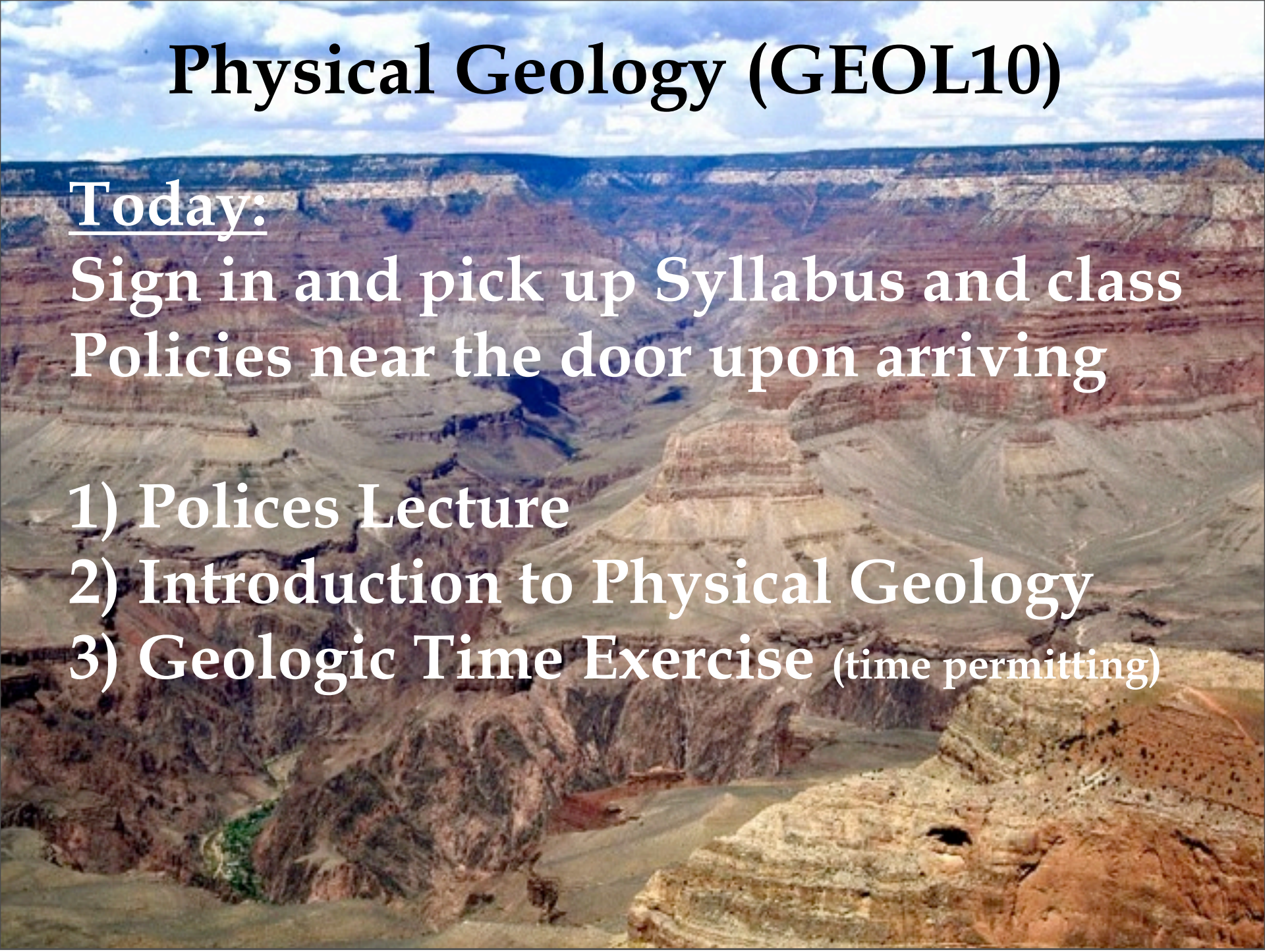
# Physical Geology (GEOL10)



**Today:**

Sign in and pick up Syllabus and class Policies near the door upon arriving

1) Polices Lecture
2) Introduction to Physical Geology
3) Geologic Time Exercise (time permitting)

SURFACEPROCESSES.COM

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# Duane E. DeVecchio, Ph.D.

## Neotectonics and Earth Surface Processes

Assistant Researcher — University of California, Santa Barbara
Adjunct Faculty — City College of San Francisco

### Education:

Ph.D. University of California, Santa Barbara, 2009
M.S. Idaho State University, 2002
B.A. San Francisco State University, 2000

### Contact Information:

Department of Earth Science
University of California
Department of Earth Science
Webb Hall MC - 9630
Santa Barbara, CA 93106

E-mail: duanedevecchio@mac.com

### Research Interests:

Some of the most beautiful natural objects in the modern landscape consist of elemental landforms, many of which we do not understand quantitatively. These landforms are commonly the result of the interplay between bedrock uplift, surface denudation, and changes in the hydrologic system. These processes can sometimes be linked, but are often independent and are highly influenced by climate variability and tectonic forces. Because climate change and tectonics are inherently relevant to modern civilization, a quantitative understanding of the morphology of the Earth's surface and the causality of landscape evolution is fundamental to humanity and the Earth science community. Thus my current and future research interests focus on the timing and rates of change of the Earth's surface due to depositional, denudation, and incisional surface processes in response to changes in the hydrologic cycle and fluvial system, as a result of climate and tectonic variability.

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HOME RESEARCH TOPICS CURRICULA VITAE TEACHING PHOTOS LINKS

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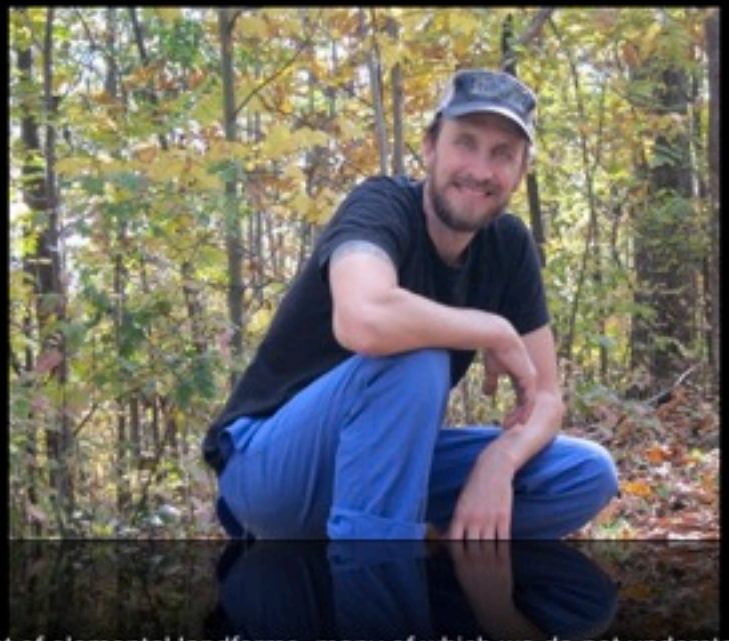

