

UC 12302 135

CBM003 ADD/CHANGE FORM

Undergraduate Council  
 New Course  Course Change  
 Core Category: Life/Phys Sci Effective Fall ~~2013~~ 2014

or  Graduate/Professional Studies Council  
 New Course  Course Change  
 Effective Fall 2013

1. Department: EAS College: NSM

APPROVED SEP - 4 2013  
M.M.

2. Faculty Contact Person: Jennifer Lytwyn Telephone: 713-743-3399

Email: geos6g@Central.uh.edu

3. Course Information on New/Revised course:

• Instructional Area / Course Number / Long Course Title:  
GEOL / 1340 / Earth Systems

• Instructional Area / Course Number / Short Course Title (30 characters max.)  
GEOL / 1340 / EARTH SYSTEMS

• SCH: 3 Level: FL CIP Code: 40.0601.0002 Lect Hrs: 3 Lab Hrs: 0

RECEIVED APR - 4 2013

4. Justification for adding/changing course: To meet core curriculum requirements

5. Was the proposed/revised course previously offered as a special topics course?  Yes  No

If Yes, please complete:

• Instructional Area / Course Number / Long Course Title:  
\_\_\_\_ / \_\_\_\_ / \_\_\_\_

• Course ID: \_\_\_\_\_ Effective Date (currently active row): \_\_\_\_\_

6. Authorized Degree Program(s): \_\_\_\_\_

• Does this course affect major/minor requirements in the College/Department?  Yes  No

• Does this course affect major/minor requirements in other Colleges/Departments?  Yes  No

• Can the course be repeated for credit?  Yes  No (if yes, include in course description)

7. Grade Option: Letter Instruction Type: Lect (Note: Lect/Lab info. must match item 3, above.)

8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title

\_\_\_\_ / \_\_\_\_ / \_\_\_\_

• Course ID: 31085 Effective Date (currently active row): \_\_\_\_\_

9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)

Cr. 3. (3-0). (formerly GEOL 1440) Prerequisite: MATH 1310 or MATH 1311. Earth's dynamic systems emphasizing the interactions among the atmosphere, hydrosphere and lithosphere. Includes the

10. processes by which the earth was formed and continues to be modified as well as how humans affect and \_\_\_\_\_ are affected by those processes.

Print/Type Name: Ian Evans

## REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: Earth & Atmospheric Sciences, NSM

Person Making Request: Jennifer Lytwyn

Telephone: 713/743-3399

Email: geos6g@Central.uh.edu

Dean's Signature: \_\_\_\_\_

Date: January 15, 2013

Course Number and Title: GEOL 1340, Earth Systems

Please attach in separate documents:

Completed CBM003 Add/Change Form with Catalog Description

Syllabus

List the student learning outcomes for the course (Statements of what students will know and be able to do as a result of taking this course. See appended hints for constructing these statements):

(1) Recognize and understand Earth's spheres (atmosphere, hydrosphere, lithosphere, & biosphere) as systems. (2) Learn about the unique properties and characteristics of each system (sphere). (3) Understand how each system cycles matter and energy. (4) Learn how the spheres interact with one another as open systems. (5) Learn how these systems originated and evolved over geologic time. (6) Understand and appreciate the extent of human intervention in affecting and changing these systems.

Component Area for which the course is being proposed (check one):

**\*Note:** If you check the Component Area Option, you would need to also check a Foundational Component Area.

Communication

American History

Mathematics

Government/Political

Science

Language, Philosophy, & Culture

Social & Behavioral Science

Creative Arts

Component Area Option

Life & Physical Sciences

Competency areas addressed by the course (refer to appended chart for competencies that are required and optional in each component area):

Critical Thinking

Teamwork

Communication Skills

Social Responsibility

Empirical & Quantitative Skills

Personal Responsibility

Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency checked above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

**Critical Thinking:**

Test questions will require that students use their newly-acquired knowledge of Earth Systems as tools to predict outcomes. Example questions are attached.

