CBM003 ADD/CHANGE FORM

☐ Undergraduate Council
☐ New Course ☑ Course Change
Core Category: Life/Phys Sci Effective Fall 2014

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

1. Department: EAS  College: NSM
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: 1  CIP Code: 01 Lect Hrs: 3  Lab Hrs: 0  CRN: 20102
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
   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

- Created on 2/23/2013 6:09:00 PM -
REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: Earth & Atmospheric Sciences, NSM
Person Making Request: Jennifer Lytwyn

Dean's Signature: ____________________________
Telephone: 713/743-3399
Email: geos6g@Central.uh.edu
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
☐ Mathematics

Science
☐ Language, Philosophy, & Culture
☐ Creative Arts
☒ Life & Physical Sciences

☐ American History
☐ Government/Poliitical

☐ Social & Behavioral Science
☐ Component Area Option

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

v.6/21/12
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 sections 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

John Evans
Associate Dean
4/4/13
1. 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.
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  
**Office:** Room 227D, S&R-1 Bldg  
**Phone:** 713/743-3399  
**E-Mail:** geosog@central.uh.edu  
**Office Hours:** MW 10:30-11:30am or e-mail for an appointment.

## Course Schedule

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


Blackboard Learn: Class materials, communication tools, and other information are available online on Blackboard Learn at [http://www.uh.edu/blackboard/](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](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