GEOLOGY 104 – EARTH SCIENCE: The holistic study of our home

SDSU – Dept of Geological Sciences – MWF: 11.00-11.50 in HH-130

FALL 2011


Required instructional device: Classroom Response System → i>clicker2

Instructor: Isabelle SacramentoGrilo, Dept. Geological Sciences

Office hours: GMCS-228-G, MWF 09.00 – 10.30; TH 2 – 3, or by appointment and availability

Office Phone: (619) 594 5607

Email: isacrame@geology.sdsu.edu (when using email, please give name, class and class time)

Website: http://blackboard.sdsu.edu

Knowing the contents of this syllabus is a class requirement.

This syllabus serves as a binding contract between student and instructor. By enrolling in this course you are agreeing to all terms of this syllabus.

I. COURSE DESCRIPTION:

- Earth Science is the study of the world around us and the mechanisms of change: the rock under our feet, the water around us, the air in the atmosphere, the organisms with whom we share our planet, and the cosmos of which we are part.

- This course, then, involves inquiry into the scientific disciplines of Geology, Meteorology, Astronomy, and Oceanography to explore the dynamic interactions among the fundamental systems of planet Earth. It is thus important to understand the interdisciplinary nature of this course, not just the terminology. Exam questions will reinforce this.

II. INTEGRATED EARTH SCIENCE - OVERARCHING GOALS/OUTCOMES:

After completion of this course students will be able:

1. To develop a basic understanding of the most essential natural and physical processes that have shaped the Earth throughout its history and continue to shape the planet and the life on it today (Goal 1 – Objectives 2, 3; Goal 2 – Objectives 1, 2, 3).

   1. Articulate the multidisciplinary integrated nature of the Earth Sciences and the importance of its role in their and others everyday lives (Goal 1 – Objectives 2, 3).

   2. Articulate how technological advances along with the collection of a myriad of observational and analytical data over the last 200 years have lead naturally to the interpretation that the Earth originated about 4.6 billion years ago, and that its development has been punctuated by several major planet-wide events that brought about profound change in Earth’s habitants (Goal 2 – Objective 1).

   3. Articulate how observation and experimentation have lead to an enhanced understanding of dynamic earth processes such as faults and earthquakes, and, as a result, how the Earth Sciences have impacted their and others quality of life (Goal 2 – Objective 2; Goal 3 – Objective 3).

   4. Articulate how the scientific method is used to infer the causes of global-scale changes that have affected planet Earth over time (Goal 2 – Objectives 2, 3).

   5. Build confidence and familiarity with scientific inquiry, analysis, and quantification. Articulate examples of everyday observations that indicate that the Earth is dynamic and ever changing, and how these observations impact their daily life (Goal 4 – Objectives 1, 3, 4).

III. CONTENT GOALS/OUTCOMES:

To meet content goals students will be able:

1. Identify the major processes that formed the Earth and our solar system, galaxy, and universe, and explain how these processes work. Identify and describe all the bodies of our solar system.

2. Distinguish the three major rock groups based on their physical characteristics and modes of formation. Be able to explain and apply the concepts of the rock cycle and its relationship to the different tectonic regimes.

3. Identify surface processes, such as the hydrologic cycle, and explain their function in developing surface features on Earth, such as deserts, weathering and erosion, glacial systems, and water resources.
4. Identify common rock-forming minerals, their diagnostic properties, and the genesis and uses of gemstones. Explain the genesis and uses of renewable and non-renewable natural resources.

5. Convey the vastness of geologic time and key biological and physical events that have affected Earth through time, such as mass extinctions; Be able to articulate the scientific approach to the construction of the geologic time scale. Identify the factors that influence life on Earth, and predict the results of changing these factors through time.

6. Identify the mechanical attributes and chemical properties of the Earth's interior, as well as the types and sources of heat energy that drive the motion of tectonic plates and produce natural events, such as earthquakes and tsunami. Articulate the role that tectonic plates and their movements play in shaping the Earth’s topography, including its mountain ranges and ocean basins.

7. Identify the genesis and location of volcanic activity and relate it to tectonic processes. Explain the different types of volcanic edifices and activity.