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**http://www.surfaceprocesses.com**

# Duane E. DeVecchio, Ph.D.

## Adjunct Faculty

*City College of San Francisco*

**Office:**
e-mail: ddevecchio@ccsf.edu
Room number: Science 43

**Spring 2013:**
Physical Geology Lecture (GEOL10)
Physical Geology Lab (GEOL10L)

**Past Courses:**
Geologic Applications of GIS

**Teaching Philosophy:**
Teaching Philosophy.pdf
Certificate in College and University Teaching Portfolio.pdf

**Field Photos:**
Swiss-MIT Field Excursion 2011
Physical Geology Photos 2008
Summer Field Photos 2007
Summer Field Photos 2006

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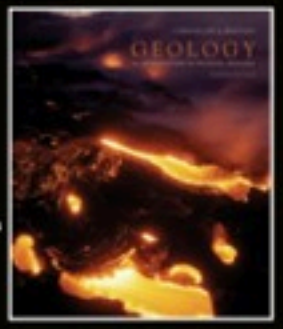
Summer Field Photos 2007
Summer Field Photos 2006

# PHYSICAL GEOLOGY LECTURE (GEOL10)
# SUMMER 2012

DeVecchio GEOL10 Lecture

*Adobe Reader is required to read and ring the following documents. If you do no already have the reader installed, you can Download Adobe Reader for free*




## CLASS MATERIALS:

**TEXTBOOK INFORMATION**

Geology 4th Edition, Chernicoff and Whitney authors; Prentice Hall Publishers

PURCHASE OPTIONS:

- Purchase from CCSF bookstore
- Purchase from online publisher or any other online book vendor (new or used). Example: Valore.com
- Books on reserve in library
- Loaner textbooks (random authors) available for first few weeks of semester until you can purchase your own textbook (get them early); Loan is temporary only.
- Previous editions acceptable and available online (but be sure to reference library copy for more current information)
- Purchase from Ebooks at www.coursesmart.com

OTHER REQUIRED MATERIALS:

- **Notebook** to hold all class handouts (please bring to every class)
- **Class handouts** for entire semester. Will be passed out in class each week OR to be printed from this website (as long as ENTIRE semester's worth printed at beginning and brought to class).
- **iClicker** (to be purchased new or used at the bookstore or online)

## LINKS:

CCSF Earth Science Department

Link to Chapter Review Questions

## SEMESTER DOCUMENTS:

Syllabus_v5.pdf

LecturePolicies.pdf

GEOL10KeyTerms_v3.pdf

## WEEKLY LECTURES AND DOCUMENTS:

Mon. Jul. 2

PowerPoint:

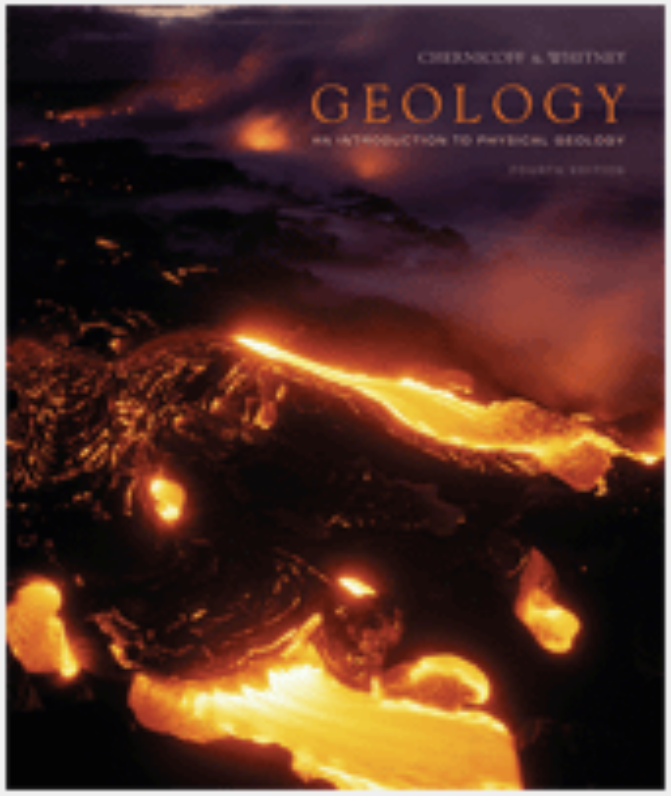
PowerPoint:

# Physical Geology (GEOL10L) LAB

*There is a Physical Geology Lab (GEOL10L) that is offered during the Fall and Spring semester, but not during the summer. After falling in love with geology and successfully complete GEOL10 you can take the 2 unit Lab course for credit during the regular school year.*

*-Available spots this semester Thursday 2-6 pm and 6-11 pm*

# TIME COMMITMENT FOR THIS CLASS
## 2 hours at home for every hour of lecture
## 18 hrs/week AVERAGE for C




## Buy REQUIRED Textbook now!

- **Bookstore** ($99 for loose-leaf, hole-punched – you'll need to buy and use a binder!)
  - -Used copies $85
  - -New copy $155
- **Online** (Amazon.com is a great example) and get new or used copies *(including previous editions)* pretty cheap (although you have to wait for them to ship so do it NOW). Just about any Geology textbook from the past 10 years will work.

*Geology: An introduction to physical geology*

*4th Edition,*
*Chernicoff and Whitney*

**Reserve copies in library NOW!!!**

*(Earlier editions ARE okay, but you will need to access Library Reserve Copies of the current edition for periodic comparison.)*

# Physical Geology LECTURE

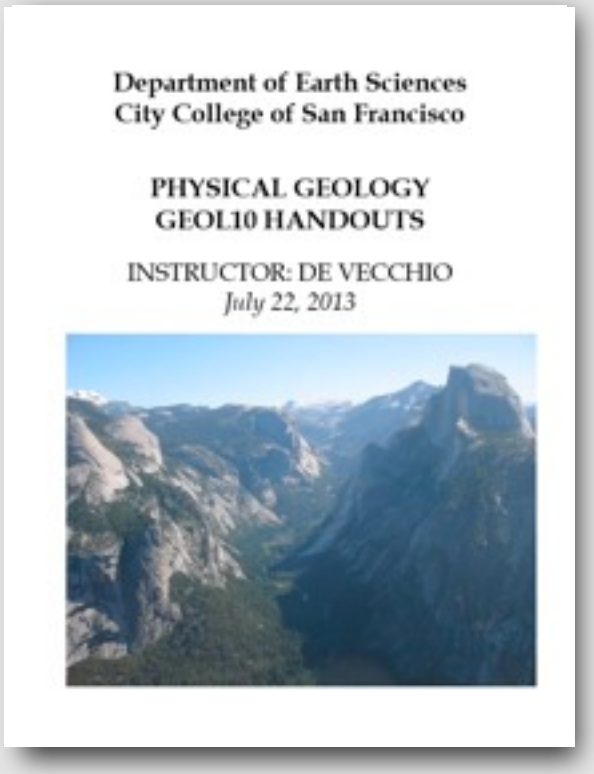
We will be using iClickers this semester, but you will not need to purchase your own.

