Approved by Undergraduate Council 2/15/2011

Sharon Gill

Digitally signed by Sharon Gill
DN: cn=Sharon Gill, o=Undergraduate Education, ou=Undergraduate Council, email=sgill@uky.edu, c=US
Date: 2011.02.16 12:51:02 -05'00'

General Education Course Submission Form | **Date of Submission:** 1 June 2010

1. **Check which area(s) this course applies to.**

Inquiry – Arts & Creativity		Composition & Communications - II	
Inquiry – Humanities		Quant Reasoning – Math	
Inquiry – Nat/Math/Phys Sci	x	Quant Reasoning – Stat	
Inquiry – Social Sciences		Citizenship – USA	
Composition & Communications - I		Citizenship - Global	

2. **Provide Course and Department Information.**

Department: Geography

Course Prefix and Number: GEO 130 Credit hours: 3

Course Title: Earth's Physical Environment

Expected Number of Students per Section: 75 Course Required for Majors in your Program? Yes

Prerequisite(s) for Course? None

This request is for (check one): A New Course [ ] An Existing Course [x]

Departmental Contact Information

Name: Jonathan Phillips Email: jdp@uky.edu

Office Address: 1457 POT Phone: 7-6950

3. **In addition to this form, the following must be submitted for consideration:**

- A syllabus that conforms to the Senate Syllabi Guidelines, including listing of the Course Template Student Learning Outcomes.
- A narrative (2-3 pages max) that explains: 1) how the course will address the General Education and Course Template Learning outcomes; and 2) a description of the type(s) of course assignment(s) that could be used for Gen Ed assessment.
- If applicable, a major course change form for revision of an existing course, or a new course form for a new course.

4. **Signatures**

Department Chair: [signature] Date: 6/1/2010

Dean: Anna R. K. Bosch [signature] Date: 8/20/10

College Deans: Submit all approved proposals electronically to:
Sharon Gill Sharon.Gill@uky.edu
Office of Undergraduate Education

Required Narrative

Earth's Physical Environment GEO 130

General Education Outcomes, Activities, and Assessments
GEO 130 (Earth's Physical Environment) is a geoscience course in physical geography and earth system science. GEO 130 currently meets University Studies Program (USP) natural science requirements, and also College of Arts and Sciences science requirements. GEO 130 is a (premajor) requirement for geography, and is a prerequisite for the department's 200-, 300-, and 400-level physical geography courses. There are no prerequisites for 130.

GEO 130 is an introduction to earth systems, processes, and distributions. The course examines interactions between the air, water, land, biosphere, and human systems. Emphasis is on understanding the complexities and intricacies of global environmental systems. A consistent theme is understanding, explaining, and interpreting physical geography and earth system science on the basis of flows, cycles, and transformations of energy and matter, particularly energy and water.

Learning Outcomes

1. Describe methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience
2. Explain fundamental principles in a branch of science
3. Apply fundamental principles to interpret and made predictions in a branch of science
4. Demonstrate an understanding of at least one scientific discovery that changed the way scientists understand the world
5. Give example of how science interacts with society
6. Conduct a hands-on project using scientific methods to include design, data collections, analysis, summary of the results, conclusions, alternatives approaches, and future studies
7. Recognize when information is needed and demonstrate the ability to find, evaluate and use effectively sources of scientific information

Students completing GEO 130 will be able to *describe methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.* This is accomplished partly via the hands-on project. Because the course deals with areas of active research and debate that is partly in the public eye and is rapidly changing, we are obliged to report new findings in areas such as climate change and sea level rise. This inevitably involves reporting on the variety of methods involved (e.g., computer simulation modeling, paleoenvironmental proxies, field experiments), and the uses and misuses of facts and science in public debate.

GEO 130 emphasizes explanation and interpretation based on fundamental principles-some are basic, widely applicable laws of physics such as the laws of thermodynamics, force, power, energy dissipation, material (especially fluid) fluxes), and basic properties of matter. Some are specific to geography and geosciences, including the first and second laws of geography, stratigraphic laws, and principles of spatial analysis. Thus students will be able to *explain fundamental principles* in physical geography and earth system science and *apply the fundamental principles* above to interpret environmental systems and make predictions with respect to environmental changes and responses. Similarly, students will *demonstrate* an *understanding of fundamental discoveries* such as the First Law of Geography/Ecology, thermodynamics of open systems, global ocean/climate teleconnections, and mass/energy balances that changed the way earth and environmental scientists understand the world.

