Semester at Sea Course Syllabus
Colorado State University, Academic Partner

Voyage:	Fall 2017
Discipline:	Life Science
Course Number and Title:	LIFE 320 Ecology
Division:	Upper
Faculty Name:	Dr. Paul F. Doherty, Jr.
Semester Credit Hours:	3

Meeting: B Day 1100-1220, Adlon
Prerequisites: One (1) human, plant, or animal biology course AND one (1) calculus course

COURSE DESCRIPTION

This course will introduce you to the fundamental principles and concepts of ecology. You will learn about the mechanisms that generate ecological patterns and how organisms interact with each other and with their environment. We will study ecology at different levels of biological organization (populations, communities, ecosystems). We will then demonstrate how basic ecological principles may be applied to the study of practical ecological problems (e.g., loss of species diversity, global warming, and water/air pollution). Many of the topics we will cover this semester are controversial, both among ecologists (e.g., the relative importance of interspecific competition in structuring communities) as well as the general public (e.g., preservation of habitat for maintenance of biotic diversity; human effects on global climate). Thus, there will be ample opportunity and material for in-class discussion. Case studies will illustrate ecological aspects of each country visited during the Semester-at-Sea voyage.

LEARNING OBJECTIVES

Upon completion of this course, students will have:

1) acquired a general understanding of the basic biological and environmental factors influencing the distribution and abundance of organisms in nature;

2) gained an understanding of ecological changes over space and time and the importance of stochastic events;

3) applied ecological insights to address real-world issues as case studies; and,

4) identified ecological challenges facing human societies and describe the choices and trade-offs associated with these challenges.

REQUIRED TEXTBOOKS

AUTHOR:	William D. Bowman, Sally D. Hacker, and Michael L. Cain
TITLE:	Ecology
PUBLISHER:	Sinauer Associates, Inc.
ISBN #:	9781605356181 (bound), 9781605356198 (looseleaf)

DATE/EDITION: 2017/4th

TOPICAL OUTLINE OF COURSE

Depart Bremerhaven, Germany — September 9

B1—September 12:
Topic: Introduction; The Web of Life
Readings: Chapter 1

B2—September 14:
Topic: The Physical Environment
Readings: Chapter 2: Additional reading available in the course management system

Barcelona, Spain — September 15-18

B3—September 20:
Topic: The Biosphere; Coping with Variation
Readings: Chapters 3-5

B4—September 22:
Topic: Evolution and Ecology
Readings: Chapter 6

No Class — September 23

B5—September 25:
Topic: Life History and Behavioral Ecology
Readings: Chapters 7-8

Tema and Takoradi, Ghana — September 27-30

B6—October 1:
Topic: Population Distribution and Abundance
Readings: Chapter 9; Additional reading available in the course management system

B7—October 4:
Topic: Population Growth and Regulation
Readings: Chapter 10

B8—October 6:
Topic: Population Dynamics
Readings: Chapter 11; Additional reading available in the course management system

Cape Town, South Africa — October 7-12

B9—October 14:

Topic: Predation
Readings: Chapter 12

No Classes — October 16

B10—October 17:
Topic: Exam 1

Port Louis, Mauritius — October 19

B11—October 20:
Topic: Parasitism
Readings: Chapter 13; Additional reading available in the course management system

No Class — October 22

B12—October 23:
Topic: Competition
Readings: Chapters 14

Cochin, India — October 25-30

No Class — October 31

B13—November 1
Topic: Mutualism and Commensalism
Readings: Chapter 15; Additional reading available in the course management system

B14—November 3:
Topic: Communities
Readings: Chapter 16; Additional reading available in the course management system

Yangon, Myanmar — November 4-8

B15—November 10:
Topic: Changes in Communities
Readings: Chapter 17

No Class — November 11

B16—November 13:
Topic: Biogeography
Readings: Chapters 18; Additional reading available in the course management system

