GEOS 156 Geology of Natural Disasters-NewCrs-2017-09-24

UNIVERSITY-WIDE CURRICULUM COMMITTEE

Form Information

The page you originally access is the global template version. To access the template document that progresses through the workflow, please complete the following steps:

First Step: ONLY change the text in the [brackets] so it looks like this: CRIM 101 Intro to Criminology-CrsRvs-2015-08-10

• If DUAL LISTED list BOTH courses in the page title

Second Step: Click "SAVE" on bottom right

- DO NOT TYPE ANYTHING INTO THE FIRST PAGE OTHER THAN THE TEXT IN BRACKETS
- Please be sure to remove the Brackets while renaming the page

Third Step: Make sure the word **DRAFT** is in yellow at the top of the proposal

Fourth Step: Click on "EDIT CONTENTS" ($not\ EDIT$) and start completing the template. When exiting or when done, click "

SAVE" (not Save Draft) on bottom right

When ready to submit click on the workflow icon and hit approve. It will then move to the chair as the next step in the workflow.

*Indicates a required field

Proposer*	Karen Rose Cercone	Proposer Email*	kcercone@iup.edu
Contact Person*	Karen Rose Cercone	Contact Email*	kcercone@iup.edu
Proposing Department/Unit*	Geoscience	Contact Phone*	7-7650

(A) Course Prefix*	GEOS
(B) Course Number*	See the Registrar's List of Unavailable Course Numbers at http://www.iup.edu/WorkArea/linkit. aspx?LinkIdentifier=id&ItemID=129323 156
(C) Course Title*	Geology of Natural Disasters
(D) Course Level*	undergraduate-level

(E) Cross Listed*	Cross Listed = Course has more than one prefix such
Dual Listed courses must use the	as GEOG/RGPL 233
Dual Listed form	NO WATER AND
Note: both courses to be dual-listed	If YES, with:
must be approved through Senate	
PRIOR to requesting Dual Listing	
Dual Listed = Courses listed at two levels,	
such as undergraduate and graduate,	
masters and doctoral, etc.	
(F) Variable Credit*	NO
	If YES, enter the number of credits:
(G) Variable Title*	NO
	If YES, enter the title(s):
(H) Number of Credits*	
	Class Hours per Week:3
	Lab Hours:0
	Credits:3
(I) Repeatable Course*	NO
This is for courses that can be	If YES, please complete the following:
Popostod multiple times e.g. Internahin	Number of Credits that May be Repeated:
Repeated multiple times e.g. Internship	
	Maximum Number of Credits Allowed to be Repeated:
(J) Prerequisite(s)	
(K) Co-requisite(s)	
	This means that another course must be taken in the same semester as the proposed course

(L) Additional Information	Check all that apply. Note: Additional documentation will be required * Teacher Education: Please complete the Teacher Education section of this form (below) * Liberal Studies: Please complete the Liberal Studies section of this form (below) liberal-studies * Distance Education: Please complete the Distance Education section of this form (below)
(M) Recommended Class Size	NONumber (Enter Zero if No): If YES: (Check one of the following reasons and provide a narrative explanation)Explain (required):
(N) Catalog Description*	Guidelines: Do not include pre/co-requisite information here. The registrar prefers a concise description of course content, beginning with an active verb. Explores the science behind natural disasters, including earthquakes, landslides, floods and volcanic eruptions. Students will investigate the geologic processes that impact the surface of the Earth and endanger human lives. By understanding the science behind these processes, students will learn to recognize known risk factors, minimize their vulnerability to disaster, and weigh the consequences to society of living in disaster-prone regions.
(O) Student Learning Outcomes* (SLO) For Each Outcome Describe How the Outcome Will Be Measured	These should be measurable, appropriate to the course level, and phrased in terms of student achievement, not instructional or content outcomes If dual listed, indicate additional learning objectives for the higher level course. (using mobile devices)Note that the text box in the table expands

SLO#	Outcome	How outcome is assessed
1	Learn how the tectonic motion of the Earth's lithosphere leads to geologic disasters such as volcanoes, earthquakes, landslides, and tsunamis.	Online quizzes and in-class participation questions (using mobile devices) will measure basic understanding of tectonic processes and geologic disasters.
2	Understand how global atmospheric circulation and the Earth's hydrologic cycle create weather-related disasters such as hurricanes, floods and droughts.	Online quizzes and in-class participation questions (using mobile devices) will measure basic understanding of weather cycles and river processes.
3	Identify specific geologic risk factors that can be used to determine the probability of natural disaster occurring in a specific region.	Written risk assessments based on internet research and graded using a rubric will assess students' ability to analyze risk factors and communicate the dangers faced by assigned locations.
4	Appreciate how geologic hazards impact our everyday lives and understand the science behind geologic events that are frequently reported in the media.	Short in-class writing assignments in a 'disaster diary' will measure student's ability to critique the scientific accuracy of written and visual media, including social media.
5	Understand the long-term impacts of natural disasters in order to make informed decisions about where to live and and ethical decisions about how to respond to future disasters around the world.	A final class project, created as a web page and graded via rubric, will determine how well students can relate what they have learned about the causes and impacts of natural disasters to their own specific major and/or interests outside of science.