**Communication Skills:**

Written class assignments will require students to describe and interpret scientific data and concepts. For example, a student will be asked to enter specific coordinates into Google Earth and describe the feature seen at that location.

**Empirical & Quantitative Skills:**

Students will assess remote sensing images and maps to interpret and make predictions. Examples are as follows: (1) View satellite infrared images of oceans to determine relative sea-surface temperatures and identify ocean currents; (2) Study a weather map and predict the weather at a particular location two or three days ahead; (3) Study a map of ocean bathymetry and trace plate boundaries on the basis of bathymetric features; (4) Evaluate satellite images of the Amazon rain forest over the years to determine the rate of clear-cutting.

**Teamwork:**

Students will be assigned to groups for a semester project of their choosing. The project can be over any material covered in class. Students will be encouraged to utilize, at least in part, remote sending data acquired through web searches and other methods. Examples of projects include El Nino, tides, earthquakes, climate change, melting of the Arctic ice cap, urban pollution, and food chain within a particular biome.

**Social Responsibility:**

N/A

**Personal Responsibility:**

Will the syllabus vary across multiple section of the course?  Yes  No

If yes, list the assignments that will be constant across sections:

[Click here to enter text.](#)

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

Dept. Signature: \_\_\_\_\_

The following courses have been reviewed and approved by the NSM Curriculum Committee to meet the new core requirements. Given the length of the individual submissions I have elected to submit these requests by electronic means only.

**Natural Sciences: Core Courses**

BIOL 1309 - Human Genetics and Society

BIOL 1310 - General Biology

BIOL 1320 - General Biology

BIOL 1361 - Introduction to Biological Science I

BIOL 1362 - Introduction to Biological Science II

CHEM 1301 - Foundations of Chemistry

CHEM 1331 - Fundamentals of Chemistry I

CHEM 1332 - Fundamentals of Chemistry II

GEOL 1302 - Introduction to Global Climate Change

GEOL 1330 - Physical Geology

~~GEOL 1340 - Introduction to Earth Systems~~

GEOL 1350 - Introduction to Meteorology

GEOL 1360 - Introduction to Oceanography

GEOL 1376 - Historical Geology

PHYS 1301 - Introductory General Physics I

PHYS 1302 - Introductory General Physics II

PHYS 1321 - University Physics I

PHYS 1322 - University Physics II

**Mathematics: Core Courses**

MATH 1310 - College Algebra

MATH 1311 - Elementary Mathematical Modeling

**Math/Reasoning: Core Courses**

COSC 1306 - Computer Science and Programming

MATH 1330 - Precalculus

MATH 1431 - Calculus I

MATH 1432 - Calculus II

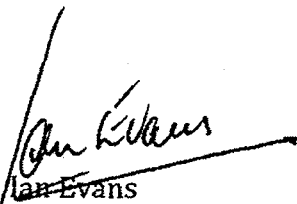
MATH 2311 - Introduction to Probability and Statistics

**Writing in the Disciplines: Core Courses**

BCHS Biochemistry Lab II

BIOL 3311 - Genetics Lab

PHYS 3313 - Advanced Lab I



Ian Evans

Associate Dean

4/4/13

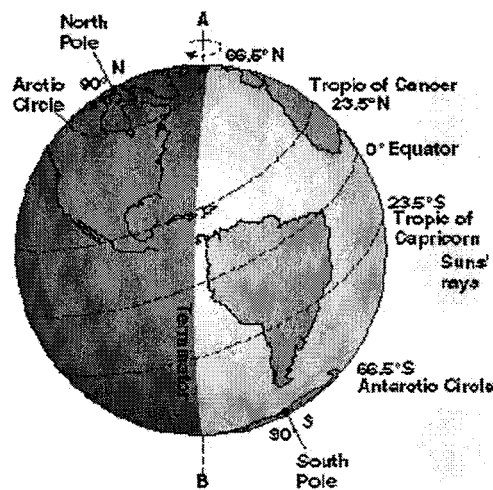
# EARTH SYSTEMS (GEOL 1340): METHODS OF EVALUATING COMPETENCY