8. Describe general oceanic circulation patterns. Identify factors that influence these patterns and explain how these factors and patterns change through time. Identify basic physical and chemical oceanographic factors that control features like waves, currents, and sea level changes.

9. Describe general atmospheric circulation patterns and explain how both man-made and natural changes within the Earth system affect these patterns. Analyze the basic principles of weather formation and apply those principles to everyday experiences. Understand the nature of the present and past climate changes. Predict and understand the atmospheric conditions that give rise to severe weather, such as hurricanes and floods.

**General Education Requirement**
This course fulfills the following SDSU General Education Requirement: II Foundations – A. Natural Sciences, 1. Physical Sciences.

**IV. REQUIREMENTS AND GRADING:**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Points</th>
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<tbody>
<tr>
<td>3 Exams (at 100 points each, 2 out of 3 count)</td>
<td>200</td>
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<tr>
<td>Final exam</td>
<td>180</td>
</tr>
<tr>
<td>Set of Assignments/Quizzes through Blackboard</td>
<td>60</td>
</tr>
<tr>
<td>In-class Clicker Questions/Participation</td>
<td>60</td>
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**Total Points: 500**

If total points = 500, then 450 and above = A; 400 and above = B; 350 and above = C; 300 and above = D; below 300 = F

Straight scale: A=90-100%; B=80-89%; C=70-79%; D=60-69%; F=below 60%.

[For ex, let’s say that your totals= 388 points out of 500; then multiply 388 by 100% and divide by 500 = 77.6%, or a C]

Grades within 2% of a boundary will receive + or –

You are the person responsible for your grade, not me, so be aware of and adhere to the course requirements and deadlines.

**Note:** No extra credit given to anyone at all. No exceptions! This is work not specified on a course syllabus.

- **CLICKERS:** You must bring your clicker to every class. Register your clicker through Blackboard with this class by following the instructions posted on Blackboard at [http://clicker.sdsu.edu/](http://clicker.sdsu.edu/).

**Clicker Total – 60 points.** You could receive a maximum of 60 points for being present and answering the clicker questions. These will range in value from 2 to 4 points each.

I will use Clicker questions to review lecture content and record participation. Specifically, I will build in conceptual and application questions into lectures. These questions and your answers to them will permit you and me to know if you are learning what I am teaching. Please be in class in order to get full clicker points. If you arrive late, after the clicker questions have been posed, you will lose those points.

For i>clicker Technical Support, please call 1-866-209-5698.
**NOTE:** There is no make-up of clicker points, despite the type of student absence or lateness to class, or clicker pad malfunctioning (which is rare). Please read the following:
- No points are given to students who don’t bring the clicker to class. No exceptions!
- You must have only 1 clicker pad with you when you’re in the classroom.
- You must check the batteries every so often. Points are not made up for non-working pads.

**EXAMS:** consist mostly of multiple choice, true/false, and matching questions. The lowest or missed exam score will be dropped for your convenience. The final exam is not dropped. It will be cumulative, but will emphasize the last section of the semester, which is Meteorology: weather and climate.

Exam questions will be drawn very heavily from the lectures and class discussions, but any material covered by online quizzes and exercises, documentary films, and textbook readings may be included.

- I do not give you “tricky” questions; I give you “do you understand” questions. I ask questions that test your comprehension of concepts, not just the regurgitation of facts. It’s important, therefore, to apply yourself everyday and early on. Cramming for a test does not work!

  - You will not be allowed to leave the classroom for any reason during exams.
  - You will not be accepted into the classroom during an exam if you arrive after the first student finished.

- Grading errors, if any, must be brought to my attention within 1 week of receiving an exam/assignment score.
- **Please note:** Exams will not be re-scheduled for your personal convenience. Exams may be re-scheduled by me as the progression of the course determines. Exams CANNOT be made up. If you plan to miss an exam, then that is the exam that you will drop. I don’t make any exceptions to this at all. Plan straightaway on taking ALL exams.

- **Please note again:** Missing an exam with excuses like but not exhaustive of “forgetting about the exam” or “work schedules, airline conflicts, traffic accidents, sick parents, sick roommates, sick pets, dead uncles or dead grandmothers”, or “aunts who committed suicide but whose bodies haven’t been found yet”, etc, will not be tolerated. This is the exam that you drop.