(P) Brief Course Outline*

Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar, or assignments

As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or

direct faculty instruction, there should be a minimum of two hours of out of class student work.

Week	Topic	Assessments
1	Introduction to Planet Earth	Socrative Class Participation (SCP), Risk Assessment Intro
2	Plate Tectonics	SCP, Quiz 1, Disaster Diary Entry 1
3	Earthquakes	SCP, Risk Assessment Essay 1
4	Tsunamis	SCP, Quiz 2, Disaster Diary Entry 2
5	Volcanoes	SCP, Exam 1
6	Atmospheric Circulation	SCP, Quiz 3, Disaster Diary Entry 3
7	Rivers and Floods	SCP, Risk Assessment Essay 2
8	Climate and Climate Change	SCP, Quiz 4, Disaster Diary Entry 4
9	Sea Level Rise	SCP, Exam 2
10	Hurricanes and Storm Surge	SCP, Quiz 5, Disaster Diary Entry 5
11	Droughts and Desertification	SCP, Risk Assessment Essay 3
12	Subsidence and Soils	SCP, Quiz 6, Disaster Diary Entry 6
13	Mass Movements	SCP, Risk Assessment Capstone Web Page Presentation
14	Impacts and Extinctions	SCP, Final Exam

Rationale for Proposal		
(Q) Why is this Course Being Proposed?*	Most experts predict that weather-related disasters such as floods, storms, and droughts will become more frequent and intense over the coming decades due to natural and man-made climate change. At the same time, movement of the Earth's tectonic plates will continue to cause unavoidable natural disasters earthquakes, tsunamis, and volcanic eruptions. Global populations are increasingly concentrated in large cities where all disasters are magnified by the loss of buildings and infrastructure. The best way to prepare for disaster is to provide students with the basic knowledge of why they occur, how likely they are to happen in different locations, and how to identify risk factors in a location before deciding to live or work there. This course will also challenge students to think critically about how the science of natural disasters is portrayed in media, analyze the long-term impacts of disasters on infrastructure and population, and debate the ethical and practical aspects of disaster recovery. This course will leverage the intrinsic interest most people have in natural disasters combined with their own self-interest in avoiding harm in order to teach the basic principles of geology, meteorology and hydrology in a non-lab Liberal Science setting. This course includes some of the basic concepts that are currently taught by existing courses such as GEOS 101 The Dynamic Earth and GEOS 103 Oceans and Atmospheres, but focuses more narrowly on the causes and risk factors they create for natural disasters, while simultaneously widening the scope of class discussion to include long-term impacts to society.	
(R) University Senate Summary of Rationale	Please enter a single paragraph summary/rationale of changes or proposal for University Senate. This course will leverage the intrinsic interest most people have in natural disasters such as floods, storms, droughts, earthquakes, tsunamis, and volcanic eruptions to teach the basic principles of geology, meteorology and hydrology in a non-lab Liberal Science setting. The course also aims to give students the ability to identify risk factors and predict the likelihood of becoming a disaster victim for a specific location before deciding where to live and work, and asks them to analyze the ethical and practical aspects of disaster recovery.	
(S) How Does it Fit into the Departmental Curriculum?*	Check all that apply Liberal Studies If Other, please explain:	
(T) Is a Similar Class Offered in Other Departments?*	No Please Provide Comment: Natural disasters are covered in courses that address the interaction of humans and the environment, such as GEOG 101 Geography: Human & Environment or RGPL 103 Global Cities: Issues in Planning and Development. This course will focus on investigating the geological and hydrologic factors that cause natural disasters, and ask students to make risk assessments based on their understanding of the science context rather than on an analysis of human settlement patterns or safety of the built environment.	
(U)Does it Serve the College/University Above and Beyond the Role it Serves in the Department?*	Please Provide Comment: This course will make students into Informed Learners through modeling of the science that causes natural disasters. It will also enable them to become Empowered Learners by showing them how to evaluate the risk of disasters for specific locations, and transform that knowledge into the judgement of where to live in the future. The course will culminate by will challenge students to become Responsible Learners through analysis of the ethical aspects of disaster recovery and debate over when society should retreat from locations rather than suffer repeated disasters there.	

