



**ARIZONA STATE UNIVERSITY
GENERAL STUDIES COURSE PROPOSAL COVER FORM**

Course information:

Copy and paste current course information from Class Search/Course Catalog.

Academic Unit College of Letters and Sciences Department Sciences and Mathematics

Subject ABS Number 130 Title Introduction to Environmental Science Units: 4

Is this a cross-listed course? Yes
If yes, please identify course(s) BI0130 School of Mathematics and Natural Science

Is this a shared course? Yes If so, list all academic units offering this course AS

Course description:
Introduces the interconnected nature of Earth's hydrosphere, lithosphere (soils and rocks), atmosphere, and biosphere.

Requested designation: Natural Sciences-SQ

Note- a separate proposal is required for each designation requested

Eligibility:

Permanent numbered courses must have completed the university's review and approval process.
For the rules governing approval of omnibus courses, contact Phyllis.Lucic@asu.edu or Lauren.Leo@asu.edu.

Submission deadlines dates are as follow:

For Fall 2015 Effective Date: October 9, 2014

For Spring 2016 Effective Date: March 19, 2015

Area(s) proposed course will serve:

A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study.

Checklists for general studies designations:

Complete and attach the appropriate checklist

- Literacy and Critical Inquiry core courses (L)
- Mathematics core courses (MA)
- Computer/statistics/quantitative applications core courses (CS)
- Humanities, Arts and Design core courses (HU)
- Social-Behavioral Sciences core courses (SB)
- Natural Sciences core courses (SO/SG)
- Cultural Diversity in the United States courses (C)
- Global Awareness courses (G)
- Historical Awareness courses (H)

A complete proposal should include:

- Signed General Studies Program Course Proposal Cover Form
- Criteria Checklist for the area
- Course Catalog description
- Course Syllabus
- Copy of Table of Contents from the textbook and list of required readings/books

Respectfully request that proposals are submitted electronically with all files compiled into one PDF. If necessary, a hard copy of the proposal will be accepted.

Contact information:

Name Chris Martin Phone 7-1247

Mail code 2780 E-mail: Chris.Martin@asu.edu

Department Chair/Director approval: (Required)

Chair/Director name (Typed): Chris Martin Date: February 9, 2015

Chair/Director (Signature): 

Arizona State University Criteria Checklist for

NATURAL SCIENCES [SQ/SG]

Rationale and Objectives

Public scientific literacy, critical for sound decisions on scientifically infused issues such as climate change, includes understanding of basic science concepts, such as the fundamental behavior of matter and energy. It also includes the understanding that "science" is not an encyclopedic collection of facts. Rather, it is a process of exploration that embraces curiosity, inquiry, testing, and communication, to reduce uncertainty about nature. Absent understanding of scientific concepts and of the nature of science, science and pseudoscience are difficult to distinguish, and normal scientific disagreements may be misinterpreted as ideological or political disputes. The goal of the natural sciences (SQ/SG) requirement, including the laboratory requirement, is to instill understanding of basic science content and of the nature of science in every ASU graduate.

10/1989

REV: 1/1991, 3/1991, 1/2000, 10/2008, 4/2014

Proposer: Please complete the following sections and attach appropriate documentation.

ASU--[SQ] CRITERIA			
I. - FOR ALL <i>QUANTITATIVE</i> [SQ] NATURAL SCIENCES CORE AREA COURSES, THE FOLLOWING ARE CRITICAL CRITERIA AND MUST BE MET:			
YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A. Course emphasizes the mastery of basic scientific principles and concepts.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Addresses knowledge of scientific method.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	C. Includes coverage of the methods of scientific inquiry that characterize the particular discipline.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	D. Addresses potential for uncertainty in scientific inquiry.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	E. Illustrates the usefulness of mathematics in scientific description and reasoning.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	F. Includes weekly laboratory and/or field sessions that provide hands-on exposure to scientific phenomena and methodology in the discipline, and enhance the learning of course material.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	G. Students submit written reports of laboratory experiments for constructive evaluation by the instructor.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	H. Course is general or introductory in nature, ordinarily at lower-division level; not a course with great depth or specificity.	Course Description
II. - AT LEAST ONE OF THE FOLLOWING ADDITIONAL CRITERIA MUST BE MET WITHIN THE CONTEXT OF THE COURSE:			
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A. Stresses understanding of the nature of basic scientific issues.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	B. Develops appreciation of the scope and reality of limitations in scientific capabilities.	Syllabus
<input checked="" type="checkbox"/>	<input type="checkbox"/>	C. Discusses costs (time, human, financial) and risks of scientific inquiry.	Syllabus
NOTE: CRITERIA FOR [SG] COURSES BEGIN ON PAGE 4.			