- I encourage everyone to come to my office hours to see your exams and understand your scores. This will prepare you for the final exam as well as allow you to better understand the concepts.

**SCANTRONS:** You must bring the large red scantron form Parscore F-288 (enrollment form) for the first exam only. Thereafter, you will need the smaller red scantron form Parscore F-289. You must bring a #2 pencil for exams.

**Note:** You must fill in and darken your scantron answers completely. You must also fill in the Test Form box. Failure to do any of this will result in lower scores because the scanning computer is not able to make out your answers or match them to my key.

**BLACKBOARD ASSIGNMENTS:** There will be 5 to 6 online assignments as homework. This means that you will have 1 or more online assignment between exams.
- To this extent, be sure to pay attention to the Announcements section in Blackboard or my announcements in class or both, and make sure that you meet the due dates for all the online work. There are NO exceptions made for late submittals.
- This homework includes mostly quizzes but may include short written essays and exercises. To get credit, you must submit assignments electronically or in person **exactly as stated in the directions.** Please read and follow the instructions stated on each assignment.

- ALL online work will be made available in the **Assignments** folder and will be based on the lecture discussions and chapter readings. It’s your responsibility to check this folder regularly (every week) for homework, not mine to remind you of it!

- All assignments will have a limited time frame from a few days to 1 or 2 weeks. Most are worth 10 points. There will be up to 5 online quizzes during the semester. Quizzes are not timed but you **must** complete them the first time you open them. **Note:** Leaving a quiz unattended will cancel out all your work.

**NOTE:** You cannot complete or turn in ANY assignment after the due date, or after you lock it up (it will not be available to you online). **No late assignments will be accepted at all. There will be no make-up of ANY online assignments, no matter what your reasons are. No special arrangements will be made (even if you add the course late or miss the first class meetings). No quiz/assignment score will be dropped.**

**PLEASE ALSO NOTE:** Personal computer or printer problems are not valid excuses for missing homework deadlines. Please do NOT take quizzes on your phone as it may not go through and you’ll lose those points.

- No assignments submitted through personal email will be accepted.
- No assignments submitted through the Blackboard feature “Digital Dropbox” will be accepted.
- If you wait till the last minute (meaning: 1 day before it’s due) to submit an assignment and run into problems, there will be nothing that I will do to help you.
- An exclamation mark (!) next to your assignment means that you DID turn in it, but I haven’t gotten to grading it yet. **Note:** Grading will take me up to 2 weeks.
- A “Paper&pencil” symbol on assignments/quizzes means that you haven’t correctly completed and submitted them. This will result in a score of 0.

In ‘View Grades”, the row called “Total” under “Points Possible”: you’ll see something other than 500 points. Just ignore it. Bb does not compute your grade, I do. Bb just adds all the points earned.

**V. CLASSROOM CONDUCT:**

- **ATTENDANCE** is mandatory and is expected. You must be present and on time for all class sessions. Attendance is found to be directly proportional with overall grade quality. Please do not miss class!

- If you miss classes, it is your responsibility to get notes from a fellow student and not to fall behind. I will not provide notes personally or electronically outside of class time.

- **If you think that you are not doing well in class,** please ensure that you contact me early on in the semester. I will do my best to help you succeed in this class. It is my goal that you learn the concepts and earn the grade that you’d like. **Discussing your grade as late as when the semester ends is not really an option.**

- **Be ready** to start class with your notebook and pen ready to take notes. Diligently taking notes and being attentive during class shows that you are serious about your education. Notes are critical. They provide the foundation of what is discussed and the basis for all exams.

- **Questions** about anything discussed in class should be asked in class (preferred), or during office hours. **Participation** is strongly encouraged. I welcome all your questions.
- **Do not** engage in side conversations with your friends. This is disruptive and distracting to other students.
- **Length of class time:** This is a 50 min. lecture, not a 45 min. lecture. If you start leaving class ahead of time, then the whole class will be penalized and 10 points will be deducted from everyone’s totals.

- **Lateness to class:** This is disruptive to lecture and is never appreciated by me or by the students. Don’t do it!

