

Eastern Illinois University
New Course Proposal
GEO 1320G, Geology of National Parks

Please check one: New course Revised course

PART I: CATALOG DESCRIPTION

1. **Course prefix and number, such as ART 1000:** GEO 1320G
2. **Title (may not exceed 30 characters, including spaces):** Geology of National Parks
3. **Long title, if any (may not exceed 100 characters, including spaces):** Geology of National Parks
4. **Class hours per week, lab hours per week, and credit [e.g., (3-0-3)]:** 3-2-4
5. **Term(s) to be offered:** Fall Spring Summer On demand
6. **Initial term of offering:** Fall Spring Summer **Year:** 2012
7. **Course description (not to exceed four lines):** Explore the interesting features and sweeping landscapes that make the National Park system the pride of America. From a scientific perspective, students will become familiar with the geologic phenomena existing in the National Parks and gain a better appreciation of their creation and importance. Learning about these natural wonders will be facilitated by lecture, videos, virtual field trips, lab work and a field trip.
8. **Registration restrictions:**
 - a. **Identify any equivalent courses** (e.g., cross-listed course, non-honors version of an honors course).
GEO 1320G Geology of National Parks
 - b. **Prerequisite(s)**, including required test scores, courses, grades in courses, and technical skills. Indicate whether any prerequisite course(s) MAY be taken concurrently with the proposed/revised course.
Grade and credit hours for this course will be removed if student already has credit for or is registered in GEO 1300G.
 - c. **Who can waive the prerequisite(s)?**
 No one Chair Instructor Advisor Other (Please specify)
 - d. **Co-requisites** (course(s) which MUST be taken concurrently with this one):
 - e. **Repeat status:** Course may not be repeated.
 Course may be repeated to a maximum of 6 hours or 2 times.
 - f. **Degree, college, major(s), level, or class** to which registration in the course is restricted, if any: N/A
 - g. **Degree, college, major(s), level, or class** to be excluded from the course, if any: N/A
9. **Special course attributes** [cultural diversity, general education (indicate component), honors, remedial, writing centered or writing intensive] General Education – Scientific Awareness physical sciences segment
10. **Grading methods** (check all that apply): Standard letter C/NC Audit ABC/NC (“Standard letter”—i.e., ABCDF—is assumed to be the default grading method unless the course description indicates otherwise.)

- 11. Instructional delivery method:** lecture lab lecture/lab combined independent study/research
 internship performance practicum or clinical study abroad
 other

PART II: ASSURANCE OF STUDENT LEARNING

1. List the student learning objectives of this course:

- a. Describe or identify basic earth science principles and concepts such as mineral and rock identification and explanation of landscapes and land-forming processes**
- b. Apply the relationships between general earth science concepts and real-world situations – recognizing how features in national parks were generated**
- c. Analyze earth systems in terms of scientific concepts**

a. If this is a general education course, indicate which objectives are designed to help students achieve one or more of the following goals of general education and university-wide assessment:

- **EIU graduates will write and speak effectively.**
Objectives a, b and c.
- **EIU graduates will think critically.**
Objectives b and c.
- **EIU graduates will function as responsible citizens.**
Objective c.

b. If this is a graduate-level course, indicate which objectives are designed to help students achieve established goals for learning at the graduate level: N/A

- **Depth of content knowledge**
- **Effective critical thinking and problem solving**
- **Effective oral and written communication**
- **Advanced scholarship through research or creative activity**

2. Identify the assignments/activities the instructor will use to determine how well students attained the learning objectives:

Learning objective	Quizzes	Exams	Lab exercises	Lab exams
a. Describe or identify basic earth science principles and concepts such as mineral and rock identification as well as explanation of landscapes and landforming processes	X	X	X	X
b. Apply the relationships between general earth science	X	X	X	X

concepts and real-world situations – recognizing how features in national parks were generated				
c. Analyze earth systems in terms of scientific concepts	X	X	X	

3. Explain how the instructor will determine students’ grades for the course:

Quizzes (10).....	100 pts (15%)
Exams (2 in-term, 1 final).....	350 pts (51%)
Lab exercises/writeups (10).....	100 pts (15%)
Lab exams (2).....	100 pts (15%)
Field Trip.....	25 pts (4%)
Total	675 pts

**4. For technology-delivered and other nontraditional-delivered courses/sections, address the following:
N/A**

- a. Describe how the format/technology will be used to support and assess students’ achievement of the specified learning objectives:
- b. Describe how the integrity of student work will be assured:
- c. Describe provisions for and requirements of instructor-student and student-student interaction, including the kinds of technologies that will be used to support the interaction (e.g., e-mail, web-based discussions, computer conferences, etc.):

5. For courses numbered 4750-4999, specify additional or more stringent requirements for students enrolling for graduate credit. These include: N/A

- a. course objectives;
- b. projects that require application and analysis of the course content; and
- c. separate methods of evaluation for undergraduate and graduate students.