Ho Chi Minh City, Vietnam — November 14-18
Proposed field trip to the Cần Giờ Biosphere Reserve and Mangrove Forest
(*field trips will be approved by Semester at Sea about 6 months before the voyage)

B17—November 20:
Topic: Species Diversity in Communities
Readings: Chapter 19

No Class — November 21

B18—November 23:
Topic: Exam 2
Readings: Reading available in the course management system

Shanghai, China — November 24-29

B19—December 1:
Topic: Production
Readings: Chapter 20, Additional reading available in the course management system

Kobe, Japan — December 2-6

B20—December 8:
Topic: Energy Flow and Food Webs
Readings: Chapter 21

B21—December 10:
Topic: Nutrient Supply and Cycling
Readings: Chapter 22

B22—December 12:
Topic: Conservation Biology
Readings: Chapter 23

B23—December 14:
Topic: Landscape Ecology and Ecosystem Management
Readings: Chapter 24

Honolulu, Hawaii — December 16

B24—December 17:
Topic: Global Ecology
Readings: Chapter 25, Additional reading available in the course management system

Study Day — December 19

B25—December 20; B Day Finals

San Diego, California — December 23

FIELD WORK

Semester at Sea field experiences allow for an unparalleled opportunity to compare, contrast, and synthesize the different cultures and countries encountered over the course of the voyage. In addition to the one field class, students will complete independent field assignments that span multiple countries.

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.

Field Class and Assignment

The Field Class for this course will take place on Saturday, November 18 in Ho Chi Minh City, Vietnam.

Field Class Title: Cần Giờ Biosphere Reserve and Mangrove Forest

Description: Explore water resource issues and biodiversity in the Cần Giờ Biosphere Reserve and Mangrove Forest

Mangrove forests and estuaries provide important ecological functions as transition zones between marine and terrestrial systems, including coastal stabilization. However, such systems are under development threats and Viet Nam has lost about 1/2 of its mangrove forests. Estuaries and mangrove forests also provide habitat for a wide variety of animals and plants. We will visit the Cần Giờ Biosphere and Mangrove Forest and observe the need to balance the needs of a community with land and water natural resources. This reserve is home to several threatened species. We will contemplate how sea level rise is likely to affect the reserve, residents, and users. We will meet and interact with local ecologists.

Objectives:
1) Gain experience with the ecology of mangrove forests and estuaries in Viet Nam.
2) Understand the trade-offs associated with land-use decisions.
3) Gain experience with local ecologists working on regional land planning and biodiversity issues.

Assignment:
Students will submit an essay exploring three key aspects of mangrove forests; how these aspects changed over time, and how ecological insights inform choices about the future.

Independent Field Assignments

Students will maintain an Ecology Journal that will include 5 or more case studies/essays in relation to port calls. Each essay will include a) the sub-discipline of ecology a speaker works in, his or her questions/hypotheses, methods used to address questions, findings, and how results were interpreted. Further details will be provided in class and evaluation will based on completeness and quality.

Homework Assignments

There will be four homework assignments that will give you practice with the quantitative components and conceptual issues in Ecology. Late homework will not be accepted.

METHODS OF EVALUATION / GRADING SCALE

GRADING SCALE

Assignment	Percent of Grade
Homework	20%
Field trip essay	10%
Indep. Field Assignments	10%
Exam 1	15%
Exam 2	15%
Final Exam	20%
Participation & attendance	10%
Total	100%

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).

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%
93-96%: A	83-86%: B	70-76%: C	
90-92%: A-	80-82%: B-	60-69%: D	

ATTENDANCE/ENGAGEMENT IN THE ACADEMIC PROGRAM

Attendance in all Semester at Sea classes, including the Field Class, is mandatory. 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 to academic@isevoyages.org as soon as possible, but no later than two months prior to the voyage.

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

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ELECTRONIC COURSE MATERIALS

Available in the course folder