Next week we will discuss how Earth Science iClicker loaners work next week.

If you have your own bring it with you next week.

# Physical Geology LECTURE

**Required Handouts**
**Are available at the books store for ~$12.**
**Or can be downloaded from the website and printed at your own expense.**
MUST HAVE ALL HANDOUTS IN ENTIRETY IN NOTEBOOK FOR CLASS EACH DAY AND SHOULD BE KEPT IN A NOTEBOOK


Department of Earth Sciences
City College of San Francisco

PHYSICAL GEOLOGY
GEOL10 HANDOUTS

INSTRUCTOR: DE VECCHIO
*July 22, 2013*

# Physical Geology Class Policies

## LECTURE CLASSES

**Instructor:** Duane DeVecchio, e-mail: duanedevecchio@mac.com, website: http://www.surfaceprocesses.com
**Office hours:** Mon and Tues. 12-1pm or by appointment  Earth Science website: http://www.ccsf.edu/Earth
**Grading scale:** A=90-100%; B=80-89%; C=70-79%; D=60-69%; F=<60%.
**Grading:** Your grade is equally divided between each exam and the total for all your daily quizzes. Specifically, there are 2 exams in the class, each is worth 35%, with the remaining 30% coming from your quizzes.
Inclass iClicker questions will be incorporated into your quiz grades and can only help your grade.

**Time required (units)** – For each lecture unit, expect to put in 1 hour in lecture and 2 hours in homework for an average grade of a C. For example, a 3-unit lecture class requires 3 hours in class and 6 hours homework weekly for a C average. Each student will need to put in more or less time, depending on his or her background and study techniques. Study session schedule at http://www.ccsf.edu/Earth

**Class prerequisites** – There are no official prerequisites. However, without the following basic skills, you will need extra help and time in this class: comprehensive reading, writing, algebra, basic geometry, and basic chemistry. If you are weak in these areas or have any questions at any time, come to office hours, see the tutor, attend study sessions, make an appointment, or e-mail me. I'm here to help!

**Handouts** – All class handouts must be purchased through the bookstore and can also be found online at: http://www.surfaceprocesses.com, click on Teaching then Physical Geology 2012. If you miss class, please catch up quickly on your own or with the help of your classmates so you don't fall farther behind. It is essential that you **keep all materials in one notebook for easy reference and bring it with you to class. You will need to access these handouts throughout the semester, easily, during class.**

**iClicker** – It is required that you have an iClicker response system for this class. We will use these during class to track attendance, assess homework completion, and track classroom participation. You must have it with you each class. If you are worried about forgetting your iClicker, you can label it with your name and store it in the classroom. We do have spare units we will loan out in emergencies (one emergency per students per semester). If there is a financial reason why you cannot purchase an iClicker, we also have a few loaners, please contact me ASAP.

**Weekly HW** – #1: Read assigned new chapters. Learn vocabulary words and begin thinking about the new chapter questions. Start writing out answers to the ones that you pick up from the reading, especially the ones marked with an asterisk (*) (you won't be able to answer all of them). The more time you put in ahead, the more you'll get out of the lecture. Note: you will demonstrate your completion of this task through a daily quiz. #2: Review previous week's chapter questions and make sure you have a written answer (in your own words) to each question. Seek help from me or classmates for material that still hasn't clicked or just to help review. #3:). **WHILE DOING HOMEWORK, YOU CAN PREPARE A SINGLE PAGE OF NOTES TO USE ON QUIZZES – one page – your own writing (or typing). You will attach this page to the quiz. You must transcribe anything you use from the book or my handouts.**

**Attendance** – Your attendance will be tracked through your iClicker in-class responses. If you are absent for more than three classes (determined by quiz scores) or miss an exam (without immediately making contact to discuss your options), you WILL be dropped. I will not keep students enrolled just for financial aid or student visa status – if you want to stay enrolled, keep attending and contributing. **You must take exams and quizzes on scheduled days.** Exceptions are made only for extenuating circumstances and only when alternate arrangements have been made prior to the exam/quiz or as soon as possible after.

**Cheating** – The highest level of integrity is required for all quizzes and exams. Anyone found cheating will receive a zero on the exam or quiz and face disciplinary action at the college.

**Loaner books** – See me if, at any time, you need a temporary loaner book (NOT class text, but similar).

**Seeking Help** – If you have questions, come to office hours, see the tutor, attend study sessions, make an appointment, or e-mail me. It's your responsibility to seek needed help. We're here if you're ready!

**Cancelled classes** – If class is cancelled, for any reason, keep up with homework assigned on syllabus.

**Cell phones/pagers** – Please turn all electronic devices off before coming to class.

**Sleeping in class** – I assume your bed is more comfortable than the classroom. Please stay at home if you're too tired to stay awake in class; otherwise you drain my energy, and your fellow students suffer.

**Leaving class** – When arriving late to class or leaving class while it is in session, please be as nondisruptive as possible. There is no need to ask permission or give excuses. You're all adults, so I assume you're making the best choices for yourself. **In S-45, please use the back door only!**

**Eating and drinking** – No gum chewing in the room at all. No food or spillable drink containers on the tables or desks during class. Feel free to bring food, but eat it only outside the classrooms. Sealed water and coffee mugs will be alowd at your desk.

**Chapter Questions Handout** – Are all included in the manual or will be posted at http://surfaceprocesses for you to download and print. For each chapter, you will receive a list of questions, from which most future exam questions on that chapter will come. BEFORE attending class each week, carefully and thoroughly read the assigned chapters and review the chapter questions. The more you read and study the material before class, the more you will get out of class, and the better you will do on exams. All classroom activities assume that you have taught yourself all you can on your own first and that you have a basic understanding of the material. If you do not prepare well enough, you may have difficulty following and participating in classroom discussion. If at the end of the week you still have questions or doubts on any of the topics, seek help ASAP. Start early. **These questions will appear on weekly quizzes and the exams.**