**Academic and Non-Academic Misconduct:** Plagiarizing, cheating, unauthorized collaboration on course work, stealing examination materials, falsifying records or data, and obstruction or disruption of the educational or administrative process, physical abuse or threat of such an abuse, theft, sexual, religious, or racial harassment, possession of controlled substances or weapons constitute violations relative to Title 5, California Code of Regulations. Violations will be documented in writing with the upper division supervisor, and University disciplinary action will be pursued.

**Note on Plagiarism:**

Plagiarism is a form of cheating. Always make sure your work is original. An instructor must be able to gauge what the student has learned. Therefore, copying the work of another person on any assessment whatever that might be, online or offline, whether an essay, test, take-home quiz, or online quiz, is considered cheating.

Examples of academic dishonesty include but are not limited to:

- **Cheating:** Copying from another student or using unauthorized aids during any type of assessment.
- **Plagiarizing:** Copying someone else’s work or ideas and misrepresenting them as one’s own (without acknowledgement or permission).
- **Falsification:** Making up fictitious information and presenting it as real, or altering records for the purpose of misrepresentation.
- **Facilitation:** Helping another student to cheat, plagiarize, or falsify.

- **THE FOLLOWING IS NOT TOLERATED DURING CLASS TIME:** using your mobile phone for ANY purpose at all (this includes texting), using cameras, ipods, headphones, reading newspapers/magazines/books, studying for other classes, or sleeping and snoring.

- **You are also NOT allowed your laptop during lecture.**

- **NOTE:** Handling a mobile phone, as well as ANY other type of electronic devices, including electronic dictionaries and calculators, is expressly prohibited during exams. No exceptions!
  Anyone caught will fail a test or the course and further disciplinary action will be pursued.

**VI. IMPORTANT DATES**

- 14 Sept – last day to add.
- 12 Sept – last day to drop without a “W”. If you stop attending and don’t drop, your grade will be an “F”.
  If you are taking the course CR/NC, and want to pass the class, you must obtain a C (72%) or above.

**Persons with Disabilities:**
The department will make reasonable accommodations for persons with documented disabilities. Instructors must receive a verification letter within the first week of class. Please check with SDS (Student Disability Services).

**VII. HOW TO AVOID ONLINE QUIZ PROBLEMS** (or, how to avoid getting a 0 for your quiz!...). This is modified from the SDSU ITS Blackboard support website:

- **Use Firefox or Safari, not Explorer, as your browser.** DO NOT use your phone to submit a quiz. **DO NOT wait till last minute:** Blackboard may not take your quiz.
  - **Blackboard Quizzes Should NOT Be Saved in Progress**
      You should **not** use any Save buttons during a quiz. Complete a quiz on the first attempt and then press Submit.
- Browser Windows Should NOT Be Resized or Refreshed During a Quiz
If you resize the window, the quiz will stop and no score will be recorded. In the Blackboard Gradebook you will receive an "Incomplete Attempt" message. Do not resize or refresh the browser.

- You May NOT Preview a Quiz
You should not take or "preview" the quiz until you are actually ready to take it. If you "preview" the quiz or begin taking the quiz and then log out, Blackboard will not let you back in. You will receive a "Sorry… you already took this assessment on (date) and (time)" message.

-The “paper&pencil” Symbol
If you have this symbol on your grade sheet for a particular assignment, this means you did not complete it correctly. This type of error will NOT be corrected!

-You may NOT Print a Quiz
If you print a quiz then leave Blackboard without actually answering any questions, the system will consider the quiz taken. Blackboard considers that a quiz has been attempted every time it is entered, regardless if any questions have been answered. You will not be able to re-take the quiz. You can, however, print your scores afterwards.

Finally, I strongly suggest that you use the computer labs in the university, rather than your personal computer. *Loss of a grade due to personal computer problems is not fixed or cleared by the instructor.*
# TENTATIVE CLASS SCHEDULE

Note that the following lecture and exam schedule is subject to change depending upon the progression of the course. You will be notified online and in class. You are responsible for noting all changes and adhering to them.

