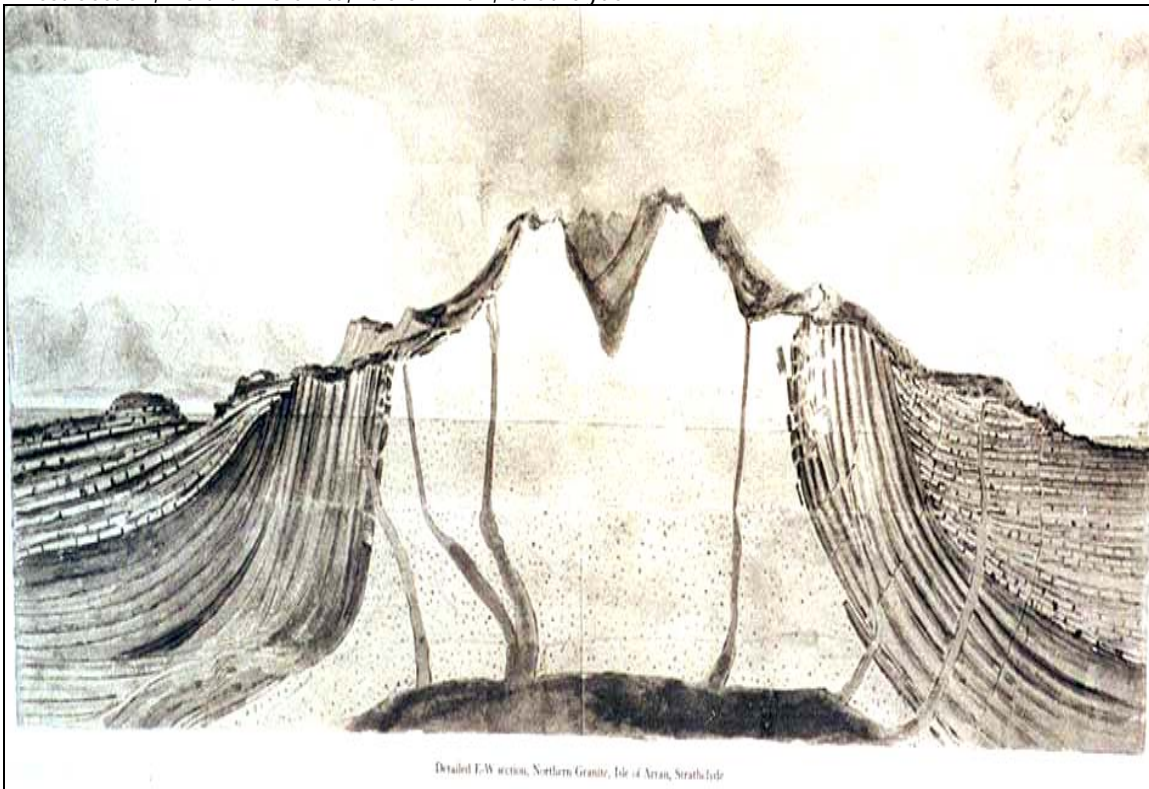


**COURSE SYLLABUS**  
**GEL 134**  
**HISTORICAL GEOLOGY**  
**3 SEMESTER CREDIT HOURS**  
**Fall 2007**

**Professor: Dr. Chris Baldwin**  
**(SHSU Tel: 41593)**  
**(e-mail: [baldwin@shsu.edu](mailto:baldwin@shsu.edu))**

Reproduction of a Watercolor print done by geologist James Hutton (1726-1797) entitled, Detailed East-West Section, Northern Granite, Isle of Arran, Strathclyde.



Detailed E-W section, Northern Granite, Isle of Arran, Strathclyde

From USGS Archive

## COURSE SYLLABUS

# GEL 134 Historical Geology

### 3 Semester Credit Hours

Spring 2007

**Room:** LDB 215

**Classes meet:** MWF 0900-1000

**Professor:** Chris Baldwin

**Office:** LDB 300

**Tel:** 41593

**e-mail:** [baldwin@shsu.edu](mailto:baldwin@shsu.edu)

**Office Hours:** M-days 8am-8.30am; Tu/Th 11-12; any afternoon after 2pm; or by appointment

### Course Description

This course will introduce you to some of the basic (and more interesting!) concepts relating to the changes that have taken place through time to the surface and to the interior of the Earth. What are the mechanisms that have driven these changes and how are we able to infer these mechanisms from what we can observe in the geological record? What is this “geological record” anyway, and how trustworthy are its components? We will look at rocks and fossils, mountains and grains of sand, ocean basins and tectonic plates (and much more) – all in the context of science.