**Quizzes** – At the start of the semester, you get a list of vocabulary words for each chapter that we cover. Prior to each week's class, as you read the new chapter, learn the vocabulary and review the questions we will be covering – try to learn as much as you can on your own. Also every week, review the material we covered the week before (answers to the previous week's chapter question sheet). The first class period each week begins with a preview and review quiz that takes the first 10 minutes of class. NOTE: If you show up late, no guarantees you can still take the quiz – the quiz ends when everyone finishes or 10 minutes (9:20 am)after class starts, whichever occurs first! ½ of the quiz content covers vocabulary for new material (matching); the other ½ covers chapter questions from the previous week (old material, short-answer). (Note: there will be a few extra-credit questions on the quiz from the new chapter – any starred question from the chapter question sheet – asked in short answer format.) You may start quizzes up to 10 minutes early (9:00 am). If you cannot attend class for legitimate reasons, you may make up the quiz ahead of time. (You cannot take quizzes after the fact, only on time or before!). If you are late to class, you miss the quiz. To accommodate emergencies, I drop your two lowest quiz grades. If you have difficulties making quizzes or are not doing well on quizzes, please see me ASAP to discuss. *Quizzes occur daily on the first day the class meets.* **WHILE DOING HOMEWORK, YOU CAN PREPARE A SINGLE PAGE OF NOTES TO USE ON QUIZZES – one page – your own writing (or typing). You will attach this page to the quiz. You must transcribe anything you use from the book or my handouts.**

**Pass Sheets and Exams** – Prior to each exam, you will receive a Pass Sheet – with ~70% of the questions that will be on the exam. As long as you can answer these questions correctly on the exam, you will get the lowest C. All additional exam questions that you answer correctly will help you to raise your grade from a C to a B (80-89) or A (90+). YOU MUST BRING YOUR COMPLETED PASS SHEET WITH YOU TO TAKE THE EXAM – NO SHEET – NO EXAM. If the sheet is missing any answers – any blanks – you will not be able to take the exam. (The pass sheet is your ticket, but you cannot use it ON the exam.)
Exams are closed notes, closed book. Each exam takes between 90 to 120 minutes to complete and consists of short answer and short essay questions that cover topics that have appeared on chapter question handouts. NO DICTIONARIES OR ELECTRONIC DEVICES ALLOWED DURING EXAMS OR QUIZZES (*CALCULATORS OK IF NECESSARY, BUT UNPROGRAMMABLE ONES ONLY*). Please ask me during the exam if you don't understand a question. You will need to bring your own pencil and eraser. Although the exams are not comprehensive and exams will focus on the chapters covered since the last exam, you will need to remember some are the basic information from previous exams in order to answer some questions. **Final note: we do NOT go over pass sheets in class – these are for you to complete on your own, with your classmates, or in office hours with me.**

**Getting the best grade – Follow this plan to get the highest grade possible:**

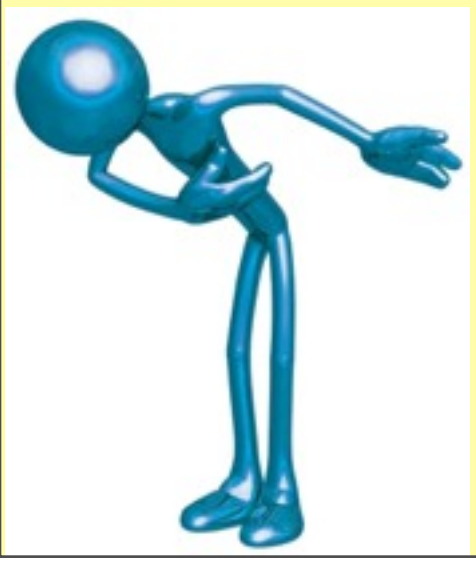
1. Teach yourself BEFORE we go over the material in class. Read each chapter thoroughly. Learn the key words and compose and write answers to as many of the questions on the chapter handout as you can on your own. (Leave space next to each question, so you can take notes on it during class.)
2. Use class to deepen your understanding. Ask questions, take notes on the correct answers to the questions, and participate in in-class discussions and activities. Note: You will not have time during class to write verbatim what you hear in lecture. If you need such detail, bring a tape recorder.
3. Review material after class. Review and study question handout (and correct answers) at the end of each week. If you are missing any answers or don't feel confident about some of your answers, compare with other students in the class and/or check the answers with me. **Be sure you have all of your answers on the PassSheets are correct before you take the exam.**

**Please keep all class materials in one notebook for easy reference.**

# NO open drinks
# NO food
# NO gum chewing
# IN CLASSROOM

# If you need to leave DURING class for any reason, please do so

# QUIETLY



# & RESPECTFULLY

# CHAPTER QUESTION SHEETS

# VOCABULARY

**Chp. 1a(p. 2-20): A First Look at Planet Earth**

asthenosphere
accretion
condrules
conduction
convection cell
erosion
homogeneous
igneous rocks
metamorphic rocks
nebular cloud
planetary differentiation
scientific theory
scientific hypothesis
sedimentary rocks
solar differentiation
solar wind

**Chp. 12: Plate Tectonics and the Formation of Oceans (Basins)**

accretionary wedge
forearc basin
guyots
hot spots
marine magnetic anomaly
mélange
oceanic trenches
ophiolite suite
passive continental margins
rift valley
seamount
volcanic arc

## Earth First Look – Chapter Questions

1. **When did Earth form? What major process formed the Earth?
2. How do we know Earth's age?
3. **What major process formed Earth's layers? When?
4. What major process formed Earth's oceans? When?
5. What processes formed Earth's atmosphere? Compare and contrast Earth's early atmosphere with that of today. What caused the changes?
6. When did life first evolve on this planet?
7. When did early life first leave the oceans and move onto land?
8. Review these properties of Earth's interior compositional and physical layers. While you do not need to memorize thicknesses or densities, you should memorize composition and state, and be able to draw a picture, to scale, of all of Earth's layers. *Be sure you understand how oceanic and continental crust compare.*

| Layers | Thickness | Composition | State/Density |
|---|---|---|---|
| Oceanic crust | 3-10 km | Si, O, Fe, Mg, Al = Basalt | 2.9 g/cc SOLID |
| Continental crust | 30-50 km | Si, O, Al = Granite | 2.7 g/cc SOLID |
| Mantle | 2900 km | Mg, Fe, Si, O | 4.5 g/cc SOLID |
| Outer core | 2200 km | Fe, Ni (S, Si) | 11 g/cc LIQUID |
| Inner core | 1300 km | Fe, Ni (S, Si) | 16 g/cc SOLID |

Overlaid layers:

| | | | |
|---|---|---|---|
| Lithosphere | 100-200 km | 100% Crust + Upper Mantle | RIGID, SOLID, BRITTLE: breaks into pieces, called plates |
| Asthenosphere | 100-350 km | Portion of mantle | Plastic (flows), but SOLID |

9. The Moho is the boundary between the crust and mantle. What's the difference between the asthenosphere, lithosphere, crust, and mantle? In which do you find the Moho?
10. **List at least 4 lines of evidence that Wegener and others used to prove continental drift.
11. **Compare and contrast the three types of plate boundaries and all their permutations.

| Divergent | Transform | Convergent (ocean-ocean) | Convergent (ocean-cont) | Convergent (cont-cont) |
|---|---|---|---|---|
| ← → | ↑↓ | → ← | → ← | → ← |

12. Draw cross sections of each type of plate boundary; provide at least two global examples of each; and list features associated with these plate boundaries (see handout).
13. Most of Earth's heat comes from the initial formation of Earth AND radioactive decay. Make sure you understand these sources. What's happening to this heat over time?
14. What key characteristics of Planet Earth produce Plate Tectonics?
15. **How are subduction and seafloor spreading part of Earth's heat engine? (Relate to the convection process.)
16. **Compare and contrast igneous, sedimentary, and metamorphic rocks.
17. How are all three rock types related? Where is each found?