6. If applicable, indicate whether this course is writing-active, writing-intensive, or writing-centered, and describe how the course satisfies the criteria for the type of writing course identified. (See Appendix *.)

This is a writing active course in that the student will be assigned lab exercises that require the ability to construct short written analyses and thoughtful interpretations of the material presented. The primary purpose of each lab will be to learn scientific principles, but the student will have to derive conclusions based upon what they learned and be able to communicate those findings through their written lab reports.

PART III: OUTLINE OF THE COURSE

<u>Week</u>	<u>Topics</u>
1.	<p>Introduction</p> <p>Introduction to the classroom policies/expectations and scientific concepts</p> <p>Lab: maps – latitude/longitude, Land Office Grid System, scales</p>

2. **History/Background**
 Creation of National Parks
Lab: topographic maps – Yosemite: contour lines/contouring

3. **Earth Composition**
 Plate tectonics, geologic time (including Principle of Fossil Succession), mineral identification, earth resources
Lab: plate tectonics – Hawaii

4. **Earth Composition**
 Plate tectonics, geologic time (including Principle of Fossil Succession), mineral identification, earth resources
Lab: mineral identification – Death Valley, Isle Royale

Lecture Exam #1

5. **Earth Composition**
 Plate tectonics, geologic time (including Principle of Fossil Succession), mineral identification, earth resources
Lab exam #1

6. **Volcanic Parks**
 Composition, texture and identification of igneous rocks and relationship to plate boundaries; Yellowstone, Mt. St. Helens, Devils Tower, Hawaii, Devil’s Postpile
Lab: igneous rocks and volcanic landforms, aerial photos/remotely sensed images

7. **Eroded Horizontal Rocks**
 Composition, texture and identification of detrital sedimentary rocks
Lab: sedimentary rock identification

8. **Eroded Horizontal Rocks**
 Fluvial processes and features; Badlands, Grand Canyon, Zion, Bryce Canyon, Arches
Lab: sedimentary rocks and landforms, soils, aerial photos/remotely sensed images, geologic time

9. **Complex Mountains**
 Composition, texture and identification of metamorphic rocks
Lab: metamorphic systems, identification of metamorphic rocks

10. **Complex Mountains**
 Faults and folds, Grand Teton, Great Smoky Mountains, Hot Springs
Lab: interpreting geologic structures

11. **Wetlands**
 Everglades, Jean Lafitte, Indiana Dunes National Lakeshore
Lab exam #2

12. **Cave and Reefs**
Groundwater systems; Mammoth Cave, Wind and Jewel Cave, Biscayne, Carlsbad Caverns, Buck Island
Lab: cave features, karst topography

Lecture Exam #2
13. **Glaciated Regions**
Voyageurs, Yosemite, Denali, Glacier, Rocky Mountain
Lab: glacial features
14. **Deserts**
Joshua Tree, Mojave, Saguaro
Lab: desert features, wind erosion
15. **Coastal Features**
Point Reyes, Acadia, Aniakchak
Lab: coastal features, coastal erosion

PART IV: PURPOSE AND NEED

1. Explain the department's rationale for developing and proposing the course.

Currently, the department offers only one entry level course that is a gateway into the geology major and also satisfies the Scientific Awareness physical science segment. This course will provide the background needed for majors, while presenting the material within the enticing theme of the National Parks that should appeal to a broad spectrum of students interested in fulfilling their Scientific Awareness physical science segment. In this manner, the course will appeal to a different population of students than ESC/GEL 1300 G and should increase the overall number of students that take an introductory earth science class, benefitting the general student population by providing another type of introductory science class that may spark a latent interest.

- a. **If this is a general education course, you also must indicate the segment of the general education program into which it will be placed, and describe how the course meets the requirements of that segment.**

This class will meet the physical science course with lab criteria of the Scientific Awareness segment of general education. The concepts explored will familiarize students with what science entails, the investigative nature of scientific inquiry based on prediction, observation and analysis, and the integrative learning necessary to understand the earth, its construction and processes. A brief history of earth science will be presented to cast the class' concepts in perspective as well as provide a means by which historical figures and their impact on the science can be examined. The class will provide an opportunity for critical thinking through discussions of the impact of humans on the historically-rich National Park areas as well as evaluation of how best to preserve these wonders. Students will see the direct correlation between the scientific principles learned in class and their visible expression in the nation's parks.

b. If the course or some sections of the course may be technology delivered, explain why. N/A

2. Justify the level of the course and any course prerequisites, co-requisites, or registration restrictions.

The course is being offered at the 1000 level because it will cover material at an introductory level suitable to a 1000 level class. There is no prerequisite.