The nature of physical geography and earth system science is such that it is relevant to issues of environmental change and degradation, natural resource management, land use, weather and climate forecasting, and natural hazards. Thus GEO 130 students will be able to *give examples of how science interacts with society* in these contexts.

Recognition of information needs and gaps in physical geography and earth system science is (necessarily) a major part of the course. Basic atomistic causal relationships in earth surface systems based on principles of chemistry, physics, and biology are mostly well understood. The major uncertainties lie squarely in the realm of geography and geosciences, including the inherent uncertainty in paleoenvironmental reconstructions and global scale mass and energy budgets, and unknowns regarding how the "pieces fit together"-at the moment, for example, this includes phenomena such as the missing sink in the global carbon cycle, cloud-albedo feedbacks, and ocean-climate interactions. Sources and credibility of scientific information are identified and discussed, so that students can *demonstrate the ability to find, evaluate and use effectively sources of scientific information.*

Active Learning

Various active learning activities are currently, and have traditionally been, incorporated into GEO 130. These include field trips, laboratory-type exercises, web-based inquiries, analyses of raw data, and interpretations of weather maps and climate model outputs. Though all GEO 130 instructors have utilized such activities to varying extents, they are not mandated.

The new general education version of GEO 130 includes a requirement for major research and investigation project. These projects will involve primary data collection, data analysis, development of hypotheses and appropriate tests, presentation of results, and interpretation/discussion of both procedures and results.

The example in the attached syllabus (which is being "test-driven" in one of the GEO 130 sections this semester) involves hydrology and runoff response. However, this is only one example of projects that could be undertaken, with the projects adhering to the basic principles of:

-An investigation of a process or phenomenon clearly relevant to GEO 130;
-First-hand data collection or observations;
-Meaningful, non-trivial data/observations that can be obtained with readily available materials and supplies;
-An investigatory framework obliging students to confront the complex, noisy, prosaic "real world" environment geographers and geoscientists deal with (as opposed to controlled laboratory settings).

Assessment
The project described above culminates in a report that integrates results of the student's investigations with a number of fundamental course concepts. This will provide a ready means for assessing the course.

READ THIS KEEP THIS!

GEO 130-001
EARTH'S PHYSICAL ENVIRONMENT
SYLLABUS AND SCHEDULE-SPRING 20 10
MWF 1000-1050 CB212

Instructor: Dr. Jonathan D. Phillips, 1667 Patterson Office Tower
Office hours: Mondays 1100-1400; Wednesdays, Fridays 1100-1200
Telephone: 257-6950 (no voice mail)
**E-mail:* jdp@uky.edu

*Please do not expect immediate responses, particularly with respect to questions related to information given in class or available from the syllabus.

Teaching Assistant: Stephanie Houck, 7 Miller Hall
Office hours: Tuesdays, 1000-1200
Telephone: 257-9858 (no voice mail)
E-mail: smhouc@uky.edu

Course Description

Bulletin Description:
A course exploring the fundamental characteristics of earth's physical environment. Emphasis is placed on identifying interrelationships between atmospheric processes involving energy, pressure, and moisture, weather and climate, and terrestrial processes of vegetative biomes, soils, and landscape formation and change. Fulfills General Education requirements for Inquiry in Natural Sciences, and elementary certification requirements in education.

GEO 130 is an introduction to earth systems, processes, and distributions. This class examines the interactions between the air, water, land, biosphere, and human systems. Emphasis will be on understanding the complexities and intricacies of global environmental systems, as well as some major environmental issues facing our planet. Understanding the basic principles behind issues such as climate change, land degradation, air and water pollution, deforestation, and natural hazards is critical for those who envision further work in geography, geosciences, or environmental studies. More importantly, such knowledge is critical for anyone who wishes to be an informed voter, consumer, and decision-maker among the six billion humans on planet earth.

Geography is the science of space and place: how and why objects and phenomena are located in space, and how those spatial distributions and structures change; and how and why places differ from each other. Physical geography is the science of space and place applied to the study of the atmos-, lithos-, hydros-, and biospheres, and the interactions of those environmental spheres with each other and with humans.