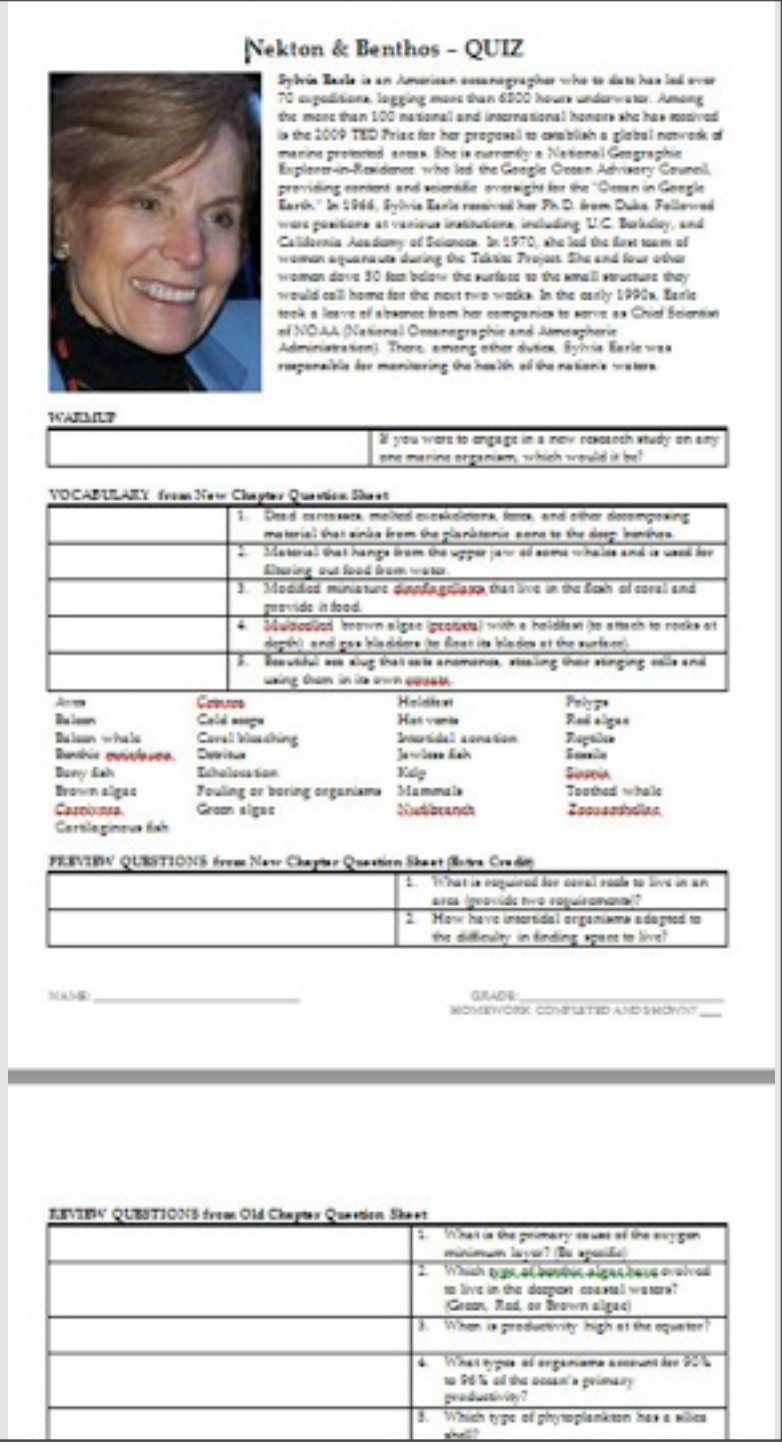
# QUIZZES

- 50%: Preview VOCAB (see vocab list)
- 50%: Review SHORT ANSWER
- Some extra credit from the PREVIEW MATERIAL (see (*) on question sheet)

**EVERYONE IS ALLOWED**
**A PAGE OF NOTES FOR QUIZ**

**RULES:**

- Single page (front and back OK)
- Will attach this page to quiz when done.
- Each person's page must be unique and not a duplicate of anyone else's.
- You cannot simply make a copy of any of my materials. Must be transcribed by you first.



Nekton & Benthos – QUIZ



Sylvia Earle is an American oceanographer who to date has led over 70 expeditions, logging more than 6000 hours underwater. Among the more than 100 national and international honors she has received is the 2009 TED Prize for her proposal to establish a global network of marine protected areas. She is currently a National Geographic Explorer-in-Residence who led the Google Ocean Advisory Council, providing content and scientific oversight for the "Ocean in Google Earth." In 1966, Sylvia Earle received her Ph.D. from Duke. Followed were positions at various institutions, including U.C. Berkeley, and California Academy of Sciences. In 1970, she led the first team of women aquanauts during the Tektite Project. She and four other women dove 50 feet below the surface to the small structure they would call home for the next two weeks. In the early 1990s, Earle took a leave of absence from her companies to serve as Chief Scientist of NOAA (National Oceanographic and Atmospheric Administration). There, among other duties, Sylvia Earle was responsible for monitoring the health of the nation's waters.

WARMUP

| | |
|---|---|
| | If you were to engage in a new research study on any one marine organism, which would it be? |

VOCABULARY from New Chapter Question Sheet

| | |
|---|---|
| | 1. Dead carcasses, melted exoskeletons, feces, and other decomposing material that sinks from the planktonic zone to the deep benthos. |
| | 2. Material that hangs from the upper jaw of some whales and is used for filtering out food from water. |
| | 3. Modified miniature dinoflagellates that live in the flesh of coral and provide it food. |
| | 4. Multicellular brown algae (protists) with a holdfast (to attach to rocks at depth) and gas bladders (to float its blades at the surface). |
| | 5. Beautiful sea slug that eats anemones, stealing their stinging cells and using them in its own armor. |

| | | | |
|---|---|---|---|
| Anus | Corals | Holdfast | Polyps |
| Baleen | Cold seeps | Hot vents | Red algae |
| Baleen whale | Coral bleaching | Intertidal zonation | Reptiles |
| Benthic environment | Detritus | Jawless fish | Sessile |
| Bony fish | Ebullioution | Kelp | Sponge |
| Brown algae | Fouling or boring organisms | Mammals | Toothed whale |
| Carnivore | Green algae | Nudibranch | Zooxanthellae |
| Cartilaginous fish | | | |