(V) Who is the Target Audience for the Course?*	Liberal Studies If Other, please explain:
(W) Implications for Other Departments*	A. What are the implications for other departments? (For Example: overlap of content with other disciplines, requirements for other programs) This non-lab science will be offered in rotation with our department's current non-lab courses such as GEOS 150 Geology of National Parks, GEOS 151 Age of Dinosaurs, GEOS 154 Human Exploration of Space and another new course, GEOS 155 Climate Change. Because we have always offered one or two of these courses per semester, rotating new topics into our teaching schedule should not have any impact on enrollments in the non-lab science courses offered by other departments in our college. B. How have you addressed this with other department(s) involved? What was the outcome of that attempt?
(X) Attach Supporting Documents for Implications, if Necessary	File Modified *
(Y) Are the Resources Adequate?*	(i.e. faculty, space, equipment, laboratory supplies, library materials, travel funds, etc.) YES Please Provide Comment: Student research for this class will use free online resources and media (videos and news articles). Class participation will be enabled via the free mobile app Socrative. Written risk assessments and the final class project will be uploaded and checked for originality through D2L. No other resources are needed to teach this course.

Distance Education Section

- Complete this section only if adding Distance Education to a New or Existing Course

If Completing this Section, Check the Box to the Right:	NOTE: you must check this box if the Course has previously been approved for Distance Education
Course Prefix/Number	
Course Title	
Type of Proposal	See CBA, Art. 42.D.1 for Definition

Brief Course Outline

Give an outline of sufficient detail to communicate the course content to faculty across campus. It is not necessary to include specific readings, calendar or assignments

As outlined by the federal definition of a "credit hour", the following should be a consideration regarding student work - For every one hour of classroom or

direct faculty instruction, there should be a minimum of two hours of out of class student work.

Rationale for Proposal (Required Questions from CBA)

How is/are the instructor(s) qualified in the Distance Education delivery method as well as the discipline?

For each outcome in the course, describe how the outcome will be achieved using Distance Education technologies.

Course SLO #	How outcome is assessed using Distance Education Technologies
1	
2	
3	

How will the instructor-student and student-student interaction take place? (if applicable)

How will student achievement be evaluated?

How will academic honesty for tests and assignments be addressed?

Liberal Studies Section

- Complete this section only for a new Liberal Studies course or Liberal Studies course revision

If Completing this Section,
Check the Box to the Right:

NOTE: you must check this box if the Course/Program has previously been approved for Liberal Studies

liberal-studies

Liberal Studies Course Designations (Check all that apply)

Section 1

Learning Skills:	
Knowledge Area:	natural_science_non-laboratory
Liberal Studies Elective	Please mark the competencies(s) that apply - must meet at least one
Expected Undergraduate Student	
Learning Outcomes	Map each course outcome to as many of the characteristics of the EUSLO's that apply. Fill in the
(EUSLOs)	course outcome number.
Map the Course Outcome to the ESULO's	See http://www.iup.edu/WorkArea/DownloadAsset.aspx ?id=181694
	Informed Course SLO # Learners demonstrate:
	the ways of modeling the natural, social and technical worlds
	 The aesthetic facets of human experience
	the past and present from historical, philosophical and social perspectives
	 the human imagination, expression and traditions of many cultures
	the interrelationshi ps within and across cultures & global communiites
	• the interrelationshi ps within and across disciplines
	Empowered Course SLO # Learners demonstrate:
	effective oral and written communication abilities

 ease with textual, visual and electronically- mediated literacies 	4
 problem solving skills using a variety of methods and tools 	3
 information literacy skills including the ablity to access, evaluate, interpret and use informatoin from a variety of sources 	3,4,5
 the ablity to transform information into knowledge and knowledge into judgement and action 	
 the ability to work within complex systems and with diverse groups 	
 critical thinking skills including analysis, application and evaluation 	
 reflective thinking and the ability to synthesize information and ideas 	3,5
Responsible Learners demonstrate:	Course SLO #
intellectual honesty	
concern for social justice	
civic engagement	

 an understanding of the ethical and behavioral consequences of decisions and actions on themselves, on society, and on the physical world 	5
 an understanding of themselves and a respect for the identities, histories and cultures of others 	

How will each outcome be measured (note should mirror (O) Student Learning Outcomes* (SLO) from the course proposal

Course SLO #	Assessment Tool to be used to measure the outcome
1	Online quizzes and in-class participation questions (using mobile devices) will measure basic understanding of tectonic processes and geologic disasters.
2	Online quizzes and in-class participation questions (using mobile devices) will measure basic understanding of weather cycles and river processes.
3	Written risk assessments based on internet research and graded using a rubric will assess students' ability to analyze risk factors and communicate the dangers faced by assigned locations.
4	Short in-class writing assignments in a 'disaster diary' will measure student's ability to critique the scientific accuracy of written and visual media, including social media.
5	A final class project, created as a web page and graded via rubric, will determine how well students can relate what they have learned about the causes and impacts of natural disasters to their own specific major and/or interests outside of science.