Course Goals

The goals of this course are for students to understand, explain, and interpret physical geography and earth system science on the basis of flows, cycles, and transformations of energy and matter. We will focus especially on the roles of energy and water.

Course Format

This is a traditional, "old-school" university course. In other words, material will be communicated via lectures, discussion, demonstrations, and hands-on exercises. To do well, students must attend, pay attention, participate, and take notes. Lecture notes are not given as handouts, posted in the internet, or provided as fill-in-the blank forms.

The primary vehicle for covering the sheer breadth of material is the textbook. Lectures serve the purpose of elaborating on key points in the text, of applying principles to real-world problems, and occasionally filling in gaps (important ideas not covered, or incompletely covered, in the book).

Please do not assume that because this is a 100-level course that it is, or is supposed to be, easy or non-demanding. The 100-level designation signifies only that it is introductory, which is not the same as easy. GEO 130 may indeed come easily to those with natural aptitude or interest in physical geography. It may be particularly difficult for those with below-average natural aptitude or interest. In this respect it is just like mathematics, music, poetry, chemistry, or baseball: People have quite variable innate levels of interest and ability. Most average students will be able to make an A or B in the course with dedicated attendance, regular reading, and a bit of work and effort. Only the most gifted students will make good grades with a subpar effort or sporadic attendance.

Learning Outcomes

By the end of the course, students should be able to:

1. Describe methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.
2. Explain fundamental principles in physical geography and earth system science.
3. Apply fundamental principles above to interpret environmental systems and make predictions with respect to environmental changes and responses.
4. Demonstrate an understanding of fundamental discoveries such as the First Law of Geography/Ecology, thermodynamics of open systems, global ocean/climate teleconnections, and mass/energy balances that changed the way earth and environmental scientists understand the world.
5. Give examples of how science interacts with society in the context of environmental change, climate change, and natural resource management.
6. Conduct a hands-on project in climatology, hydrology, geomorphology, pedology, or biogeography. The project should involve using scientific methods to include design, data collection, analysis, summary of the results, conclusions, alternative approaches, and future studies.
7. Recognize information needs and gaps in physical geography and earth system science and demonstrate the ability to find, evaluate and use effectively sources of scientific information.

Required Textbook

Arbogast, Alan F. 2007. *Discovering Physical Geography.* New York: John Wiley & Sons.

Textbook web site: www.wiley.com/college/arbogast (click on "student companion site")

Grading and Evaluation

Your grade for the course will be based on the following:

Test 1	20%
Test 2	20%
Test 3	20%
Exercises	20%
Research Project	20%

Letter Grade	Grade achieved in course	UK Letter Grade Definition
A	90-100%	Represents an exceptionally high achievement as a result of aptitude, effort and intellectual initiative.
B	80-89%	Represents a high achievement as a result of ability and effort
C	70-79%	Represents average achievement
D	60-69%	Represents the minimum passing grade
E	0-59%	Represents unsatisfactory performance and indicates failure in the course

NOTE: Students will be provided with a **midterm evaluation** based on course performance up until the midterm point following syllabus criteria.

The tests will be computer-graded, multiple-choice exams and will cover textbook material, lectures, and any other assignments. Scores and grades may be curved at the discretion of the professor. Grading will be on a standard 10-point scale.

Exercises will involve the collection and analysis or interpretation related to Earth's physical environment, and will involve a combination on in-class and independent work. Specific dates will be announced in class at least one week in advance, but a general sequence is given below:

Exercise & Topic Week of semester

1. Interpreting Geographic Distributions from Maps 2
2. Solar Radiation Energy Balance 4/5
3. Weather Map Interpretation 9
4. Climate Change and the Cryosphere 11
5. Topographic Analysis 13

The research project is described in a separate handout.

There is no such thing as a *make-up exam (or exercise).* Of course, if you are subject to serious illness, injury, or other documentable factors that physically prevent you from attending an exam, arrangements can be made. Otherwise, do not ask. Forgetfulness, faulty alarm clocks, demands of jobs or other classes, and the like will not be considered. If you want to request a makeup exam, you must provide proper documentation, and notify your instructor as soon as possible.

There is no extra credit. The way to improve your grade is by doing well on tests and assignments.