REVIEW QUESTIONS from New Chapter Question Sheet (Extra Credit)

| | |
|---|---|
| | 1. What is required for coral reefs to live in an area (provide two requirements)? |
| | 2. How have intertidal organisms adapted to the difficulty in finding space to live? |

NAME: _____ GRADE: _____
HOMEWORK COMPLETED AND SHOWN? ___

REVIEW QUESTIONS from Old Chapter Question Sheet

| | |
|---|---|
| | 1. What is the primary cause of the oxygen minimum layer? (Be specific) |
| | 2. Which type of benthic algae have evolved to live in the deepest coastal waters? (Green, Red, or Brown algae) |
| | 3. When is productivity high at the equator? |
| | 4. What types of organisms account for 90% to 98% of the ocean's primary productivity? |
| | 5. Which type of phytoplankton has a silica shell? |

# QUIZZES

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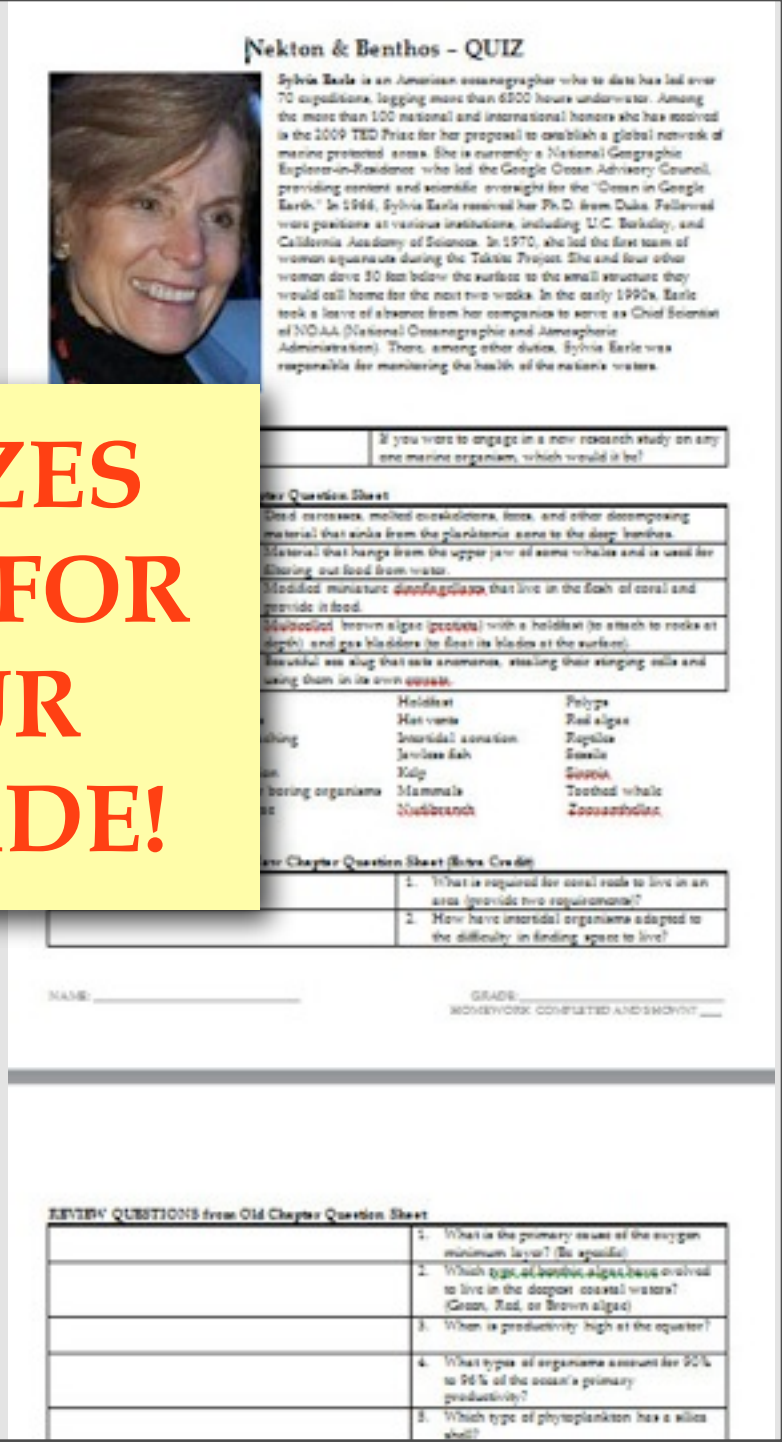
- You cannot simply make a copy of any of my materials. Must be transcribed by you first.

**THESES QUIZES WILL COUNT FOR 25% OF YOUR COURSE GRADE!**


Nekton & Benthos – QUIZ

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| | |
|---|---|
| | If you were to engage in a new research study on any one marine organism, which would it be? |

ter Question Sheet

| | |
|---|---|
| Dead carcasses, molted exoskeletons, feces, and other decomposing material that sinks from the planktonic zone to the deep benthos. | |
| Material that hangs from the upper jaw of some whales and is used for filtering out food from water. | |
| Modified miniature dandelions that live in the flesh of coral and provide it food. | |
| Multicellular brown algae (protists) with a holdfast (to attach to rocks at depth) and gas bladders (to float its blades at the surface). | |
| Beautiful sea slug that eats anemones, stealing their stinging cells and using them in its own armor. | |

| | | |
|---|---|---|
| | Holdfast | Polyps |
| | Hot vents | Red algae |
| hing | Intertidal zonation | Reptiles |
| | Jawless fish | Sessile |
| | Kelp | Sponge |
| boring organisms | Mammals | Toothed whale |
| | Nudibranch | Zooxanthellae |

r Chapter Question Sheet (Extra Credit)

| | |
|---|---|
| | 1. What is required for coral reefs to live in an area (provide two requirements)? |
| | 2. How have intertidal organisms adapted to the difficulty in finding space to live? |

NAME: _____ GRADE: _____
HOMEWORK COMPLETED AND SHOWN? ___

REVIEW QUESTIONS from Old Chapter Question Sheet

| | |
|---|---|
| | 1. What is the primary cause of the oxygen minimum layer? (Be specific) |
| | 2. Which type of benthic algae have evolved to live in the deepest coastal waters? (Green, Red, or Brown algae) |
| | 3. When is productivity high at the equator? |
| | 4. What type of organisms account for 90% to 98% of the ocean's primary productivity? |
| | 5. Which type of phytoplankton has a silica shell? |