All Liberal Studies courses are required to include perspectives on cultures and have a supplemental reading.

Please answer the following questions.

Liberal Studies courses must include the perspectives and contributions of ethnic and racial minorities and of women whenever appropriate to the subject matter. Please explain how this course will meet this criterion

Liberal Studies courses require the reading and use by students of at least one non-textbook work of fiction or non-fiction or a collection of related articles. Please describe how your course will meet this criterion.

The perspectives and contributions of ethnic and racial minorities and of women will be investigated through the required 'Disaster Diary' as students compare and contrast the reactions of media outlets and global organizations to natural disasters in different regions of the world and in different socioeconomic communities. Requiring students to find actual online blogs and funding appeals from disaster victims will help them gain first-person experience in how disasters have different impacts for different communities.

In their analysis of the ethics and economics of disaster recovery, students will be asked to compare the permanent displacement of African American survivors of New Orleans after Hurricane Katrina with the immediate rebuilding of wealthy New Jersey white communities after Superstorm Sandy. They will also investigate why a Hispanic female mayor (Carmen Yulin Cruz of San Juan PR) is vilified for criticizing the pace of disaster recovery after Hurricane Maria while a white male news reporter (Anderson Cooper of CNN) is lionized for doing the same thing after Hurricane Katrina.

Natural disasters are widely covered in social and mass media during the events themselves, and during the months of recovery that follow. In order to keep students engaged in the most current events, most class readings will be taken from reputable news organizations and constantly updated as new disasters occur.

Examples of the kinds of online coverage and analysis that students will be asked to follow in this class include:

- Achenbach, Joel and Berman, Mark (2017, Oct 16) People love to live in places that are at risk for disasters, 'and this is what happens'. The Washington Post. Retrieved from https://www.w ashingtonpost.com/national/people-love-to-live-in-places-that-ar e-at-risk-for-disasters-and-this-is-what-happens/2017/10/15/ba5 0ed38-b03f-11e7-be94-fabb0f1e9ffb_story.html
- Chappell, Bill (2017, Sept 28) Volcano Threat On Pacific Island Triggers Mass Evacuation. National Public Radio. Retrieved from http://www.npr.org/sections/thetwo-way/2017/09/28/55417 5936/volcano-threat-at-pacific-island-triggers-mass-evacuation
- Cockburn, Patrick (2011, Jan 20) Catastrophe on camera: Why media coverage of natural disasters is flawed. The Independent. Retrieved from http://www.independent.co.uk/ne ws/media/tv-radio/catastrophe-on-camera-why-media-coverage -of-natural-disasters-is-flawed-2189032.html
- Healy, Jack, Robles, Frances and Nixon, Ron (2017, Oct 3) Aid Is Getting to Puerto Rico. Distributing It Remains a Challenge. The New York Times. Retrieved from https://www.nytimes.com/2 017/10/03/us/puerto-rico-aid-fema-maria.html
- Horowitz, Andy (2017, Sept 14) Don't Repeat the Mistakes of the Katrina Recovery. The New York Times. Retrieved from htt ps://www.nytimes.com/2017/09/14/opinion/hurricane-katrina-irm a-harvev.html
- Lakhani, Nina (2017, Oct 2) Forgotten in life and death: inequality for Mexico's invisible underclass after quake. The Guardian. Retrieved from https://www.theguardian.com/world/2 017/oct/01/mexico-city-earthquake-factory-collapse-colonia-obr
- Media distortion and western bias why do some disasters attract more cash? Part of the Students Speak series. (2014, Dec 2) The Guardian. Retrieved from https://www.theguardian.c om/global-development/2014/dec/02/students-speak-media-dist ortion-western-bias-disasters

- Complete this section only for a new Teacher Education course or Teacher Education course revision

If Completing this Section, Check the Box to the Right:	NOTE: you must check this box if the Course/Program has previously been approved for Teacher Education related items
Course Designations:	
Key Assessments	
	For both new and revised courses, please attach (see the program education coordinator): • The Overall Program Assessment Matrix • The Key Assessment Guidelines • The Key Assessment Rubric File Modified No files shared here yet.
Narrative Description of the Required Content	How the proposal relates to the Education Major