Unless I specifically state otherwise, all assignments are to be turned in, in hardcopy, at the beginning of class on the due date. Late papers and assignments are accepted only if you have written documentation of an excused absence (see *attendance,* below).

Other Points and Policies

Honor Code: University of Kentucky geography students do not lie, cheat, steal, or tolerate those who do. Academic dishonesty in any form will not be tolerated.

Laptop Computers: Students who wish to use laptop computers in class may be required to sit in a designated section of the classroom to minimize distractions to other students. The instructor reserves the right to restrict laptop use on an individual or class basis.

Cell Phones, etc.: Turn them off.

Keeping Up: You must attend class faithfully, do the readings according to schedule, and otherwise keep up. The material in this course is cumulative: Understanding later material is contingent on mastery of earlier material. Failure to keep up invariably snowballs into larger problems which are difficult to correct. *The professor is not responsible for communicating material to students who miss class, even when the absences are for legitimate reasons.*

Class materials are copyrighted. You do not have the right to copy them unless I expressly grant such permission.

Attendance: Attendance may not be taken in class. However, the professor reserves the right to institute either positive or negative incentives to increase class attendance, if poor attendance becomes a problem. Make-ups will be given only when an absence is excused, and when documentation is provided. Excused absences are limited to the following:

1. Injury or illness serious enough to physically present class attendance.
2. Death in the family.
3. University approved and sponsored travel, with advance notification.

Written documentation must be provided in every case. Issues involving alarm clocks, transportation, forgetfulness, work schedules, other classes, or failure to receive or act upon information and announcements in class will not be considered excused absences.

Decorum: Students should at all times be respectful of fellow students, the professor or teaching assistant, and the University of Kentucky. Some basic reminders:

1. Keep quiet. Talking and whispering during class is disrespectful to the professor and fellow students, and makes it more difficult for those who want to learn to do so.
2. Put away your reading material (other than perhaps the textbook).
3. Turn off cell phones, etc.
4. Clean up after yourself. It is OK to bring drinks and food to class, if it is consumed quietly and unobtrusively, and if you clean up when you leave.
5. Show up on time. Late arrivals are rude and disruptive.

Grades: I will be happy to provide grade information to any student, any time, in person. I will not provide grades via phone or e-mail. I will not provide grades to third parties, even if you have signed a waiver, including CATS or other athletic department personnel, parents, fraternities/sororities, or scholarship sponsors.

Academic accommodations due to disability: If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. To receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address (jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.

Date	*Topic*	*Reading*
1/13	Introduction to GEO 130	
1/15	Introduction to physical geography & earth system science	Ch 1, 2
1/20, 22	Principles of matter, energy, & systems	
1/25-29	Solar energy & the atmosphere	Ch 3,4
2/1-5	Solar energy balance	
2/8	TEST 1	
2/10-12	Global temperature & pressure	Ch 5, 6
2/15-19	Global atmospheric & ocean fluxes	
2/22-26	Atmospheric moisture & precipitation	Ch 7
3/1-3	Air masses, fronts, & storms	Ch 8
3/8-10	Global climates	Ch 9
3/12	TEST 2	
3/22-26	Hydrology	
3/31-4/2	Solid earth; lithosphere	Ch 12, 13
4/5-7	Weathering & karst	Ch 14, 15
4/9-16	Rivers & fluvial dynamics	Ch 16
4/19-23	Glacial & aeolian geomorphology	Ci 17,18
4/26	RESEARCH PROJECT DUE	
4/26-30	Coastal landforms and environments	Ch 19
5/3	TEST 3/FINAL EXAM Time: (0800) Duration: Location:	

Course Schedule (subject to modifications as announced in class)

GEO 130: Earth's Physical Environment Research Project: Runoff Response

Due date: Introduction As discussed in class, infiltration is a critical "valve" in the terrestrial portion of Earth's single most important material cycle-the hydrologic cycle. Infiltration determines the proportion of precipitation inputs which run off as overland flow, and the proportion which soaks into the ground. Overland flow is critical for soil erosion, sediment transport, and flash flooding, among other things. Infiltrated water is critical for (among other things) ground water recharge, soil and rock weathering, and moisture storage for plants. This project will evaluate the runoff response of several different types of surfaces.