# Syllabus and Quizes

## Syllabus Physical Geology Lecture – Spring 2013

**Location:** Science 45 (9:40-10:50 am) and Science 5 (2:10-3:20 pm)
**Credits:** 3; **Required text:** Geology, 2007, 4th Edition (3rd edition also OKAY) (Chernicoff and Whitney)
**Instructor:** Duane DeVecchio **e-mail:** ddevecchio@csf.edu **website:** http://www.surfaceprocesses.com
**Office hours:** Mon 11-12 pm Wed. 12:30-1:30 pm (Science 45) or by appointment

| 9:40-10:55 am / 2:10-3:25 pm | Topics to cover this week |
|---|---|
| Mon. (Jan. 14th) | Introduction to class Policies and Physical Geology |
| Wed. (Jan. 16th) | Quiz Chapter 1a Vocabulary (p. 2-20), Introduction to the Solar System |
| **Mon. (Jan 21st) Martin Luther King Jr. Day (no class)** | |
| Wed. (Jan 23rd) | QUIZ: Chapter 1a Review and Chapter 11 Vocabulary<br>Chapter 1a (p. 2-20): A First Look at Earth and Chapter 11: The Earth's Interior |
| **Jan. 28th LAST DAY TO DROP (full refund)** | |
| Mon. (Jan. 28th) | *Continued: Chapter 11: The Earth's Interior* |
| Wed. (Jan. 30th) | QUIZ: Chapters 1a and 11 Review – Vocabulary Chapters 1b and 12<br>Chapter 1b (p. 20-37) and Chapter 12: Plate Tectonics and The Formation of the Oceans (Basins) |
| **Feb. 1st LAST DAY TO ADD** | |
| Mon. (Feb. 4th) | QUIZ: Chapters 1b and 12 Review – Chapter 13 Vocabulary<br>Chapter 13: Plate Tectonics and The Formation of the Continents |
| Wed. (Feb. 6th) | *Continued: Chapter 13: Plate Tectonics and The Formation of the Continents* |
| Mon. (Feb.11th) | QUIZ: Chapter 13 Review – Chapter 9 Vocabulary<br>Chapter 9: Earth Structures – Folds, Faults, Fabrics |
| Wed. (Feb.13th) | *Continued: Chapter 9: Earth Structures – Folds, Faults, Fabrics* |
| Mon. (Feb. 18th) | QUIZ: Chapters 9 Review – Chapter 10 Vocabulary<br>Chapter 10: Earthquakes and Chapter 11 (p. 354-366 mostly review) |
| Wed. (Feb. 20th) | *Continued: Chapter 10: Earthquakes and Chapter 11 (p. 354-366 mostly review)* |
| Mon. (Feb. 25th) | Video: How the Earth was Made: Swiss Alps |
| Wed. (Feb. 27th) | **Exam I** (Covers chapters 1, 9-13) |
| Mon. (Mar. 4th) | QUIZ: Chapter 2 Vocabulary<br>Chapter 2 Minerals |
| Wed. (Mar. 6th) | *Continued: Chapter 2 Minerals* |
| Mon. (Mar. 11th) | QUIZ: Chapter 2 Review – Chapter 3 Vocabulary<br>Chapter 3: Igneous Rocks and Processes |
| Wed. (Mar. 13th) | *Continued: Chapter 3: Igneous Rocks and Processes* |
| Mon. (Mar. 18th) | QUIZ: Chapter 3 Review – Chapters 4 Vocabulary<br>Chapter 4: Volcanoes and Volcanism |
| Wed. (Mar. 20th) | *Continued: Chapter 3: Igneous Rocks and Processes* |
| **Week of Mar. 25th Spring Break (no class all week)** | |
| **Mon. (Apr. 1st) Cesar Chavez Day (no class)** | |
| Wed. (Apr. 3rd) | QUIZ: Chapters 4 Review – Chapter 5 and 6 Vocabulary<br>Chapter 5 Weathering: Breakdown of Rocks *(up to Soils/ Formation* |
| Mon. (Apr. 8th) | *Continued: Chapter 6: Sedimentary Processes, Environments, and rocks* |
| Wed. (Apr. 10th) | QUIZ: Chapter 6 Review – Chapter 7 Vocabulary<br>Chapter 7: Metamorphism and Metamorphic Rocks |
| Mon. (Apr. 15th) | *Continued: Chapter 7: Metamorphism and Metamorphic Rocks* |
| Wed. (Apr. 17th) | Video or Review Session |
| **April 18th LAST DAY TO WITHDRAW** | |
| Mon.(Apr. 22nd) | **Exam II** (Covers chapters 2-7) |

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# PASS SHEETS

**~70% of test questions**
**VERBATIM**
**in different order**

**MUST HAVE COMPLETED**
**and bring with you**
**as ticket to exam**
**(BUT cannot use on exam)**

## Geology 10 – Exam 1 Pass Sheet

If you can answer all these questions correctly on the exam, you will get a 70% pass. (Questions will appear on the exam in a different order and with different numbers.) There will be additional question on the exam (~25 to 30%). These can help you to raise your grade from 70 (C) to a B (80-89) or A (90+). Note: YOU MUST BRING THIS COMPLETED SHEET WITH YOU TO TAKE THE EXAM – NO SHEET – NO EXAM. Exam will be closed notes, closed book, – you cannot use this sheet on the exam. Good luck!

| | |
|---|---|
| 1. How old is the universe? | |
| 2. How old is Earth (be specific to one decimal place)? | |
| 3. List five of Alfred Wegeners main lines of evidence to support Continental Drift (be specific). | 1.<br>2.<br>3.<br>4.<br>5. |
| 4. What were Harry Hess' three lines of evidence to support Sea Floor Spreading (be specific)? | 1.<br>2.<br>3. |
| 5. Explain what is meant by planetary differentiation. | |
| 6. Explain what is meant by solar system differentiation. | |
| 7. Where in the oceans is the youngest (newest) ocean crust found? | |
| 8. What kind of continental margin is the East Coast of the United States? | |
| 9. What kind of continental margin do we live on here in San Francisco? | |
| 10. How do we know the age f Earth? | |
| 11. Volcanic activity can be found in three different geologic settings. What are these and what is the cause of melting at each setting? | 1.<br>2.<br>3. |
| 12. In which layer does Earth's magnetic field originate? | |
| 13. What characteristics and behavior of this layer produce the magnetic field? (Be specific!) | |
| 14. Which seismic wave can travel through all materials (solids, liquids, gases) and how does this wave propagate? | |
| 15. Explain the processe by which the ocean floor has magnetic stipes on it (seafloor magnetic anomalies) | |

DATE: _____ NAME: _____

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# Earth Sciences

## Geology, Oceanography, Paleontology, Geography

The Earth Sciences Department at City College of San Francisco offers introductory-level coursework in **geology, oceanography, paleontology, and geography**. We serve students transferring to 4-year colleges, obtaining AA degrees, looking for educational enrichment and job training. We also provide resources, tools, and services necessary to help students be successful in our classes and make informed decisions about future educational and job-related goals within the Earth Sciences. The mission of our program is to provide our students with a rigorous high-quality educational experience in whichever of our classes they take. Our students use this knowledge to: 1) better understand the processes that impact Earth, 2) comprehend their role in the stewardship and management of Earth, 3) be academically prepared for more advanced courses at 4-year colleges. Students who take a class in our department recognize and describe basic scientific processes at work in the world around them, and have a scientifically based understanding of how humans impact these same processes.