While this is a course that forms a part of the required curriculum for Geology majors it is intended to introduce you to science in general and to the physical background of the continent upon which you live. It contains a significant amount of the history of science – with particular reference to the evolution of geological ideas. It also contains a lot about how and why we employ scientific concepts in order to understand natural phenomena.

**Prerequisites:** None

**Methods:** Lectures

**Assessment:** Quizzes (2x 20%), Scientific Poster (30%), Final Exam (30%)

**Grading:** Quizzes are multiple choice format with questions taken from the text book publisher. Emphasis will be on terms and defining basic concepts.

Poster outline and grading is shown below (page 4)

Final Exam is cumulative and composed of two sections: [A] multiple choice questions (50%); [B] two short essays (from a choice of 5 ) that require an understanding of the connections and linkages of different concepts and models.

### Objectives:

- Scientific thinking and analysis
- The origin and evolution of geology as a scientific discipline
- The nature of scientific (geological) evidence
  - Natural Earth systems
  - Earth History
  - Geological History of North America

**Course text:** Prothero & Dott *Evolution of the Earth* (paperback) McGraw-Hill 6<sup>th</sup>. Edn.

**ISBN:** 0073661872 (Paper back)

**Supplies:** 3 Large Scantron sheets  
Blue Book

## Attendance

All lectures are compulsory. Please note that both the final exam and other quizzes and tests will include questions that may make use of a large number of Power Point slides. These slides will only be shown during lectures and many will not be duplicated in the textbook or on Blackboard. If you miss lectures you will place yourself at a considerable disadvantage.

The University requires each instructor to keep a record of student attendance. Attendance based on a seating chart will be recorded at the beginning of the class period. **Tardies count as an absence.** Please do not be late – it disturbs other members of the class.

**Nine (9) class hours of absence are allowed without penalty. Absences in excess of nine class hours will result in course failure.**

Please note that this class policy will be closely adhered to throughout the semester. It is not to be considered an invitation to skip a fifth of your course. Rather it is an understanding that as adults you have a variety of responsibilities that put pressure on your time. The flexibility of up to nine absences will permit you to manage your affairs so that you can derive the maximum benefit from course lectures.

An absence from a quiz or exam (including for religious reasons - see Religious Holidays, page 6) may be approved, dependent upon the merits of the case, but will only be approved in cases of the utmost emergency such as the death or injury of an *immediate* family member. In such cases the onus is upon the student seeking the absence to show supporting evidence as to the nature of the emergency. A class average grade for the particular quiz or exam will be awarded.

## Assignments:

**2 quizzes @10% each (Large Scantron sheet required for each)**

Note that the first of these quizzes is held very early in the course and are individually they are not worth much. They are designed to give you feedback about how well you are grasping the material. The quizzes will make extensive use of slides and there are no make-ups

TOTAL VALUE 20%

**Power Point Scientific Poster (See details below)**

You will produce a carefully researched and formatted technical poster using Power Point. Note that what is required is a single, large format poster, NOT a set of linked Power Point slides. The poster must be turned in on a CD and it must be accompanied by an 8"x11" paper hard copy.

You must hand in your poster at *the start of the class: Monday, April 30<sup>th</sup>*

TOTAL VALUE 50%

**Cumulative Final Exam (Large Scantron sheet plus a Blue Book required)**

Exam will contain a section of multiple choice and two long essay question.

TOTAL VALUE 30%

## SCIENTIFIC POSTER

Your poster can be up to a maximum of any size, but no smaller than 3 feet by 4 feet. Your poster must be presented in Microsoft Power Point – and it must be in the format of a single poster rather than a set of conventional Power Point slides. A short lecture and demonstration will be given during class time in order to introduce the basic methodology and in order to present and discuss examples and problems. Put very simply, you format a single Power Point slide to a large page size using the “Page Layout” button. You then build your poster in this large format employing conventional cut-and-paste and insert techniques.