3. If the course is similar to an existing course or courses, justify its development and offering.

Similar courses include:

ESC/GEL 1300G Introduction to Earth Science

REC 3860 Environmental Interpretation

Geology of National Parks is similar to Introduction to Earth Science in that it will teach the basic principles and skills necessary to continue as a geology major. It is different from the ESC/GEL 1300 class in that it presents the underlying principles via the non-traditional approach of casting all of these principles in terms of the National Park System and the features that are observed within individual parks. The class will develop the ability to think critically – how observed phenomena are explained by scientific study. There is overlap in the principles that are taught in each course; however, the method of delivery is substantially different, designed to appeal to a different type of audience, and the majority of the class is on the National Park System itself, which is not addressed in Introduction to Earth Science. All geology faculty believe that this course will be a welcome addition to our curriculum and a novel approach to recruitment of majors into our program.

Geology of National Parks is similar to Environmental Interpretation in that it deals with the natural world. The proposed class was discussed with Dr. John Henry Pommier, and he sees absolutely no overlap between the two courses and enthusiastically endorses the new course.

- a. If the contents substantially duplicate those of an existing course, the new proposal should be discussed with the appropriate chairpersons, deans, or curriculum committees and their responses noted in the proposal.**
- b. Cite course(s) to be deleted if the new course is approved. If no deletions are planned, note the exceptional need to be met or the curricular gap to be filled.**

No course will be deleted to accommodate this new one. Geology of National Parks will provide an additional course for students to enter the geology major as well as additional offering to broaden the spectrum of classes that fulfill the Scientific Awareness physical sciences segment.

4. Impact on Program(s):

- a. For undergraduate programs, specify whether this course will be required for a major or minor or used as an approved elective.**

This class will be used as an alternative to ESC/GEL/GEO 1300G as an approved introductory core course in the geology major.

- b. For graduate programs, specify whether this course will be a core requirement for all candidates in a degree or certificate program or an approved elective. N/A**

If the proposed course changes a major, minor, or certificate program in or outside of the department, you must submit a separate proposal requesting that change along with the course proposal. Provide a copy of the existing program in the current catalog with the requested changes noted.

PART V: IMPLEMENTATION

1. Faculty member(s) to whom the course may be assigned:

Any faculty member of the Geology Program.

If this is a graduate course and the department does not currently offer a graduate program, it must document that it employs faculty qualified to teach graduate courses. N/A

2. Additional costs to students: Overnight field trip fee of \$50 and a general course fee of \$30 to be used for consumables (rock/mineral samples, maps, national park guides, virtual field trip access, etc.) to be applied for to the President's Council.

Include those for supplemental packets, hardware/software, or any other additional instructional, technical, or technological requirements. (Course fees must be approved by the President's Council.)

3. Text and supplementary materials to be used (Include publication dates):

Lillie, Robert J., 2005, Parks and Plates: The Geology of Our National Parks, Monuments and Seashores, New York: W.W. Norton and Company, 298 pg.

PART VI: COMMUNITY COLLEGE TRANSFER

If the proposed course is a 1000- or 2000-level course, state either, "A community college course may be judged equivalent to this course" OR "A community college course will not be judged equivalent to this course." A community college course will not be judged equivalent to a 3000- or 4000-level course but may be accepted as a substitute; however, upper-division credit will not be awarded.

A community college course may be judged equivalent to this course.

PART VII: APPROVALS

Date approved by the Geology Curriculum Committee: March 25, 2010

Date approved by the department: December 1, 2010

Date approved by the College of Sciences curriculum committee: January 14, 2011

Date approved by CAA: January 27, 2011

*In **writing-active courses**, frequent, brief writing activities and assignments are required. Such activities -- some of which are to be graded – might include five-minute in-class writing assignments, journal keeping, lab reports, essay examinations, short papers, longer papers, or a variety of other writing-to-learn activities of the instructor's invention. Writing assignments and activities in writing-active courses are designed primarily to assist students in mastering course content, secondarily to strengthen students' writing skills. In **writing-intensive courses**, several writing assignments and writing activities are required. These assignments and activities, which are to be spread over the course of the semester, serve the dual purpose of strengthening writing skills and deepening understanding of course content. At least one writing assignment is to be revised by the student after it has been read and commented on by the instructor. In writing-intensive courses, students' writing should constitute no less than 35% of the final course grade. In **writing-centered courses** (English 1001G, English 1002G, and their honors equivalents), students learn the principles and the process of writing in all of its stages, from inception to completion. The quality of students' writing is the principal determinant of the course grade. The minimum writing requirement is 20 pages (5,000 words).

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