## I. Critical Thinking

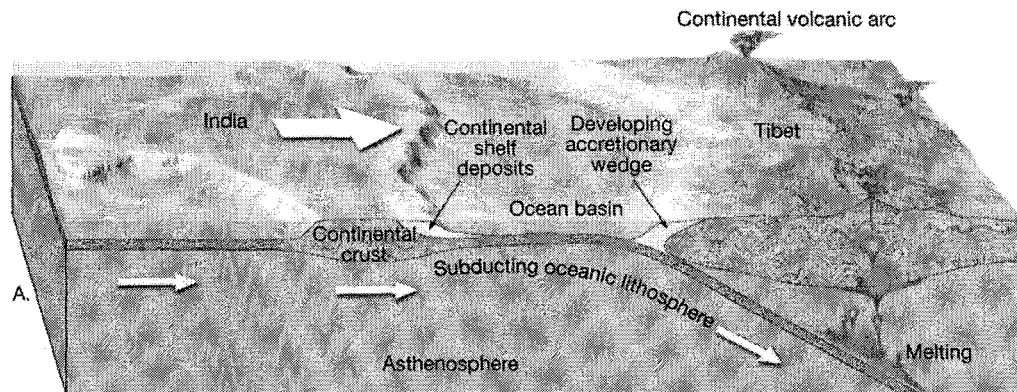
Critical thinking will be evaluated with test questions.

Examples:

1. The figure below illustrates \_\_\_\_\_ for the northern hemisphere. Note that the Sun's rays are approaching Earth from the right.
  - a. Summer solstice
  - b. Spring equinox
  - c. Winter solstice
  - d. Fall equinox



2. With regard to the illustration below, what is going to eventually happen?
  - a. Tibet and India will further separate and the ocean between will widen.
  - b. Tibet will subduct (sink) beneath India
  - c. India and Tibet will remain at their same locations forever.
  - d. India will collide with Tibet to form the Himalayan Mountains.



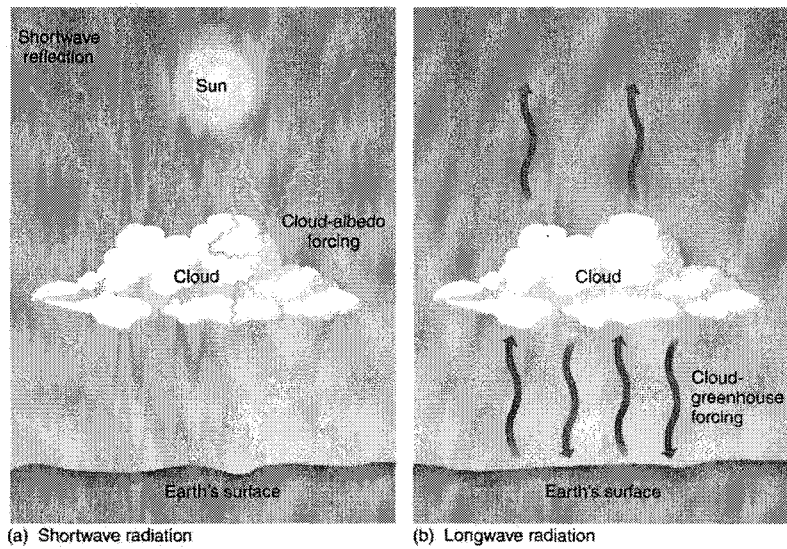
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## II. Communication Skills

