Course Information

Date Submitted: 1/2/2013

Current Prefix and Number: GLY - see EES, GLY 170 - BLUE PLANET: INTRO TO OCEANOGRAPHY

Other Course:

Proposed Prefix and Number:

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? Yes

Inquiry - Nat/Math/Phys Sci

1. General Information

a. Submitted by the College of: College of Arts &Sciences

b. Department/Division: Earth and Environmental Sciences

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Rebecca Freeman

Email: rebecca,freeman@uky.edu

Phone: 76376

Responsible Faculty ID (if different from Contact)

Name: David Moecher

Email: moker@uky.edu

Phone: 76939

f. Requested Effective Date

Semester Following Approval: No OR Effective Semester: Spring 2013

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: Already approved for DL*

b. Full Title: BLUE PLANET: INTRODUCTION TO OCEANOGRAPHY

Proposed Title: BLUE PLANET: INTRODUCTION TO OCEANOGRAPHY

c. Current Transcript Title: BLUE PLANET: INTRO TO OCEANOGRAPHY

Proposed Transcript Title:

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 3

Proposed Meeting Patterns

LECTURE: 3

f. Current Grading System: ABC Letter Grade Scale

Proposed Grading System: PropGradingSys

g. Current number of credit hours: 3

Proposed number of credit hours: 3

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: Survey of oceanography, including the geologic evolution of the ocean floor; composition and dynamics of ocean water; interaction of lithosphere with hydrosphere; ocean-atmosphere interaction and oceanic controls on climate dynamics; marine life and ecosystems; impact of human activity on marine ecosystems.

Proposed Course Description for Bulletin: Survey of oceanography, including the geologic evolution of the ocean floor; composition and dynamics of ocean water; interaction of lithosphere with hydrosphere; ocean-atmosphere interaction and oceanic controls on climate dynamics; marine life and ecosystems; impact of human activity on marine ecosystems.

2j. Current Prerequisites, if any:

Proposed Prerequisites, if any:

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component:

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? No

If YES, explain and offer brief rational:

5a. Are there other depts. and/or pgms that could be affected by the proposed change? No

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

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

Course Review Form
Inquiry in the Natural/Mathematical/Physical Sciences

Reviewer Recommendation
Accept ☐ Revisions Needed ☐

Course: GLY-170: Blue Planet: Introduction to Oceanography

Using the course syllabus as a reference, identify when and how the following learning outcomes are addressed in the course. Since learning outcomes will likely be addressed multiple ways within the same syllabus, please identify a representative example (or examples) for each outcome.

☐ Course activities that enable students to demonstrate an understanding of methods of inquiry that lead to scientific knowledge and distinguish scientific fact from pseudoscience.

Example(s) from syllabus:
Reflection Exercise 1 (during Lecture 1):

Brief Description:
After I explain the difference between a hypothesis and a theory, students gather into small groups to discuss their observations about parking on UK's campus as an in-class active learning exercise. (Are parking spots more available on Tuesdays and Thursdays? Are the majority of parking tickets written right before classes end?) They turn their observations into hypotheses and design projects to test their hypotheses. The students critique each other's projects and determine whether or not their hypotheses are falsifiable. Some students will inevitably have "hypotheses" that are not falsifiable, leading to a discussion of science versus pseudoscience.

☐ Course activities that enable students to demonstrate an understanding of the fundamental principles in a branch of science.

Example(s) from syllabus:
Exercise 5: Use Google Earth to explain the tectonics of the seafloor.

Brief Description:
Students use Google Earth and a variety of data overlays (plate boundaries, active volcanoes, last year's earthquake locations, hot spot volcanic activity age data) to determine the tectonic origin of various features of the seafloor, such as the Marianas Trench, seamounts, mid-ocean ridges, and Hawaii. This activity enables the students to use real data to demonstrate their understanding of plate tectonics, one of the fundamental principles in Oceanography.

☐ Course activities that enable students to demonstrate the application of fundamental principles to interpret and make predictions in that branch of science.

Example(s) from syllabus:
Exercise 9: Use Google Earth to explore relationships between ocean current, sea surface temperature, and climate

Brief Description:
Students use Google Earth and a variety of overlays (ocean currents, sea surface temperature) as well as online climate data to demonstrate their understanding of the fundamental priciples behind the connection between ocean circulation and climate. After demonstrating their understanding of current climate conditions, they are asked to make predictions about how the climate in various places might change if certain features of ocean circulation changed. (What would happen in Europe if the North Atlantic Deep Water current shut down? What would happen in North America if the Gulf Stream

changed positions?)