Note: 1 or more Homework assignment or quiz is due between exams

<table>
<thead>
<tr>
<th>Week of</th>
<th>General Topic</th>
<th>Readings Covered</th>
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<tbody>
<tr>
<td>M 29 Aug</td>
<td>Course Intro: The Earth System; Energy, Matter, Time</td>
<td>Ch. 1</td>
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<tr>
<td>M 5 Sept</td>
<td>Holiday!</td>
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<tr>
<td>W 7 Sept</td>
<td><strong>Earth in Space:</strong></td>
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<td></td>
<td>Solar System: The Terrestrial Planets and Other Local Rocks</td>
<td>Ch. 17</td>
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<td></td>
<td>Solar System: The Jovian Planets and Other Local Snowballs</td>
<td>Ch. 17</td>
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<tr>
<td>M 12 Sept</td>
<td>The Sun, our star. Stellar evolution</td>
<td>Ch. 17</td>
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<tr>
<td>M 19 Sept</td>
<td>The Solid Earth: Geologic Processes: Plate Tectonics</td>
<td>Ch. 7</td>
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<tr>
<td>M 26 Sept</td>
<td>Geologic Processes: Plate Tectonics</td>
<td>Ch. 7</td>
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<td></td>
<td>Earthquakes and Earth’s Interior</td>
<td>Ch. 8</td>
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<tr>
<td><strong>M 3 Oct</strong></td>
<td>EXAM 1 (on or around this date) – Chapters 1, 7, 8, 17 – large red scantron (F288)</td>
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<tr>
<td>W 5 Oct</td>
<td>Minerals and Rocks: Building blocks of Earth</td>
<td>Ch. 2</td>
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<td>Minerals and Rocks: the Rock Cycle</td>
<td>Ch. 2, 3</td>
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<td>M 10 Oct</td>
<td>Minerals and Rocks; Natural resources</td>
<td>Ch. 3, 1</td>
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<td>Heat within - Volcanism</td>
<td>Ch. 9</td>
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<td>M 17 Oct</td>
<td>The Earth’s Evolving Crust and Geologic Time</td>
<td>Ch. 10</td>
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<tr>
<td>M 24 Oct</td>
<td>Life on Earth – Life History</td>
<td>Ch. 11</td>
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<td><strong>F 28 Oct</strong></td>
<td>EXAM 2 (on or around this date) – Chapters 1, 2, 3, 9, 10, 11 – small red scantron, F289</td>
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<tr>
<td>M 31 Oct</td>
<td><strong>Earth’s Oceans and Ice:</strong> Water on Earth 1: Surface water</td>
<td>Ch. 5</td>
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<td>Water on Earth 1: Ice</td>
<td>Ch. 6</td>
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<tr>
<td>M 7 Nov</td>
<td>Water on Earth 2: Earth’s Oceans</td>
<td>Ch. 12</td>
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<tr>
<td></td>
<td>Earth’s Oceans: Circulation, Waves, Sea level</td>
<td>Ch. 12, 13</td>
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<tr>
<td>F 11 Nov</td>
<td>Holiday!</td>
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<tr>
<td>M 14 Nov</td>
<td>Earth’s Oceans: Circulation, Waves, Sea level</td>
<td>Ch. 12, 13</td>
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<tr>
<td><strong>M 21 Nov</strong></td>
<td>EXAM 3 (on or around this date) – Chapters 5, 6, 12, 13– small red scantron, F289</td>
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<td><strong>TH-F, 24-25 Nov – Thanksgiving recess</strong></td>
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<tr>
<td>M 28 Nov</td>
<td><strong>Earth’s Atmosphere:</strong> Our Atmosphere – characteristics</td>
<td>Ch. 14</td>
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<td></td>
<td>Global Circulation: Weather and Climate. Deserts</td>
<td>Ch. 15, 6</td>
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<tr>
<td>M 5 Dec</td>
<td>Climate Change and Human Civilization</td>
<td>Ch. 16</td>
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<td>Friday, 9 Dec – last day of class. Review (time permitting)</td>
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**Wed 14 Dec – FINAL EXAM, 10.30 – 12.30.** Same room. The final is cumulative but a large portion of it will be the last section of semester, that is, chapters 6, 14, 15, 16. Red scantron, F289. **NOTE:** The final exam schedule is set by the University. The final cannot be re-scheduled! The final cannot be made up! The final cannot be dropped!