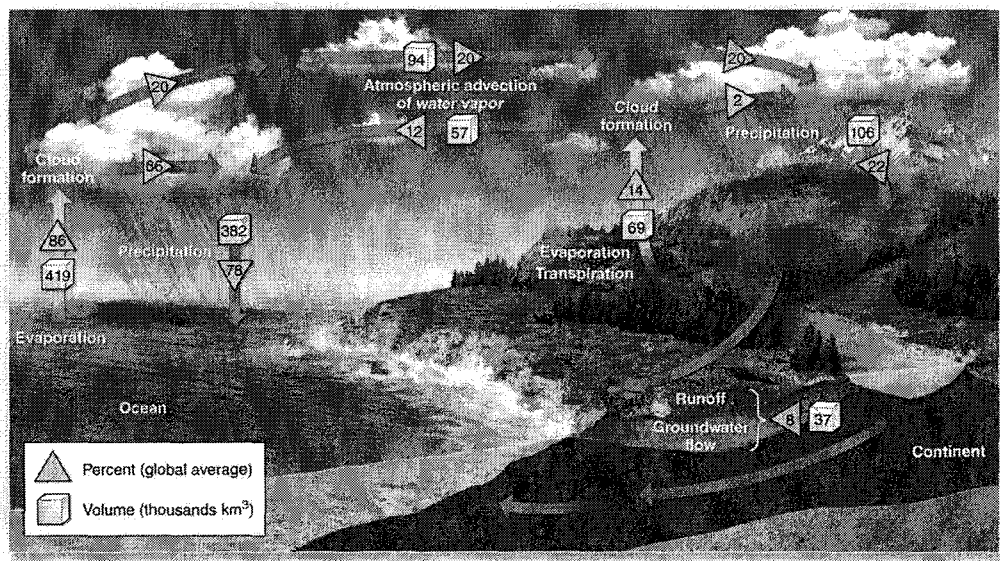
At the beginning of the semester, each student will select two lecture topics to be covered during the semester. When the topic comes up during lecture, the student will be asked to come to the front and explain a particular figure or table to the class, answering any questions that arise.

Examples:

1. What is the following power point slide telling us?



2. Explain the hydrologic cycle.





### **III. Teamwork**

At the beginning of the semester, students will be assigned to groups to work on a semester project utilizing online resources such as Google Earth and satellite remote sensing data. Each team will work on a different project relevant to the course. Projects will be submitted at the end of the semester and graded. Each member of a particular team will receive the same grade.

Possible topics:

1. Obtain satellite images of a rain forest over many years and evaluate the extent of deforestation over that time period
2. Compare modern Google Earth images of Krakatoa with old maps of the volcano before the 1883 eruption and describe the changes that occurred

### **IV. Empirical and Quantitative Skills**

Students will evaluate and discuss the data acquired in their group project. Their interpretation(s) of the data will be utilized in proposing solutions and/or making predictions depending on the project.

Examples:

1. Average global temperature increases over the past fifty years: What are the effects on future climate? How will societies be affected? What can be done to minimize the negative effects of climate change?
2. How does the extinction of certain species (e.g. elephants in Africa) affect the long-term health of the ecosystem?

### **V. Personal Responsibility**

1. Homework assignments handed in late will have points deducted.
2. Make-up exams will require documentation from the student demonstrating that the missed exam was unavoidable and beyond the control of the student
3. Peer pressure to contribute to an assigned group project

## INTRODUCTION TO EARTH SYSTEMS LECTURE (GEOL 1340)

**Semester:** Spring, 2013  
**Class Meets:** MWF 9:00-10:00 AM

**Section:** 18713  
**Location:** Room SEC 104

**Instructor:** Dr. Jennifer N. Lytwyn  
**Phone:** 713/743-3399  
**Office Hours:** MW 10:30-11:30am or e-mail for an appointment.