III. - [SQ] COURSES MUST ALSO MEET THESE ADDITIONAL CRITERIA:			
YES	NO		Identify Documentation Submitted
<input checked="" type="checkbox"/>	<input type="checkbox"/>	A. Provides a substantial, quantitative introduction to fundamental principles governing behavior of matter and energy, in physical or biological systems.	Syllabus
		B. Includes a college-level treatment of some of the following topics (check all that apply below):	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	a. Atomic and molecular structure	See Syllabus
<input type="checkbox"/>	<input type="checkbox"/>	b. Electrical processes	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	c. Chemical processes	See Syllabus
<input type="checkbox"/>	<input type="checkbox"/>	d. Elementary thermodynamics	
<input type="checkbox"/>	<input type="checkbox"/>	e. Electromagnetics	
<input type="checkbox"/>	<input type="checkbox"/>	f. Dynamics and mechanics	
[SQ] REQUIREMENTS CANNOT BE MET BY COURSES:			
<ul style="list-style-type: none"> • Presenting a qualitative survey of a discipline. • Focusing on the impact of science on social, economic, or environmental issues. • Focusing on a specific or limiting but in-depth theme suitable for upper-division majors. 			

[SG] REQUIREMENTS CANNOT BE MET BY COURSES:	
	• Presenting a qualitative survey of a discipline.
	• Focusing on the impact of science on social, economic or environmental issues.
	• Focusing on a specific or limiting but in-depth theme suitable for upper-division majors.

Course Prefix	Number	Title	General Studies Designation
ABS	130	Introduction to Environmental Science	SQ

Explain in detail which student activities correspond to the specific designation criteria. Please use the following organizer to explain how the criteria are being met.

Criteria (from checksheet)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
I. A-D	The first week of lab and lecture emphasizes the scientific method. The entire course places an emphasis on basic scientific principles governing physical and biological systems and the methods used to them. Scientific issues and costs/risks of scientific inquiry are also presented throughout the semester.	A and B See topics in course/calender syllabus for first week. C and D. Students are exposed to methods in laboratories. Examples include measurements of weather and climate (Week 2 and 3), measuring vegetation (Week 9) and soil physical and chemical properties (Week 14). Uncertainties of scientific inquiry are addressed as part of these activities. (Information in course calender.)
I. E-G	Weekly labs are scheduled and lab reports are turned in. In certain labs, data is collected and mathematically analyzed.	E. Measurements of weather and climate (Week 2 and 3), measuring vegetation (Week 9) are taken and mathematically analyzed (see course calender topics). F. See list of weekly labs in course calender G. Labs have graded assignments (see syllabus)
II.	issues in environmental science are at the center of the study of this topic including climate variability and how humans are impacted environmental conditions on earth.	See Learning objectives in syllabus. The course covers the scientific issues involved in topics such as climate change, air pollution management and water quality (See syllabus Weeks 2- 8). The costs and risks are discussed when covering these topics

III	<p>A. Both physical and biological systems including the lithosphere, hydrosphere, atmosphere and biosphere are studied in the course.</p> <p>B. College level treatment of molecular structure and chemical processes</p>	<p>A. See course description</p> <p>B. Molecular structure discussed in topics on water and pollutants on Weeks 3, 4, 5 and 7 of course calender</p> <p>Information about chemical processes included in topics such as photosynthesis and soil chemistry that are studied on Weeks 10, 11 and 14.</p>
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Gen Studies:

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Offerings:

Course	Title	Units	GeneralStudies
ABS 130	Introduction to Environmental Science Introduces the interconnected nature of Earth's hydrosphere, lithosphere (soils and rocks), atmosphere, and biosphere. Allow multiple enrollments: No Primary course component: Lecture Repeatable for credit: No Grading method: Student Option Offered by: College of Letters and Sciences -- College of Letters and Sciences Credit is allowed for only ABS 130 or BIO 130	4	SQ

ABS 130 Introduction to Environmental Science

This course is offered by the School of Letters and Sciences. For more information about the school, visit our website: <https://sls.asu.edu/>. If you have questions or concerns, please send your inquiry to sls@asu.edu."

Course Information

ABS 130

Course Title: Introduction to Environmental Science

Semester & Year Fall C (August 21-December 5, 2014)

Class Meets: T Th 12:00 PM-1:15 PM Poly - SANCA 133;

Lab Meets: Th 1:30-3:30 pm; Poly – SANTN 201

Credit Hours: 4

Instructor Information

Instructor Name: Dr. Eddie Alford

School of Letters and Sciences

Arizona State University Polytechnic Campus

Office: 301 P Wanner Hall

Email Address: Eddie.Alford@asu.edu

Phone: 480-727-1581

Lab. Instructor Name: Laura Marshall

School of Letters and Sciences

Arizona State University Polytechnic Campus

Office: Wanner Hall 101 C

Email Address: Laura.L.Marshall@asu.edu

Phone: (480) 727-5017

Course Catalog Description

Introduces the interconnected nature of Earth's hydrosphere, lithosphere (soils and rocks), atmosphere, and biosphere.

Course Prerequisites/Co Requisites

None

Course Textbook and Materials

Required

Environmental Science, Toward a Sustainable Future (12E) by Richard T. Wright and Dorothy F. Boorse

Learning Objectives

This course is designed to help students understand basic concepts of environmental sciences including climate, soils, water and biological production. We will study the (1) natural conditions of the lithosphere, atmosphere, hydrosphere and biosphere and what causes conditions to exist; (2) how these environmental conditions interact (example: climate, water and the distribution of biota and (3) the impacts humans have on the dynamics of our environmental resources.

Exams:

Three exams and a final will be given during the semester. The final will be comprehensive. Exams will be a combination of short "essays", multiple choice, drawing, fill in and problem solving.

Classroom Activities:

There will be a variety of classroom activities during each class which include: quizzes; discussions; solving a problem pertaining to the lecture topic.

Lab: Lab attendance is mandatory. Your lab instructor will discuss the specific schedule of activities and grading policy for the Lab.

Attendance/Preparation/Participation

Attendance means attending every class participating and staying engaged. *Preparation* for class means reading the assigned readings and reviewing all information required for that week. Each student will be expected to attend class and participate in the class activities. Failure to attend or participate will result in the loss of points.

Course Grading

Grades and Grading Scale

Assignment of letter grades is based on a percentage of points earned. The letter grade will correspond with the following percentages achieved. All course requirements must be completed before a grade is assigned.

A	100 – 90
B	89– 80
C	79 – 70
D	69 – 60
E	59 and below

Summary of Assignments

Item	Points	Date
Weekly Quizzes/class activities	100	Weekly
Lab	300	As assigned
Exams (4)	400	As Scheduled
Final	100	As Scheduled
Total	800	As Scheduled

Course Requirements

Absence Policies:

Instructors general policy

excused absences related to religious observances/practices that are in accord with ACD 304-04, "Accommodation for Religious Practices"

excused absences related to university sanctioned events/activities that are in accord with ACD 304-02, "Missed Classes Due to University-Sanctioned Activities"

Quizzes: There will be no make-up for missed quizzes. I will drop one or 2 of your lowest scores when calculating scores at the end of the semester.

Academic Integrity: Please comply with policy requiring academic integrity and against plagiarism (see Student Academic Integrity Policy)

Classroom behavior: You are expected to be fully engaged in the class. No use of cellphones, texting, or using electronic devices to send or receive messages is allowed in the classroom.

