



GEOG 110

Geography of Environmental Systems

General Description

Introduction

People are dependent upon the natural environment to provide them with everything they need to survive. This simple fact has been obvious to every person living on this planet from the dawn of time until very recently. Many people have lost sight of this fact in modern times as we push buttons for hot or cold air in our houses, turn taps for hot or cold water, push a lever to remove waste products from our houses, drive cars from place to place, purchase food from a store, and live lives of such technological wonder that a visitor from the past would be stunned by the luxuries we take for granted.

These marvels may allow us to overlook the truth of our lives on the planet, but the basic processes of the planet continue. An educated person must be aware of the interactions among the air, water, land, and living creatures that provide us with the necessities of our lives. This course will focus on the interactions among these four systems of the environment. The characteristics of each system vary over space and time, and these geographic variations create unique environments, which can provide opportunities or limitations for human activities. An understanding of the relationship between people and their environment is the first step towards making wise choices in the future about resource use, and towards beginning to solve some of our environmental problems.

This course will focus on the physical processes that create the geographic distribution of climates, landforms, biomes, and soils. Once we build an understanding of those processes we

General Description

can begin to examine the processes of global environmental change that take place continuously on this planet. Because all of the Earth's systems are interrelated, changes in one system inevitably produce changes in the other systems. You will have many opportunities to explore these global changes.

Course Objectives

In order to be a responsible consumer and global citizen you must understand the planet on which you live. This is the major goal of the course—to give you the basic scientific knowledge to enable you to understand environmental issues. The *application* of this knowledge will be up to you.

By the time you finish this course you should understand

- the geographic distribution of the key elements of the Earth's environment: atmosphere (air), lithosphere (land), hydrosphere (water), and biosphere (living creatures)
- the physical processes that create the geographic distribution of these elements
- the ways that these elements combine to create Earth's environments.

Textbook and Other Required Material

The following materials are required for this course. Information about acquiring your course materials is provided below.

- textbook
- study guide
- map of North Carolina or your home state
- topographic map of your local area.

(Outline maps are included in this course manual for you to use as part of your written assignments.)

Textbook

Christopherson, Robert W. *Geosystems: An Introduction to Physical Geography*, 7th edition, 2009. The text contains many good figures, photographs, and maps that illustrate the written material. Spend some time studying these to be sure you understand them. The text also includes a glossary at the back that defines words and terms used in the text and course manual.

Study guide Christopherson, Robert W. *Study Guide for Geosystems: An Introduction to Physical Geography*, 7th edition, 2009.

You can purchase your text and study guide from Friday Center Books & Gifts at the Friday Center online at <https://s4.its.unc.edu/HigherGrounds/> or by using the book order form in this manual.

Map of your home state You will need a map of your home state. A road map will be sufficient. If you don't already own one, your local public library should have one available. You could also purchase one at most gas stations or discount stores in your area. Maps are also available free at state welcome centers (rest stops).

USGS topographic map of your local area The United States Geologic Survey (USGS) publishes topographic maps that show local areas in great detail. You may even be able to see your own house or apartment building!

You will need a USGS topographic map in order to complete Lesson 6. Choose a map of an area that you know well, and that you can visit during the time you are completing the lesson, such as your home, school, or work location.

You may contact the USGS directly to order a topographic map of your local area. The map will cost \$6 and there is a \$5 shipping charge (as of the publication date of this course manual). Visit the USGS Web site at <http://www.usgs.gov/pubprod/>. You will be searching for a 7.5 minute topographic map of your local area.

Camping-oriented sporting goods stores in your town may sell USGS topographic maps of your area. Some bookstores also have them. Check your local phone book and make a few calls.

Topographic maps are now available online, and in Lesson 6 you will be given information about Web sites you can use for this lesson; however, there really is no adequate substitute for the paper map. With online maps you must zoom in to see details, and then you lose the general spatial relationship of the features. If you zoom out, you can see the overall landscape,

General Description

but you can't see the details. Take the trouble to find and buy the paper map for the optimal learning experience.

Optional material

You will find an atlas helpful. I recommend *Goode's World Atlas* by Howard Veregin, editor (Library of Congress Catalog Card Number 99-38535). We have made this atlas optional (but highly recommended) to keep the course cost down. Every home reference library should include a world atlas, and this is one of the best. If you don't wish to purchase an atlas, any university or public library will have several atlases in the reference section.