**Office:** Room 227D, S&R-1 Bldg  
**E-Mail:** [geos6g@Central.uh.edu](mailto:geos6g@Central.uh.edu)

### Course Schedule

<b>Dates</b>	<b>Topics</b>	<b>Reading</b>
Jan. 14, 16, 18	1 Introduction	Chapter 1
Jan. 23, 25	2 Solar Energy and Seasons	Chapter 2
Jan. 28	2 Solar Energy and Seasons (continued)	Chapter 2
Jan. 30	2 Earth's Atmosphere	Chapter 2
Feb. 1, 4	3 Atmospheric Energy and Global Temp.	Chapter 3
<b>Feb. 6</b>	<b>Exam 1 (Chapters 1, 2, 3 &amp; lecture notes)</b>	
Feb. 8, 11, 13	4 Atmospheric and Oceanic Circulation	Chapter 4
Feb. 15	5 Atmospheric Water and Weather	Chapter 5
Feb. 18, 20	5 Atmospheric Water and Weather (continued)	Chapter 5
Feb. 22	6 Water Resources	Chapter 6
Feb. 25, 27	7 Climate Systems and Climate Change	Chapter 7
<b>Mar. 1</b>	<b>Exam 2 (Chapters 4, 5, 6, 7 &amp; lecture notes)</b>	
Mar. 4, 6	8a Earth's Internal Energy and Structure	Chapter 8
Mar. 8	8b Plate Tectonics	Chapter 8
Mar. 11-17	Spring Holiday	
Mar. 18	8b Plate Tectonics (continued)	Chapter 8
Mar. 20	8c Minerals	Chapter 8
Mar. 22, 25	8d Rocks	Chapter 8
Mar. 27, 29	9 Tectonics, Earthquakes and Volcanoes	Chapter 9
Apr. 1	9 Tectonics, Earthquakes and Volcanoes (cont.)	Chapter 9
Apr. 3, 5	10 Weathering, Karst Landscapes, Mass Movement	Chapters 10, 11
<b>Apr. 8</b>	<b>Exam 3 (Chapters 8, 9, 10 &amp; lecture notes)</b>	
Apr. 10, 12	12 The Oceans and Coastal Systems	Chapter 12
Apr. 15, 17, 19	13 Glacial and Periglacial Landscapes	Chapter 13
Apr. 22	14 The Geography of Soils	Chapter 14
Apr. 24, 26	15 Ecosystem Essentials	Chapter 15
Apr. 29	16 Terrestrial Biomes	Chapter 16
??????	<b>Group Projects due</b>	
<b>May 1 9:00 am</b>	<b>Make-up Exams 1-3 at Geoscience Learning Center</b>	
<b>May 6 9:00 am</b>	<b>Exam 4 (Chapters 12, 13, 14, 15, 16 &amp; lecture notes)</b>	

## Class Materials and Resources

**Text:** *Elemental Geosystems, 7<sup>th</sup> Edition*, by Robert W. Christopherson, published by Pearson Prentice Hall (2013).

**Blackboard Learn:** Class materials, communication tools, and other information are available online on Blackboard Learn at <http://www.uh.edu/blackboard/> or via AccessUH and select the white 'Blackboard Learn' Button. First-time users of Blackboard need to get their user name and initial password by following the instructions at this website. If you are officially registered, then this course should appear as a link once you log into Blackboard. If the link does not appear, then contact the help desk at Blackboard via their website. Once you access this course in Blackboard, you will find the syllabus and other important information posted in the **Welcome** folder.

**Assignments, Lecture Slides and Self Tests:** The reading assignments for each week are listed in the course schedule of this syllabus. Follow this schedule closely in order to be prepared for upcoming exams. Additional resources such as lecture slides and self-tests for each chapter are provided in Blackboard within the **Learning Modules** folder. Open this folder to view the individual modules. Module numbers correspond to chapter numbers in the textbook. Notice that each module, when opened, contains lecture slides and self-test for that chapter. I recommend that you print and bring the lecture slides and/or laptop to class and add your own notes during lectures. The self-tests are for your benefit as practice for upcoming exams, so the scores will not be recorded and have no effect on your grade. Take the self-tests as many times as you like.

**Geoscience Learning Center:** The Geoscience Learning Center (GLC) is located in the basement of the Science Building. The Science Building is next to the Lamar Fleming Building and labeled 502 on the campus map. Enter the Science Building through the side entrance, go down the stairs to the basement and follow the signs. The teaching assistants at the Learning Center are there to help you better understand the course materials. They will help you with any questions or problems you may have regarding the course. I encourage you to take advantage of this resource. There are also additional resources available at the Learning Center such as videos, textbooks, rock and mineral samples, and interactive computer resources that will help you better understand the topics we will cover. The GLC website can be accessed at <http://www.geosc.uh.edu/undergraduate/learning-center/index.php>.

