Semester at Sea, Course Syllabus
Colorado State University, Academic Partner

Voyage: Spring 2017
Discipline: Natural Resources
Course Number and Title: NR120B Environmental Conservation (*Honors Section)
**Enrollment in an honors program at the student's home institution is required*
Division: Lower
Faculty Name: Dan Binkley
Semester Credit Hours: 3

Prerequisites: None

COURSE DESCRIPTION

Earth's land and water ecosystems depend on climate, the flows of energy and matter, changes in populations of plants and animals, and the influences of humans. Interactions among all these features are complex, and this course provides the basic framework and tools to build a foundation for understanding issues and opportunities. Topics include natural resources, populations, pollution, species invasions and extinctions, climate change, scaling from local to global levels, and the role of humans in ecosystems. Case studies will be included to illustrate ecological aspects of each country visited during the semester. Ecological interactions shape ecosystems, and these will be evaluated by using 6 framing questions:

1. What are the components of the system
2. What are the boundaries of the system
3. What are the internal processes and interactions that cause changes over time (chronic or episodic?)
4. What are the external drivers that cause change over time (chronic or episodic?)
5. How does the system influence larger systems?
6. How can we quantify the composition and changes in the system?

Description of Honors Section:

NR120 Environmental Conservation is a broad overview course that develops a framework for students to understand environmental interactions, and basic knowledge of environmental processes. Case studies are used to illustrate the framework as well as provide current knowledge. The honors section will go the next step with each student developing a case study on an environmental situation for one of the courses ports of call. An example might be a case study of the livelihood of shrimp farmers in the Mekong Delta as nearby urban development and changing land use alters the mangrove forests and estuaries, or the environmental changes that result from exotic plant species establishing in Hawaii.

Written & Oral Communication:

Honors students would write a 1-page proposal for a case study they would like to develop, and then work with the instructor to plan and develop the details for the case study. A presentation will be made to the class involving a) presentation of information, b) engagement of the class in some interactive activity, and c) leading a discussion with the class about the case study. A draft written report of the case study will include the basic information about the topic, and a critique of how the oral session played out with the class. A final report will be written after feedback from the instructor.

Honors Competencies and Skills for Honors Studies ("PICC" feedback):

1. PROFESSIONALISM

Professionalism will be assessed through: 1) the quality of developing the key aspects of the case study, 2) the ability to lead/facilitate the class discussion, and 3) interactions as a participant in other discussions. Below is a brief summary of how competency levels will be assessed through these activities.

Mastered: Student clearly communicates the main features of the case study, highlights areas where available information is strong, weak, or absent; seeks engagement from students during discussion, clarifies and articulates different points of view during discussion, keeps the discussion moving forward in the face of conflicting viewpoints.
Proficient: Student clearly communicates most of the features of the case study; grasps most of the key issues and the level of information available, facilitates discussion without developing full engagement with students; keeps the discussion moving.
Developing: Student clearly communicates some but not all of the main points of the case study, highlights either strengths or weaknesses of available information (but not both); develops some engagement with students (but not very effectively); tries to keep the discussion moving with limited success.
Beginning: Student does not effectively communicate the main points of the case study, summarizes some aspects of the without highlighting strengths or weaknesses of information, passively waits for student engagement in discussions.

2. INTERDISCIPLINARY LEARNING

Interdisciplinary thinking will be assessed through: 1) the development of the case study proposal; 2) the presentation/engagement of the class in the case study; and 3) the creation of the written report.

Mastered: Student independently conceptualizes a framework for the case study, and develops the information needed to assess the key points and state of knowledge.
Proficient: Student independently develops some features of the framework, and works well with the instructor to flesh out the cases study.
Developing: Student, when prompted, develops the key framework and information for the case study.
Beginning: Student, when prompted, draws naïve conceptualizations of the case study, without good integration of key issues and information.

3. CRITICAL THINKING

Critical thinking will be assessed through: 1) the conceptualization of the case study framework and garnering of information; the oral presentation and engagement with the class, and 3) written summary of the case study and the discussion experience.