☐ Course activities that enable students to demonstrate their ability to discuss how at least one scientific discovery changed the way scientists understand the world.

Example(s) from syllabus:
Exercise 2: Calculate seafloor spreading.

Brief Description:
Students examine the ages of magnetic anomalies on the ocean floor and then calculate the rate at which the seafloor is spreading. These calculations are used to make predictions about the future of plate movement in the southern Pacific Ocean. Students then discuss how the discovery of the seafloor magnetic anomalies led to the acceptance of plate tectonics and to a change in how features of the seafloor were observed and explained. This activity recreates groundbreaking historic research of the 1950's and 1960's.

☐ Course activities that enable students to demonstrate their ability to discuss the interaction of science with society.

Example(s) from syllabus:
Exercise 4: Read and write about increasing CO2 in the ocean.

Brief Description:
Students read two articles from Oceanus, the on-line journal of Woods Hole Oceanographic Institute. One is about the effects of ocean acidification on marine life; the other is about proposals to store excess CO2 in the ocean as methane hydrates. Students integrate the two articles into a discussion of our society's use of fossil fuels, the impact it has on the planet, and how science can help predict (and possibly attempt to mitigate) those outcomes.

☐ A hands-on student project is required. This project enables students to demonstrate their ability to conduct a scientific project using scientific methods that include design, data collection, analysis, summary of the results, conclusions, alternative approaches, and future studies. Describe the required student product (paper/ laboratory report) based on the hands-on project.

Exercise 11: Use East Pacific Rise Data and GeoMapApp to test your hypothesis about vent community distribution.

The students design their own projects to test their hypotheses after several exercises familiarizing them with the use of GeoMapApp, a free Java-based tool that allows them access to a broad range of geoscience data sets (sea floor bathymetry, vent distribution, sediment thickness grids, hydrothermal vent images, water temperature) to be explored and viewed in a geographical context. They utilize data sets and grids and can gather and import data from other sources using Excel spreadsheets. After analzying their assembled data, the students summarize their project and its conclusions in a report and suggest ideas for future research. This exercise enables the students to design their own scientific research while teaching them about the occurrence of chemosynthetic-based ecosystems associated with hydrothermal vents at mid-ocean ridges.

☒ Course activities that demonstrate the integration of information literacy into the course.

Example(s) from syllabus:

Exercise 9: Use Google Earth to explore shoreline features.

Brief Description:
This exercise uses Google Earth to integrate the interpretation of the existing morphology of shorelines with the prediction of how these shorelines will change as sea level rises. As they predict the future of various coastal communities, students gather information about sea level change from a variety of on-line resources, and synthesize these into their report.This exercise encourages them to identify the best sources of information needed to address the issue. With the controversy surrounding global warming and sea level rise, this exercise also offers the students practice in critically distinguishing between reliable scientific resources and pseudoscience.

Reviewer's Comments

GLY (EES) 170 001: Blue Planet: Introduction to Oceanography

Department of Earth and Environmental Sciences (EES)
College of Arts and Sciences (A&S)

Bulletin Description: Survey of oceanography, including the geologic evolution of the ocean floor; composition and dynamics of ocean water; interaction of the lithosphere with hydrosphere; ocean-atmosphere interaction and oceanic controls on climate dynamics; marine life and ecosystems; impact of human activity on marine ecosystems

Course Goals and Objectives: The goal of this class is to offer the student an introduction to all aspects of the science of oceanography. We will start by learning about the geologic evolution of the ocean floor. We will discuss how the hydrosphere interacts with the lithosphere. We will learn about the origin of water on the planet and discuss the chemistry of ocean water. We will learn how water circulates throughout the world's oceans. We will explore the relationship between the ocean and atmosphere and understand how climate changes affect the world's oceans and how the climate is controlled by processes occurring in the ocean. We will discuss marine life and ecosystems, and focus particularly on how human activity has caused changes to the marine ecosystem.