Overview

You will apply a fixed amount of water to different types of ground surfaces, and record the amount of time required for all the water to soak in or infiltrate. While the experimental procedure does not duplicate natural conditions or standard falling-head or constant-head infiltration tests, if performed correctly it provides valid comparative data. In other words, the measured infiltration *rates* will not be comparable with those ill the literature, but the *relative infiltration responses* 0 f the different surfaces will be accurate.

Procedure

1. Training.

A. Obtain a suitable container for applying 236.6 ml (= 8 fl oz = 1 cup) of water. Go outside with a water supply (water bottles, canteen, etc.), and carefully apply the water to the ground surface. Pour slowly, very close to the surface (within about 5 cm or 2 inches), and confine the application area to an approximately circular area of about 104 $cm^{2.}$ This is a circle about 11.5 cm or 7.25 inches in diameter – the size of a CO or DVD.

B. Each time you apply water, start a stopwatch or timer accurate to the nearest second. Record how long it takes for all the water to soak in, recognizing that some of the water may run off of the application area. If it takes longer than five minutes, you may record the time as >300 seconds.

C. Do this several times, on several different types of surfaces (soil, pavement, vegetated, unvegetated, etc.).

D. Do at least 10 trials, or more until you feel confident in determining the point at which all water has infiltrated, and with timing the process.

2. Site Selection.

A. Choose a minimum of 20 sites for your experiments. They may be close together, but should include a variety of surface conditions. At a minimum, your sample sites should include at least one example of the following:

-Grassed, vegetated soil (such as lawn)

-Pavement (continuous) (e.g., asphalt or concrete, street, parking lot, sidewalk with no visible cracks or joints)

-Pavement (discontinuous) (e.g., paved with bricks, cobblestones, pavers, turfs tone, etc.)

-Bare, unvegetated soil
-Apparently compacted or trampled soil
-Apparently loose soil, or soil with litter cover or layer

B. Sites should be locally flat (zero slope at the point of application)
C. You should be able to pinpoint the location of your site. You can do this in several ways:
-Determine latitude/longitude coordinates with a GPS
-If you can pinpoint the location accurately and confidently on Google Earth or a similar tool, determine latitude and longitude from that.
-Using distance and direction from a known, fixed feature. For example: 27 m southeast of the northeast corner of Woodland Avenue and Rose Lane; or 26 m NNW of the SE corner of W.T. Young Library, etc.
-Using landmarks at a street address.
For example: 1.5in from the base of the chimney at the rear of the house at 720 Bullock Place, Lexington, KY, in a direction perpendicular to the base of the chimney.

3. Experiments.
A. At each of the 20 sites, apply the water and time the infiltration as described under item 1 above.
B. Make sure to record the day and time, as that will make it possible to relate results to meteorological conditions, such as humidity, initial soil moisture status, antecedent precipitation, and the possibility of frozen ground.
C. Record data as indicated on the data collection checklist.
O. Photograph each cite (a cell phone photograph is fine, if the quality is appropriate).
E. Do two tests at each site -an initial, "dry" test, and a second "wet" test conducted after complete infiltration of the first test (or 5 minutes, if complete infiltration is not observed).
F. If you make a mistake in performing the experiment, either wait until another day to repeat it, or choose another, similar, nearby point.

4. Presentation of Results
A. For each of your study sites, provide a general description of the setting, the locational coordinates or description, and a photograph. Also indicate the general weather conditions at the time of your experiments,
B. Produce a table including one entry for each of the following:
-Site ID (number, code, or name, relatable to information in A above)
-Date
-Time of first test (use 24 hour; i.e. 1500 rather than 3 pm)
-Time to complete infiltration (in seconds)
-Run 1 (dry)
-Run 2 (wet)
-Any relevant notes, comments, or observations.
C. Summary statistics, including the maximum, minimum, mean, and standard deviation of infiltration times. Exclude any >300 second readings from mean and standard deviation calculations. Summary statistics should be produced separately for the run 1 (dry) and run 2 (wet) runs, and for the entire data set.

5. Final Report
A typed final report written in appropriate scientific/technical English should include the following, at a minimum. The report should be written as though for the public or a client-that is, do not assume that the reader is already familiar with the project!
A. Problem statement giving a brief general overview of the project, and a clear statement of what question(s) you are trying to address.
B. A description of your methods, including detailed descriptions of your equipment.