Mastered: Student critically analyzes information available (and not available) for the case study, clearly highlighting strengths and weaknesses; draws on a variety of sources and organizes thoughts logically; critically and logically evaluates alternative perspectives.
Proficient: Student critically analyzes information available (and not available) for the case study, appreciating some of the strengths and weaknesses; draws on some of the most important sources of information and develops a logical structure; and critically and logically evaluates some alternative perspectives.
Developing: Student analyzes information available (and not available) for the case study, with limited insight on the strengths and weaknesses; draws on multiple sources of information and develops a useful structure; and evaluates some alternative perspectives.
Beginning: Student develop simplistic views of interacting features of the case study, with limited insights on the quality and sufficiency of information; shows limited insights about alternative perspectives.

4. CREATIVITY & PROBLEM SOLVING

Creativity and problem solving will be assessed through: 1) the development of the case study plan; 2) the development of the case study; 3) the oral presentation/engagement with the class, and 4) the written summary of the case study and the discussion.

Mastered: Student devises a clear framework for analyzing the interacting features of the case study; leads fellow students into thoughtful and creative discussions that lead to insights about the particular case study, and how to environmental cases may be evaluated in general.
Proficient: Student devises a workable framework for analyzing some of the interacting features of the case study; leads fellow students into educational discussions about the particular case study, with some insights on how to environmental cases may be evaluated in general.
Developing: Student devises a simple framework for analyzing some of the features of the case study; leads fellow students into discussions about the particular case study.
Beginning: Student develops the case study without a clear framework for the interactions among key features; struggles with leading a discussion that develops insights from the case study and environmental issues in general.

LEARNING OBJECTIVES

- To introduce students to ecological concepts that provide a foundation for understanding present and future environmental issues;
- To provide an opportunity for students to learn about environmental issues that are critical today, including population growth, natural resource management, biodiversity, global change, wilderness, food production, waste management, and others.
- To help students learn to think critically about information they receive regarding environmental issues.

REQUIRED TEXTBOOKS

AUTHOR:	Christensen, N., and L. Leege
TITLE:	The Environment and You
PUBLISHER:	Pearson
ISBN #:	13: 978-0321957894
DATE/EDITION:	2015/2nd (though earlier edition would also work for students)

TOPICAL OUTLINE OF COURSE

Depart Ensenada — January 5

A1 — January 7: Environment, Sustainability, and Science; How can ecological and environmental issues be framed so they can be addressed effectively? Read Chapter 1

A2 — January 9: Environmental Ethics, Economics, and Policy; How does environmental conservation fit into the larger picture with society? Read Chapter 2

A3 — January 11: The Physical Science of the Environment; How do energy and water shape ecological systems? The environmental gradients of Hawaii. Read Chapter 3

Honolulu — January 12 Required Field Class: Environmental Conservation in Hawaii

A4 — January 14: Organism and Population Ecology and Evolution; How does biology occur in the context of physical environments? Read Chapter 4

A5 — January 17: Human Population Growth; How has the development of civilization altered the environment and ecology of the planet? Read Chapter 5

No class January 19

A6 — January 20: Communities and Ecosystems; How can we subdivide complex systems in ways that are useful for understanding and engaging? Read Chapter 6

A7—January 22: Geography of Life; Why isn't every place the same? Why are there monkeys in Japan's forests? Read Chapter 7

Kobe — January 24 - 28

A8 — January 29: Biodiversity Conservation; Why are there so many species, and how do they matter? How does Nature continue over millennia in China? Read Chapter 8

Shanghai — January 31 – February 5

A9 — February 6: Climate Change and Global Warming; Why isn't climate stable, and how will dynamic ecosystems be affected? Read Chapter 9

A10 — February 8: Air Quality; What happens chemically in the air, and how does this affect chemistry and ecology back on the ground in the waters? Ecology at the boundaries of rivers and the sea: the Mekong Delta. Read Chapter 10