Disability Resource Center (DRC): when requesting accommodation for a disability students must be registered with the Disability Resource Center (DRC) and submit appropriate documentation from the DRC.

Studying and Preparation Time

The course requires you to spend time preparing and completing assignments. A three-credit course requires 135 hours of student work. Therefore expect to spend approximately 9 hours a week preparing for and actively participating in this course.

Drop and Add dates

If you feel it is necessary to withdraw from the course, please see <http://students.asu.edu/drop-add> for full details on the types of withdrawals that are available and their procedures.

ABS 130

Revised 11/18/2014**Weekly Schedule**

Week	Topics/Lessons TTH 12:00-1:15		Activities	Lab Th 1:30 to 3:30 pm
The Atmosphere				
Week 1	8/21	Introduction and course objectives, Why do we study Environmental Sciences	Chapter 1	Introduction and Safety
Week 2	8/24	Weather and climate change science.	Chapter 18	AZ Climate Fire weather measurements
	8/26	Weather and climate change science.	Chapter 18	
Week 3	9/2	The Atmosphere	Chapter 19	Measuring Air pollution
	9/4	Atmospheric Pollution	Chapter 19	
Week 4	9/9	Bringing air pollution under control	Chapter 19	No Lab / Lec Exam
	9/11	Exam 1. Weeks 1-4 topics		
The Hydrosphere				
Week 5	9/16	The Hydrologic Cycle	Chapter 10	Water Life Lab Pond Water Slides
	9/18	Hydrologic Cycle and Human Use		
Week 6	9/23	Hydrologic Cycle and Human Use	Chapter 10	Gilbert Riparian Preserve Field Trip

ABS 130

Revised 11/18/2014

Weekly Schedule

Week	Topics/Lessons TTH 12:00-1:15		Activities	Lab Th 1:30 to 3:30 pm
	9/25	Hydrologic Cycle and Human Use		
Week 7	9/30	Hydrologic Cycle and Human Use	Chapter 20	
	10/2	Water Pollution and Its Prevention	Chapter 20	AZ Hydrology Water pollution / filtration
Week 8	10/7	Water pollution and its prevention	Chapter 20	
	10/9	Exam 2		No Lab / Lec Exam
The Biosphere				
Ecology: the Science of Organisms and Their Environment				
Week 9	10/14	Desert Biomes The Sonoran Desert Ecosystem		
	10/16	Basic needs of Living Things	Chapter 3	Usery Park Field Lab Sonoran desert vegetation measurements Fire Threatened species
Week 10	10/21	Basic needs of Living Things	Chapter 3	
	10/23	Basic needs of Living Things	Chapter 4	AZ Vegetation Zones Photosynthesis Lab

ABS 130

Revised 11/18/2014

Weekly Schedule

Week	Topics/Lessons TTH 12:00-1:15		Activities	Lab Th 1:30 to 3:30 pm
Week 11	10/28	Ecology	Chapter 5	
	10/30	Primary Production and Energy Flow	Chapter 5	Natural Selection Disturbance Hypothesis
Week 12	11/4	Rangeland Ecology Wildlife Habitat		
	11/6	<u>11/6 Exam 3</u>		No Lab / Lec Exam
The Lithosphere Soil: the Foundation for Land Ecosystems				
Week 13	11/11	<u>11/11 No Class Veterans Day</u>		
	11/13	Soil: the Foundation of Land Ecosystems	Chapter 11	AZ Geology
Week 14	11/18	Soil: the Foundation of Land Ecosystems	Chapter 11	
	11/20	Soil Conservation		Soil Classification, pH and Nutrient Analysis
Week 15	11/25	Soil Conservation	Chapter 11	
	11/27	11/27- No class, Thanksgiving		