C. Presentation of results (see 4 above).
D. Interpretation of results. This should address, at a minimum:
-Contrast between "dry" and "wet" runs
-Effects of varying surface conditions such as pavement vs. soil, vegetation cover, litter layers, surface looseness or compactness, and land use.
E. A discussion or critique which identifies any problems or uncertainties in the methods or data; suggests possible improvements or future research directions; and/or discusses broader implications of your results.
F. A conclusions section which gives the implications of your results with respect to at least one of the following:
-Soil erosion and sedi ment control
-Flood prediction, management, or mitigation
-Urban storm water management
-Plant-available moisture
-Nonpoint source pollution
-Relationships between land use and runoff

6. The Extra Mile These items are optional, and you can earn an A on the project without them. However, including them might make the difference between a C or B vs. an A paper, or even earn some extra credit.
A. Map of your study site locations (even a Google Earth image with placemarks is better than nothing)
B. Graphical presentation of results (e.g., bar graphs, scattergrams, maps, etc.).
C. Additional statistical analysis of results.
D. Additional data (>20 sites).
E. Additional data-additional tests at different times and under different conditions at some of your study sites.
F. Other ideas? Be creative. But check with me (your professor) first.

I. Site characteristics
1. Site ID (number, name, or code)
2. General site description
3. Specific site location (see 2C above)
4. Photograph (standard practice is to place something in the picture for scale-either a ruler, or some common object such as a pocketknife, pen, coin, etc.)

II. Sampling conditions
1. Date
2. Time (24 hour or military time)
3. Weather conditions

III. Time to infiltration
1. Two runs
2. Record time in seconds
3. Other observations or comments. Some things ill particular to look for-
A. Is water flowing off the test plot?
B. Does there appear to be any water repellency or hydrophobicity? This would be indicated by water beading up 011 the ground surface; relevant only to unpaved surfaces.
C. Any biological features other than vegetation cover and plant litter which might influence the process, such as ant mounds, worm casts, apparent insect or other burrows, algal coverings, etc.?

4. Designed so that students will experience at least some of the issues associated with field observations or experiments ill the geosciences, where strict experimental control and standardization is impossible or unfeasible.

NOTE in addendum: The assignment above is an example of the type of research projects which will be assigned. This example is typical of the amount of time, effort, and expertise which will be required, and of the type of final product demanded. The guidelines for the research projects are that they will be:

1. Directly related to topics or issues covered ill the course.
2. Designed to be conducted partly independently by the student.
3. Based simple, inexpensive, readily-available equipment, instruments, materials, or data.

REQUEST FOR COURSE CHANGE (MAJOR AND MINOR)

Complete 1a – 1f & 2a – 2c. Fill out the remainder of the form as applicable for items being changed.

1. General Information.

a. Submitted by the College of: Arts and Sciences Today's Date: 31 May 2010

b. Department/Division: Geography

c. Is there a change in "ownership" of the course? YES ☐ NO ☒

If YES, what college/department will offer the course instead? _____

d. What type of change is being proposed? ☒ Major ☐ Minor[1] (place cursor here for minor change definition)

e. Contact Person Name: Jonathan Phillips Email: jdp@uky.edu Phone: 257-6950

f. Requested Effective Date: ☒ Semester Following Approval OR ☐ Specific Term[2]: _____

2. Designation and Description of Proposed Course.

a. **Current Prefix and Number:** GEO 130 *Proposed Prefix & Number:* _____

b. **Full Title:** Earth's Physical Environment *Proposed Title:* _____

c. **Current Transcript Title** (if full title is more than 40 characters): _____

c. *Proposed Transcript Title (if full title is more than 40 characters):* _____

d. **Current Cross-listing:** ☒ N/A OR Currently[3] Cross-listed with (Prefix & Number): _____

Proposed – ☐ *ADD[3] Cross-listing (Prefix & Number):* _____

Proposed – ☐ *REMOVE[3, 4] Cross-listing (Prefix & Number):* _____

e. **Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[5] for each meeting pattern type.**

Current: 3 Lecture _____ Laboratory[5] _____ Recitation _____ Discussion _____ Indep. Study