Ho Chi Minh City — February 10-14

A11 — February 15: Water; How does it shape ecological communities, and is it a renewable resource? Read Chapter 11

No Class February 17

A12 — February 18: Agriculture and the Ecology of Food; How can the planet feed 9 billion people? Read Chapter 12

Yangon — February 20-24

A13 — February 25: Mid-term exam

A14 — February 27: Forest Resources; How did forests shape the development of civilization, and what is civilization doing to forests? Nature conservation in India – how does it compare with China? Read Chapter 13

Cochin – March 1-6

A15 — March 7: Energy from nonrenewable sources; How was this the key to civilization, what have been the unintended consequences? Read Chapter 14

No Class March 9

A16—March 10: Energy from renewable resources; what are the potentials, and are there important unintended consequences? The future of coral ecosystems: will climate change alter Mauritius coral reefs? Read Chapter 15

A17 — March 13: Urban Ecosystems; What are the key aspects of the ecology of cities, and how do the impacts reach out into the countryside? Read Chapter 16

No Class March 15

A18 — March 16: Waste Management; What are the choices and impacts of discarded materials? Read Chapter 17

A19 — March 18: The Environment and Human Health; How does human health hinge on the environment? The role of diseases in European colonization of Africa. Reach Chapter 18

Cape Town — March 19-24

A20 — March 26: The Anthropocene: How pervasive will human influences be on the environment? Reading to be assigned

A21 — March 28: Integrating environmental issues: Asia; How can the ideas and insights from this course be applied to Asia? The connection between chocolate and the economy in Ghana. No reading

No Class March 29

Tema — March 31-April 3

A22 — April 4: Integrating environmental issues: Asia; How can the ideas and insights from this course be applied to Africa? No reading

A23 — April 6: Integrating environmental issues: Connecting back to North America; How can the ideas and insights from this course be applied to North America?

A24 — April 8: The Environment and You; what are the implications of the course for *your* future? Is the Sahara expanding? Read Chapter 19

Study Day April 10

Casablanca — April 11-April 14

A25 Finals — April 15:

Arrive Hamburg — April 19

FIELD WORK

Field Class attendance is mandatory for all students enrolled in this course. Do not book individual travel plans or a Semester at Sea sponsored trip on the day of your field class. Field Classes constitute at least 20% of the contact hours for each course.

The Field Class for this course will take place on Thursday, 12 January in Honolulu.

Environmental Conservation in Hawaii

The Hawaiian Islands developed so far from continents that the arrival of a few colonizing individuals of a relative few species shaped unique native ecosystems. These ecosystems were arrayed across gradients in precipitation (on wet windward and dry leeward sides of islands), in temperature (from hot coastlines to cool and even cold mountains), and in geology (as soils developed on volcanic parent materials of varying ages). The colonization of the Islands by a few people, with their few species of domestic plants and animals, changed the native ecosystems forever. The concept of “Ahupua`a” viewed ecosystems in terms of

wedges, descending from peaks on the mountains down valleys to the ocean. Change became even more rapid and pervasive as the connections with continents all but disappeared with modern travel. The field course will explore aspects of Hawaiian biogeography (including gradients in elevation); Polynesian agriculture and culture; and current issues in the 20th Century.

Learning Objectives:

1. Understand how physical aspects of the environment shaped Hawaiian ecosystems.
2. Learn the core aspects of how and why the Island ecosystems changed with Polynesian settlement, and how these changes supported the Polynesians
3. Appreciate more recent (and rapid) changes that resulted from rapid development in the 19th and 20th Centuries

Field Class Assignment

Students will be evaluated based on two products from the field trip:
1) An essay evaluating two streams of interaction. The first stream deals with interactions at a single location from the day's field experience (such as a forest or an agricultural field) – what ecological interactions are most important at this location? The second stream is a connection across locations, or across time – how is one point (a location, or a time) on the spectrum influenced by another "above" it (or before it), and how does it influence the one "below" it (or after it)? (total length about 2 pages)
2) A journal entry exploring three key aspects of Hawiian ecosystems prior to human influences; how these aspects changed after colonization by Polynesians; and how they changed after colonization by Europeans and Americans. How might insights from these historical changes inform choices about the future? (total length about 2 pages)