## Exams, Homework, Group Project, and Extra Credit Field Trip

**Exams:** There will be four (4) regular exams, each worth 20% of your grade. Exam dates are listed in the course schedule. If you miss an exam, then you can make it up at the end of the semester at the Geoscience Learning Center on the date indicated on the schedule. Bring #2 pencils and an eraser to the exam. Also bring a photo ID. I will provide the scantrons. Your exam grades and statistics will be posted on Blackboard and can be viewed by accessing the **My**

**Grades** tool located on the menu bar to the left of the **Course Content** (home) page. Zero points will be assigned for missed exams.

**Homework:** Online exercises will be assigned as homework throughout the semester. Scores for homework assignments will be averaged and count as 10% of your grade.

**Group Project:** Groups will be organized for semester projects. Each group will choose a project to be handed in at the end of the semester. Selected topics should be relevant to the course and utilize online sources such as Google Earth, remote sensing, and/or other available data depending on the project. Projects will be graded at the end of the semester. Each group member will receive the same grade. The group project is worth 10% of your final grade.

**Campus Field Trip (1% Extra Credit):** The Geoscience Learning Center will be conducting campus field trips this semester. A campus field trip lasts about an hour. Sign up on the Geoscience Learning Center web site <http://www.geosc.uh.edu/undergraduate/learning-center/index.php>. If you participate in one of the campus field trips, I will increase your final score (see below) by 1%. Please note that the Central Texas, Galveston, and Museum field trips are limited to students of Physical Geology.

**Calculating Final Score:**

Exam 1:	20%
Exam 2:	20%
Exam 3:	20%
Exam 4:	20%
Homework:	10%
Group Project:	10%

**Communication**

My office location, office hours, phone number and UH e-mail are noted in the header of this syllabus. We can also schedule an appointment via e-mail if you wish. We will mostly communicate in class and through Blackboard. Become familiar with the *Messages* Tool located on the menu bar to the left of the Course Content (home) page in Blackboard. The *Messages* Tool is like e-mail except that you can only communicate with me and students in the class. You can also post messages in the **Discussions** folder of the **Course Content** (home) page. Messages posted in the Discussions will be visible to everyone in class as will my responses to questions and comments. Note that the home page also includes a **Chat Room** for real-time communication. You can use the Chat Room for online study groups.

**Dropping the Course**

**Wednesday, January 30**, is the last day to drop a course without receiving a grade.

**Wednesday, March 27**, is the last day to drop the course and receive a **W**. Keep in mind that the university does not allow instructors to assign a 'W' after the deadline. It is your responsibility to drop the course if you so choose. If you simply stop coming to class, do not

assume that you will be dropped from the course or will automatically receive a grade of W. If you do not formally drop the course, then I will continue to carry you on the rolls and assign a grade based on your exam scores at the end of the semester.

Beginning in Fall semester 2007, all students (current, transfer, and first time in college students) are permitted a total of six Ws (withdrawals), whether student or instructor initiated. Ws may be used at any time during their college career to drop a course up through the last day to drop a course or withdraw from all courses. When these six Ws have been used, the student must complete all subsequent courses.

### **Learning Outcomes**

1) Recognize and understand Earth's spheres (atmosphere, hydrosphere, lithosphere, & biosphere) as systems. (2) Learn about the unique properties and characteristics of each system (sphere). (3) Understand how each system cycles matter and energy. (4) Learn how the spheres interact with one another as open systems. (5) Learn how these systems originated and evolved over geologic time. (6) Understand and appreciate the extent of human intervention in affecting and changing these systems.

### **ADA Guidelines**

Whenever possible, and in accordance with 504/ADA guidelines, the University of Houston will attempt to provide reasonable academic accommodations to students who request and require them. Please call 713-743-5400 for more assistance.

### **Academic Honesty**

Please review the UH policy on academic honesty at <http://www.uh.edu/academics/catalog/policies/academ-reg/academic-honesty/index.php>