### Content

The content of your poster should be scientific, and it should explain some aspect or certain aspects of the subject in scientific terms. It should not be exclusively descriptive, though description might form a significant part. It might answer some question. It might make some comparison(s), or it might characterize something in space and/or time. **Whatever the subject the purpose of the poster is to EXPLAIN.** It should be of a level of sophistication that is appropriate for your peers and cuddly-looking Barney-esque purple dinosaurs and their ilk should be excluded in favor of sophisticated university level graphics! The poster must tell a clear and concise story, effectively and legibly. The poster should contain a short abstract summarizing the content (= story) and it must also contain a bibliography. Neither of these items should be on a separate slide – they are key components of the poster.

### Citation and Bibliography

Any conventional format for citation will suffice. For example each figure might include *inserted on the figure* a citation such as “From NOAA” or “From USGS” or might include *on the figure* the source URL. Any text or figure caption must be in your own words (NOT copied from a publication or web site) and should cite the author by name and the year of publication (e.g. Smith, 1998 or Anon<sup>1</sup>, 2004 for a web page where you don’t know the name of the author.) Alternatively you might prefer to reference figures and text using a sequence of numbers in a square bracket (e.g. [2] or [5,6,7] ) where the numbers are keyed to full references in a numbered bibliography. Please note that the conventional MLA style of citation and referencing does not work for science because its emphasis is on page numbers rather than year of publication. Choose the Chicago format instead.

### Subjects

- Dinosaurs (any aspect)
- Invertebrate fossils (any genus or grouping)
- Geological Extinctions
- Sedimentary processes and landforms
- Geomorphological processes (e.g. Weathering; Erosion processes, etc.)

### Graphics

The rules pertaining to plagiarism apply to figures and diagrams. You can’t use someone else’s diagram or figure without properly referencing or citing them – just as you would with written material.

### Layout

Your poster must contain a balance of typed text (< 30%) and graphics or diagrams (>60%) I leave it to you as to the relative proportion of each. However, the poster format should do a job of effectively presenting the scientific story for you – that is the poster is not part of an illustrated talk that requires you to explain what it all means, nor should it be an illustrated essay.

### Deliverables

1. Your poster in electronic format on a CD (a floppy or USB is NOT acceptable)
2. A hard copy backup printed on an 8x11 sheet

NOTE: Sending your poster electronically via e-mail or to the Blackboard Drop Box is NOT acceptable.

### Grading

The bulk of your grade will derive from the <u>scientific content</u> that you present	50%
The effectiveness of your poster in relating technical information	30%
Care and sophistication of preparation	20%

TOTAL VALUE 50% of final grade

**Date Due** MWF Class: Monday April 30<sup>th</sup>

## Due Dates and Timetables

I do not give makeup exams.

Any due assignments handed in after the due time/date and for which there is no **WRITTEN EXTENSION** will be penalized by –10% per day down to zero.

## Academic Conduct

*University statement: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of academic dishonesty including, but not limited to, cheating on examinations or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.*

I assume that a basic honor system applies to this course and that you must take care to respect your fellow students.

You will be completing a scientific poster project that may contain new material created entirely by you. However, it is more likely that you will largely collect, select, and present in a new configuration intellectual materials in the form of text books, journal articles, and web material that was created by others. This published work must be acknowledged in the conventional form of citation linked to a full bibliography. I explicitly assume that you have read and understood the sections on Academic Conduct in the current SHSU Student Handbook and that you particularly are aware of the issues surrounding **plagiarism**. If you are in doubt – ask first. I will pay particular attention to proper citation and referencing of web material.

## Classroom Rules and Conduct

*University statement: Students are expected assist in maintaining a classroom environment that is conducive to learning. Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers must be turned off before class begins. Students are prohibited from eating or drinking in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.*

- Come to class on time—there is no reason to be late to class on a frequent basis. **Habitual tardiness is unacceptable.**
- Remain in class until it finishes. **Leaving early will count as an absence unless you have cleared it with me or unless it is an emergency.**
- **You cannot leave the class during an exam** unless there is a medical emergency.
- **If you arrive after the first person has left an exam or quiz you will not be permitted to take the exam.** (Note: makeup exams are not given).
- During lectures and tests, cell phones and any other equipment capable of receiving, recording and/or transmitting information, must be put away in a book bag or purse. (In short, it must not be readily accessible or accessed during an exam.)