Independent Field Assignments

1) Students will maintain an Environmental Issues Journal that will include 5 or more case studies in relation to port calls. Each case study will include a) the 3 key points that hosts/presenters emphasized that would relate to environmental issues; b) 3 features that were particularly interesting (or surprising) to the student); and c) identifying a key interaction with a strong impact on an environmental issue. Evaluation will based on completeness and quality.
2) Students will write a series of 3 essays (maximum 1 page each), with each essay taking two of the major topics (one from the first half of the text, one from the second half), and develop insights about the 3 of the port calls (similarities, unique features, overall insights). Evaluation will be based on quality of the insights developed.

METHODS OF EVALUATION / GRADING SCALE

The following Grading Scale is utilized for student evaluation. Pass/Fail is not an option for Semester at Sea coursework. Note that C-, D+ and D- grades are also not assigned on Semester at Sea in accordance with the grading system at Colorado State University (the SAS partner institution).

Grading scheme:

Midterm exam:	15%
Independent field assignment 1:	15%
Independent field assignment 2:	15%
Field course assignment:	15%
Case Study assignment for Honors section	15%
Final exam:	25%

Pluses and minuses are awarded as follows on a 100% scale:

Excellent	Good	Satisfactory/Poor	Failing
97-100%: A+	87-89%: B+	77-79%: C+	Less than 60%: F
94-96%: A	84-86%: B	70-76%: C	
90-93%: A-	80-83%: B-	60-69%: D	

ATTENDANCE/ENGAGEMENT IN THE ACADEMIC PROGRAM

Attendance in all Semester at Sea classes is mandatory, but it is at the instructor's discretion to assign a grade to the participation and attendance requirement. Remember to include information concerning the evaluation of Field Assignments and the Field Classes, which must constitute at least 20% of the total grade in a course.

Students must inform their instructors prior to any unanticipated absence and take the initiative to make up missed work in a timely fashion. Instructors must make reasonable efforts to enable students to make up work which must be accomplished under the instructor's supervision (e.g., examinations, laboratories). In the event of a conflict in regard to this policy, individuals may appeal using established CSU procedures.

LEARNING ACCOMMODATIONS

Semester at Sea provides academic accommodations for students with diagnosed learning disabilities, in accordance with ADA guidelines. Students who will need accommodations in a class, should contact ISE to discuss their individual needs. Any accommodation must be discussed in a timely manner prior to implementation. A memo from the student's home institution verifying the accommodations received on their home campus is required before any accommodation is provided on the ship. Students must submit this verification of accommodations pre-voyage as soon as possible, but no later than November 19, 2016 to academic@isevoyages.org.

STUDENT CONDUCT CODE

The foundation of a university is truth and knowledge, each of which relies in a fundamental manner upon academic integrity and is diminished significantly by academic misconduct. Academic integrity is conceptualized as doing and taking credit for one's own work. A pervasive attitude promoting academic integrity enhances the sense of community and adds value to the educational process. All within the University are affected by the cooperative commitment to academic integrity. All Semester at Sea courses adhere to this Academic Integrity Policy and Student Conduct Code.

Depending on the nature of the assignment or exam, the faculty member may require a written declaration of the following honor pledge: “I have not given, received, or used any unauthorized assistance on this exam/assignment.”

RESERVE BOOKS AND FILMS FOR THE LIBRARY

None.

ELECTRONIC COURSE MATERIALS

Embracing the sacred: an indigenous framework for tomorrow’s sustainability science, by Kekuhi Kealiikanakaoleohaililani and Christian P. Giardina. Sustainability Science 2015, DOI 10.1007/s11625-015-0343-3.

ADDITIONAL RESOURCES

None.