Learning Outcomes of this Course: Upon completion of this course, students will be able to:
-Comprehend the properties and behavior of marine systems as demonstrated by performance on objective examinations.
-Demonstrate the ability to clearly explain the relationship among the hydrosphere, lithosphere, biosphere, and atmosphere, through short-answer essay questions
-Analyze and interpret simple but meaningful data sets that quantify aspects of ocean behavior (past, present, and future).
-Evaluate the accuracy and objectivity of scientific information presented in various media formats (television, video, print, electronic).
-Relate ocean dynamics to long term climate variations such as global warming and local weather phenomena such as droughts

Our class meets in Funkhouser 200-FB on Tuesdays and Thursdays at HH:MM–HH:MM.

Instructor: Dr. Rebecca Freeman
Office: 310 Slone Research Building
Office Hours: Mondays and Wednesdays, X–X pm. Feel free to drop by at other times and I'll try to help you if I can. Also, feel free to make an appointment if my office hours are not convenient for you.
Email: rebecca.freeman@uky.edu (Please be aware that if you email me from your gmail/aol/yahoo/etc. personal account UK email is likely to consider it spam and I may not get your email. It is better to use your UK account.)
Office Phone: 859-257-6376

Teaching Assistant: Katrina Current; 305 Slone Bldg.; Office Hours: 3-5 p.m. TR

Required Materials*: An Introduction to the World's Oceans,* Keith A. Sverdrup and E. Virginia Armbrust, 10th edition. ISBN 978-0-07-337670-7; ISBN 0-07-337670-1. The textbook offers many online resources that we will use throughout the semester: http://highered.mcgraw-hill.com/sites/0073376701/ This textbook is also available as an e-textbook.

Several exercises require the use of the free, simple applications Google Earth and GeoMapApp. It is your responsibility to download the applications and become moderately proficient in their basic applications.

Electronics in the classroom: All lectures will be posted on Blackboard 12–24 hours before class and students are encouraged to bring their laptops to lecture, although it is not mandatory. In lieu of a laptop, a cell phone with internet access (such as an Android and Iphone) may also be useful for accessing online databases.

LECTURE AND SCHEDULE

Lecture Number/Day of Week/Date/Topic/Assigned Reading

1	R	M/DD	The Water Planet	Chapter 2
2	T	M/DD	Mapping the Planet; Mapping the Ocean	Chapter 2
			Exercise 1 (In-class): Explore latitude & longitude.	
3	R	M/DD	Physical Features of the Planet	Chapter 3
4	T	M/DD	The Ocean Floor Explained: Plate Tectonics	Chapter 3
5	R	M/DD	The Ocean Floor Explained: Plate Tectonics	Chapter 3
			Exercise 2 (In-class): Calculate seafloor spreading.	
6	T	M/DD	The Seafloor and Its Sediments	Chapter 4
7	R	M/DD	Water	Chapter 5
			Exercise 3 (In-class): Review & explore the properties of water.	
8	T	M/DD	The Chemistry of Seawater	Chapter 6
9	R	M/DD	The Atmosphere and Its Relationship to the Hydrosphere	Chapter 7
			Exercise 4 (Homework): Read and write about increasing CO_2 in the ocean.	
10	T	M/DD	Ocean Circulation & Currents: Deep Water	Chapters 8–9
11	R	M/DD	Ocean Circulation & Currents: Shallow Water	Chapters 8–9
			Exercise 5 (Homework): Use Google Earth to explain the tectonics of the seafloor.	
12	T	M/DD	The Formation and Anatomy of Waves	Chapter 10
13	R	M/DD	The Interaction Between Waves and Coasts	Chapter 10
	T	M/DD	**TEST 1**	
14	R	M/DD	Tides	Chapter 11
			Exercise 6 (Homework): Use Google Earth to explore features of the ocean floor.	
15	T	M/DD	Erosion and Deposition Along Coastlines	Chapter 12