## VISITORS IN THE CLASSROOM:

*University statement: Unannounced visitors to the classroom must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage occasional visiting of classes by responsible persons.*

**Americans with Disabilities Act:**

University statement: *It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) 294-1720. Any student seeking accommodations should go to the Counseling Center and Services for Students with Disabilities in a timely manner and complete a form that will grant permission to receive special accommodations.*

**Religious Holidays:**

*Students who are absent from class for the observance of a religious holy day are allowed to take an examination or complete an assignment scheduled for that day within reasonable time after the absence. The period of time during which assignments and exams will be excused includes travel time associated with the observance of the religious holy day. A student who wishes to be excused for a religious holy day must present the instructor of each scheduled class that he/she will be absent from class for religious reasons with a written statement concerning the holy day(s) and the travel involved. The instructor should provide the student with a written description of the deadline for the completion of missed exams or assignments. In such cases, the student will be required to take the test or submit the assignment early—unless there are good reasons for not being able to do so and the instructor has agreed to those reasons.*

# COURSE OUTLINE

(Chapter in Prothero & Dott)

## Part I

<b>Week (1)</b>	<b>INTRODUCTION</b> Course introduction: structure, expectations, policies, housekeeping Geology as a science; Rates and Change	<b>(1 &amp; 2)</b>
<b>Week 2</b>	<b>THE (GENERAL) RECORD I</b> (No Class on Monday – MLK Day) Catastrophism-Uniformitarianism-New Catastrophism	<b>(2)</b>
<b>Week 3</b>	<b>THE (GENERAL) RECORD II</b> Fossils and Design	<b>(2, 3, 4 &amp; 5)</b>
Part I.1 (The roots of Geology) Quiz #1 Wednesday/Thursday		
	Mapping and Correlation Relative and Absolute Chronologies	
<b>Week 4</b>	<b>THE (ROCK) RECORD III</b> Depositional processes and places: paleoenvironments	<b>(4 [+ 16])</b>
<b>Week 5</b>	<b>THE ROCK RECORD IV</b> Depositional processes and environments in time: facies and cycles	<b>(4)</b>

## Part II

<b>Week 6</b>	<b>PLATE TECTONICS I</b> Background and History Earth Structure Continental Drift	<b>(7)</b>
<b>Week 7</b>	<b>PLATE TECTONICS II</b> Paradigm shifts Mechanisms and the Record Rates and Places	<b>(7)</b>

## Part III

<b>Week 8</b>	<b>THE PRECAMBRIAN (CRYPTOZOIC) I</b> Origins and Differentiation Archean Era	<b>(6 &amp; 8)</b>
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Part II (Plate Tectonics) Quiz # 3 Wednesday/Thursday

<b>Week 9</b>	<b>THE PRECAMBRIAN (CRYPTOZOIC) II</b> The Proterozoic Era	<b>(8 &amp; 9)</b>
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**Week 10      Spring Break**

<b>Week 11</b>	<b>THE PC PALEOZOIC TRANSITION</b> Snowball Earth (Nice idea...but?) Ediacara – a different biology...perhaps? The Invention of Shells	<b>(8, 9 &amp; 10)</b>
<b>Week 12</b>	<b>THE PALEOZOIC I</b> Paleogeography and Climate Grand (SAUK) transgressions and Cycles	<b>(10)</b>
<b>Week 13</b>	<b>THE PALEOZOIC II</b> The Caledonian/Appalachian Case Study Cratons, Cover, and Collisions Salt and stagnant stinking basins Gondwana Glaciations & Coal	<b>(11, 12 &amp; 13)</b>
<b>Week 14</b>	<b>THE MESOZOIC I</b> Pangea break-Up Global Cycles and Events The Tethys	<b>(14)</b>
<b>Week 15</b>	<b>THE MESOZOIC II</b> N. American paleogeography and Events Oil – (in Texas of course!)	<b>(14)</b>
<b>Week 16</b>	<b>THE CENOZOIC</b> Paleogeography and Paleoclimates Review	<b>(15)</b>

**Week 17**

**FINAL EXAMINATION**

Please check published Exam Schedule for date, time, and place