_____ Clinical _____ Colloquium _____ Practicum _____ Research _____ Residency

_____ Seminar _____ Studio _____ Other – Please explain: _____

Proposed: 3 *Lecture* _____ *Laboratory* _____ *Recitation* _____ *Discussion* _ *Indep. Study*

_____ *Clinical* _____ *Colloquium* _____ *Practicum* _____ *Research* _____ *Residency*

_____ *Seminar* _____ *Studio* _____ *Other – Please explain:* _____

f. **Current Grading System:** ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

Proposed Grading System: ☒ *Letter (A, B, C, etc.)* ☐ *Pass/Fail*

g. **Current number of credit hours:** 3 *Proposed number of credit hours:* _____

h. **Currently, is this course repeatable for additional credit?** YES ☐ NO ☒

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[1] See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be sent to appropriate academic Council for normal processing and contact person is informed.

[2] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[3] Signature of the chair of the cross-listing department is required on the Signature Routing Log.

[4] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.

[5] Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)

REQUEST FOR COURSE CHANGE (MAJOR AND MINOR)

Proposed to be repeatable for additional credit? *YES* ☐ *NO* ☒

If YES: *Maximum number of credit hours:* _____

If YES: *Will this course allow multiple registrations during the same semester?* *YES* ☐ *NO* ☐

i. **Current Course Description for Bulletin:** A course exploring the fundamental characteristics of earth's physical environment.. Emphasis is placed on identifying interrelationships between atmospheric processes involving energy, pressure, and moisture, weather and climate, and terrestrial processes of vegetative biomes, soils, and landscape formation and change. Fulfills elementary certification requirements in education, and USP crossdisciplinary requirement.

Proposed Course Description for Bulletin: *A course exploring the fundamental characteristics of earth's physical environment. Emphasis is placed on identifying interrelationships between atmospheric processes involving energy, pressure, and moisture, weather and climate, and terrestrial processes of vegetative biomes, soils, and landscape formation and change. Fulfills General Education requirements for Inquiry in Natural Sciences, and elementary certification requirements in education.*

j. **Current Prerequisites, if any:** _____

Proposed Prerequisites, if any: _____

k. Current Distance Learning(DL) Status: ☒ N/A ☐ Already approved for DL* ☐ *Please Add*[6] ☐ *Please Drop*

*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box ☐) that the proposed changes do not affect DL delivery.

l. **Current Supplementary Teaching Component, if any:** ☐ Community-Based Experience ☐ Service Learning ☐ Both

Proposed Supplementary Teaching Component: ☐ *Community-Based Experience* ☐ *Service Learning* ☐ *Both*

3. **Currently, is this course taught off campus?** YES ☐ NO ☒

Proposed to be taught off campus? YES ☐ NO ☒

4. **Are significant changes in content/teaching objectives of the course being proposed?** YES ☐ NO ☒

If YES, explain and offer brief rationale:

A semi-independent hands-on research project is added, for consistency with the spirit, intent, and regulations associated with General Education requirements for Inquiry in the Natural Sciences.
Additionally, course description for bulletin has been changed to reflect the changes in course requirement fulfillment associated with General Education.

5. **Course Relationship to Program(s).**

a. **Are there other depts and/or pgms that could be affected by the proposed change?** YES ☐ NO ☒

If YES, identify the depts. and/or pgms: _____

b. **Will modifying this course result in a new requirement[7] for ANY program?** YES ☐ NO ☒

If YES[7], list the program(s) here: _____

6. **Information to be Placed on Syllabus.**

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[6] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.

[7] In order to change a program, a program change form must also be submitted.

REQUEST FOR COURSE CHANGE (MAJOR AND MINOR)

Signature Routing Log

General Information:

Course Prefix and Number: GEO 130

Proposal Contact Person Name: Jonathan Phillips Phone: 257-6950 Email: jdp@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Geography	6/1/10	Sue Roberts / 7-2931 / sueroberts@uky.edu	[signature]
A&S Associate Dean	8/20/10	Anna Bosch / 7-6689 / bosch@uky.edu	ARK Bosch
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[8]
Undergraduate Council	2/15/2011	Sharon Gill (Digitally signed by Sharon Gill DN: cn=Sharon Gill, o=Undergraduate Education, ou=Undergraduate Council, email=sgill@uky.edu, c=US Date: 2011.02.16 15:42:54 -05'00')	
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

[8] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.