With the ever widening demand for natural resources, the realities of climate and ecosystem change, and the constant threat of natural disasters, students with expertise in Earth Science have the opportunity to contribute to the global community at many different levels.

## Come visit us!

Feel free to come by the **City College** or to discuss course offerings. We op of many volunteers and extra hours o whether in time, resources, or mater newsletters.

## Upcoming Events

- Earth Science Club Learn about more events on our club webpage
- New Spring Classes in Environmental Geology -- PDF flyer

## Quick Links

- SPRING 2012 Schedule of Classes
- Catalog
- Teaching Resources
- Course and Program Review
- Exhibit: Story of Time & Life


## Contact Information

**Department Chair:** Katryn Wiese
Office location: S134
Office hours: See website
Email: katryn.wiese@mail.ccsf.edu

**http://www.ccsf.edu/Earth**

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# Study Sessions

**JUST WHAT IS A STUDY SESSION?**
Study sessions are times and places when students from a particular class can study together. Where possible, the Earth Sciences Department will provide mentors and/or instructors to assist with questions and to facilitate students working together. The intention is that students use these study sessions to help succeed in the class, by reviewing material, studying for exams and quizzes, and practicing in-class material. Please be respectful of everyone's time and energy during study sessions. Prepare ahead by reading your textbook, reviewing your notes, and identifying the specific areas in which you need help, practice, or review.

## SPRING 2013 Study Sessions

Please note that study sessions start the third week of the semester and end the last week of regulary classes.

**THERE ARE NO FORMAL STUDY SESSIONS DURING FINALS WEEK. PLAN AHEAD!**

**MONDAY:**
11 am to 11:45 am (HESS)
12:30 to 1:30 pm (GRANDY)
5:30-6:30 pm (DUNCAN)

**TUESDAY:**
1-2 pm (WIESE)

**WEDNESDAY:**
11 am to 11:45 am (HESS)
12:30 to 1:30 pm (GRANDY)
5:30-6:30 pm in S5 (HESS)

**THURSDAY:**
1-2 pm (WIESE)
5:30-6:30 pm in S5 (KUWABARA

**FRIDAY:**
11 am to 11:45 am (HESS)
12:30 to 1:30 pm (GRANDY)

Study halls are open during normal class days (thus they are not open during finals week, and unfortunately there are no summer study halls). Study Sessions occur in Science 45, unless otherwise stated.

## Learn more:

- Study Skills Tutoring at the Learning Assistance Resource Center R207 -- 415.452.5502
- Become a Mentor or Lab Aide

## Spring 2013 Lab Aides

Alyxe Anderson (Ocan 1L -- day)

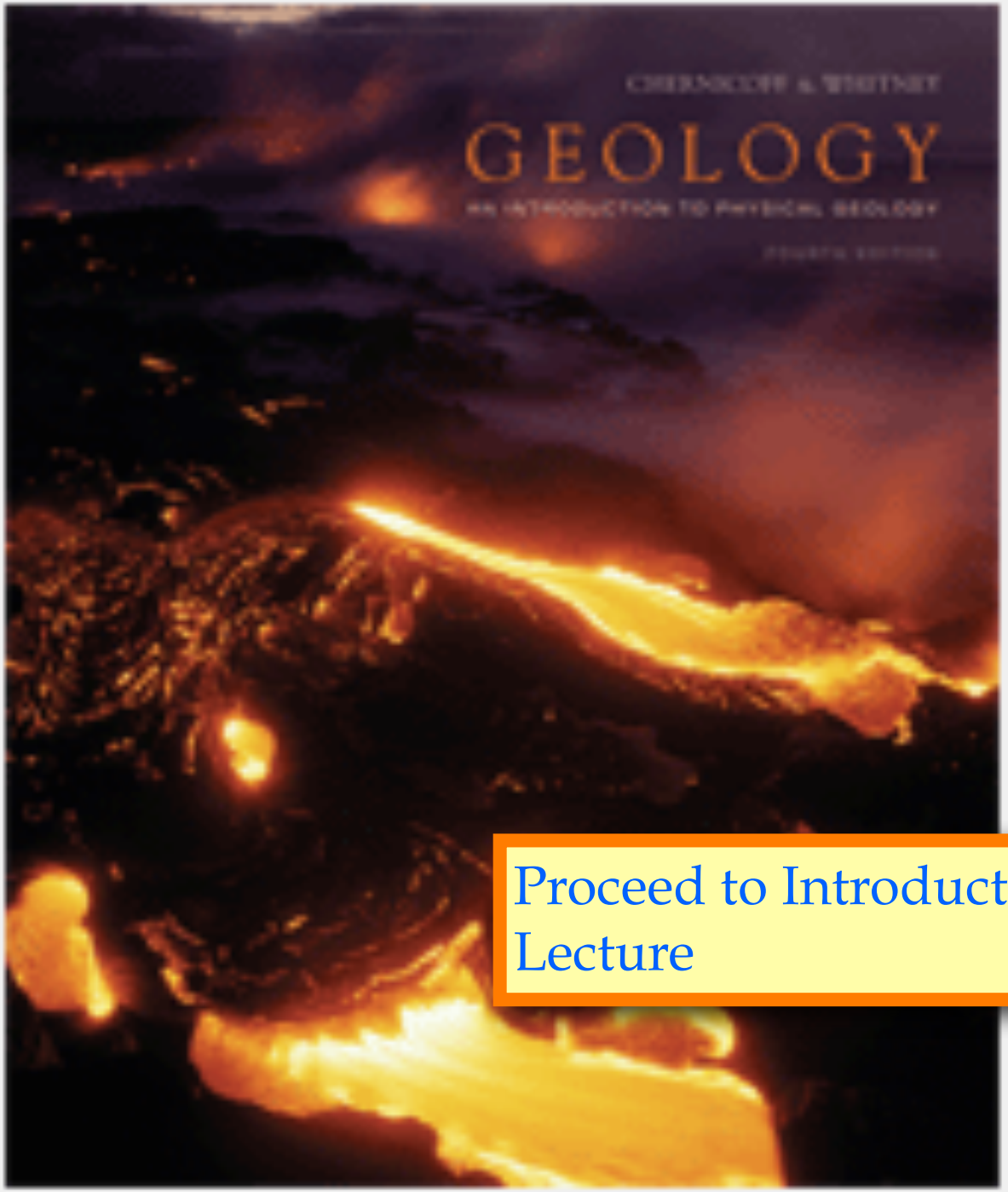
Dion Campbell (Geol 10L -- Tues/Thurs)

Lohanne Santos (Geol 10L -- Thursday)

Hide Takahashi (Ocan 1L -- day | Geog 1L -- Friday)

Tiffany Tidwell (Ocan 1L -- eve)

**http://www.ccsf.edu/Earth**




Proceed to Introduction to Geology Lecture