ABS 130

Revised 11/18/2014

Weekly Schedule

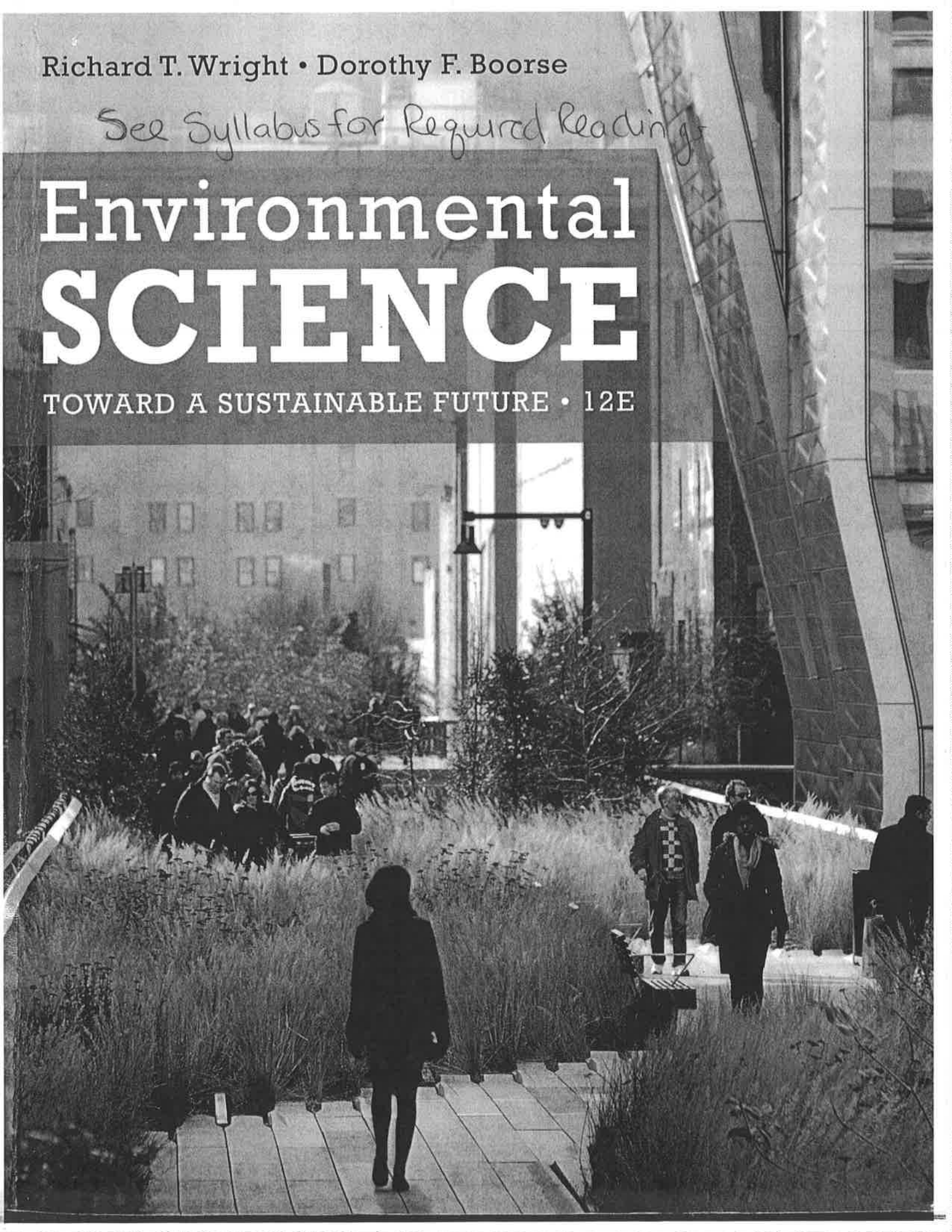
Week	Topics/Lessons TTH 12:00-1:15		Activities	Lab Th 1:30 to 3:30 pm
Week 16	12/2	Soil Degradation	Chapter 11	
	12/4	12/4 Exam 4		
	12/9	Final Exam 12:10-2:00pm		

Richard T. Wright • Dorothy F. Boorse

See Syllabus for Required Readings

Environmental SCIENCE

TOWARD A SUSTAINABLE FUTURE • 12E



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