16	R	M/DD	Primary & Secondary Coastlines	Chapter 12
			Exercise 7 (Homework): Use Google Earth to explore relationships between ocean current, sea surface temperature, and climate.	
17	T	M/DD	The Beach Budget and Dealing with Coastal Erosion	Chapter 12
18	R	M/DD	Estuary Case Studies: Chesapeake Bay & Lake Pontchartrain	Chapter 12
			Exercise 8 (Homework): Use Google Earth to explore shoreline features.	
19	T	M/DD	Ocean Pollution, Dead Zones & Plastic Trash	Chapter 13
20	R	M/DD	Oil Spills, Wetland Loss, and Invasive Species	Chapter 13
			Exercise 9 (Homework): Use GeoMapApp to explore and map the seafloor.	
21	T	M/DD	Ocean Environments & the Organisms that Live in Them	Chapter 14–15
22	R	M/DD	Aspects of Life in the Ocean	Chapter 14–15
			Exercise 10 (Homework): Explore life in extreme environments using GeoMapApp.	
23	T	M/DD	Life in the Ocean: Plankton	Chapter 16-18
	R	M/DD	**TEST 2** (over Chapters 11-15)	
24	T	M/DD	Life in the Ocean: Nekton	Chapter 16–18
25	R	M/DD	Life in the Ocean: Benthos	Chapter 16–18
			Exercise 11 (Homework): Use East Pacific Rise Data and GeoMapApp to test your hypothesis about vent community distribution.	
	T	M/DD	(**MOVIE DAY**) **Exercise 12 (In-class): Watch & analyze *Blue Planet: Deep Ocean*.**	
	R	M/DD	Review for Final	Chapter 16–18
			FINAL EXAM: Tuesday, May 1, 2012; 10 a.m.-Noon, Rm. 200 Funkhouser	

POLICIES: GRADING

Lecture Reflection Exercises: These will occur at the end of most lectures and will be in a variety of formats including short essays, interpretation of images and maps, analysis of online data, and multiple choice "conceptests". Three of these will be dropped and therefore there are no make-ups of reflection exercises *even for excused absences* (except university-related travel). Reflection exercises will count as 10% of the grade.

Homework /In-class Problems: This will count as 20% of the grade. Some of these will be done in class and you must be present to receive credit for these exercises. Others will be assigned both in class and announced on Blackboard and these will be done outside of class and turned in at a later date for credit. Two of the Homework/In-class Problem grades will be dropped, so no make-ups will be given, *even for excused absences* (except university-related travel).

Midterm Exams: There are two midterm exams, each worth 20%. These exams are multiple-choice and will focus on topics discussed in class. Students are encouraged to download lecture Powerpoint presentation from Blackboard to study for the exams. The exams may only be made up with an excused absence. *You must notify me on or before the day of the exam of your absence and your plan to make it up.*

Final Exam: Tuesday, XX/XX at HHam (Curious about when your other final exams are scheduled? Check here: http://www.uky.edu/Registrar/finals.htm) The Final Exam will be comprehensive and will focus on big-picture issues discussed frequently in class. The more times I mention something, the more likely it is that it will be on the final. The final is worth 20% of your grade.

Midterm Grades: Midterm grades will be posted in myUK by the deadline established in the Academic Calender (http://www.uky.edu/Registrar/AcademicCalendar.htm)

Activity (*can be made up with proper documentation)	Percentage of Overall Grade
Lecture Reflection	10%
Homework/In Class Problems	20%
Midterm 1*	25%
Midterm 2*	25%
Final*	20%

Assignment of Final Grade: I assign grades on the following scale: 90–100% is an A; 80–89% is a B; 70-79% is a C; 60-69% is a D; below 60% is failing.

POLICIES: ACADEMIC ACCOMMODATION DUE TO DISABILITY

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order 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.

POLICIES: STUDENT RESPONSIBILITIES

Attendance and Absences: Regular class attendance is essential to earning a good grade. Several of the Lecture Reflection exercises are dropped, therefore there are no make-ups ***including for excused absences*** (except for university-sponsored trips). I encourage you to take responsibility for your own grade and to make your own decisions regarding when, *and if*, it is necessary to miss classes. On exam days, students may be asked to verify their absences in order to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence. *You must notify me on or before the day of your absence to discuss your plan to make it up.*

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Academic Honesty: Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: http://www.uky.edu/Ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of Student Rights and Responsibilities (available online http://www.uky.edu/StudentAffairs/Code/part2.html) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiarism. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Conduct: The university, college, and department has a commitment to respect the dignity of all and to value differences among members of our academic community. There exists the role of discussion and debate in academic discovery and the right of all to respectfully disagree from time-to-time. Students clearly have the right to take reasoned exception and to voice opinions contrary to those offered by the instructor and/or other students (S.R. 6.1.2). Equally, a faculty member has the right—and the responsibility—to ensure that all academic discourse occurs in a context characterized by respect and civility. The accepted level of civility would not include attacks of a personal nature or statements denigrating another on the basis of race, sex, religion, sexual orientation, age, national/regional origin or other such irrelevant factor