There are so many excellent documentaries on television that relate to this course that it is impossible to list them all. Watching television will add depth to your understanding of the course material. As the textbook says, geography is about the interrelationships among the four spheres of the environment (atmosphere, lithosphere, hydrosphere, biosphere). A television program is probably the best way to convey these interrelationships. Check the weekly television listings for PBS (Public Broadcasting System), TLC (The Learning Channel), the Discovery Channel, and the Science Channel programs.

Lessons Requiring Extra Planning

Lesson 2 requires a sunny day; partly sunny will be fine. Even if only one ray of sunshine is peeking through the clouds, you will be able to complete the observation.

Lesson 3 requires a windy day. You can record your observations at any time, even before you have read the text.

On the same day you will need to watch the weather on television. You can then answer the written questions after you read the text.

Lesson 4 requires "interesting" weather. You will need to observe winds and precipitation rather than a sunny and dry day. *Tip:* Get into the habit of watching televised weather reports regularly. You'll be able to see the "interesting" weather coming ahead of time. We also can guarantee that if you watch televised weather reports several times a week

throughout the course, you *will* enhance your understanding of atmospheric processes. This should ensure a better performance on the exam.

Televised weather reports vary in quality. Look for stations with AMS (American Meteorological Society)-registered meteorologists. They will usually show an AMS seal on the screen. WRAL-TV in Raleigh has an entire team of AMS meteorologists who do their own forecasting.

Lesson 6 requires the local topographic map from the USGS. You will take this topographic map with you while making observations.

Lessons 11 and 12 require that you find a relatively “natural” site. Look for a location with mature trees that has not been landscaped. There should be a thick layer of leaf litter under the trees. You can use the same site for both observations. For **Lesson 11** you will need to get permission from the land owner or manager (such as a park ranger) to dig and refill a small trench. No credit for this assignment will be given unless this permission is obtained. A permission form is included with the lesson. If you have such a site on your own property, state this in your answer.

Study Suggestions

Textbook and study guide assignments

Read the objectives and discussion in each lesson in this course manual first so that you will understand the goal of each lesson.

Read the entire contents of each text chapter because the author ties many topics together throughout the textbook. If we were to study each topic in depth, however, the course would take at least twice as long to complete!

After you have read each textbook chapter, complete the work for that chapter in the textbook study guide. Some of the questions on the final exam will be taken from the textbook study guide work that you prepare.

After you have read the objectives and discussion in the course manual, read the textbook chapters for the lesson, and

completed the work in the textbook study guide, you will be ready to complete your written assignment.

Lesson Format

Each lesson includes the following:

- Introduction
- Required Reading and Learning Objectives
- Discussion and suggested Web sites
- Written Assignment.

Introduction

The Introduction lists textbook chapters for you to read. It also states learning objectives for the lesson. Pay close attention to these and review them before the final exam. These will tell you what we consider to be the most important concepts you should master. The Introduction summarizes important concepts from the text and amplifies the text when necessary.

Discussion

In the Discussion section, you will be introduced to the major topics of the lesson. Read this first, and then as you study each chapter, make notes in your textbook of the topics that this course manual emphasizes, and the topics that are ignored. Topics not covered in the course manual will not be covered on the exams.

A number of Web sites cover topics related to the course. If you have access to the Internet, you have access to a world of information unparalleled in all of human history. You can use the Web to browse topics related to this course. This will enhance your understanding of the physical environment of planet Earth, and it's fun, too! Using the Web is **not** required for the course, but it will enhance your learning.

Web sites change frequently, but our list focuses on major government sites that probably won't change their Web addresses. The Web addresses given in the lessons will take you to the home page of the site. It will be up to you to browse through the site. We have browsed these sites and found lots of interesting and relevant information, but if we tried to direct you to these specifically they may have changed by the time you read this course manual.

Written assignments

As you prepare the written assignment that you will turn in for grading, read each question carefully to see what you are required to do. Pay attention to the specific meanings of the words. As explained below, much more thought and effort are required to explain something than just to list or describe it. **List** means to list only. **Describe** means to describe the characteristics. **Explain** means to explain the processes that create the characteristics. Be sure to answer each question completely. Reread each question after you have answered it.

The graded assignments will include observations, map exercises, data collection and analysis, problem solving, short essays, and major essays.

Observations require one or more of the following:

- direct observation of the environment and analysis of observed events
- analysis of environmental issues in your local region.

Map exercises require:

- creation of a map from information supplied by the text or course manual (using an outline map supplied in the manual)
- analysis of the map created by you **or** analysis of a map published in the textbook.

You will need to create a title and a key for each map you create. The title should be clear and concise. The key should illustrate and define all symbols, colors, or shading used in your map.

Data collection and analysis requires some of the following:

- collection of numerical data from government publications or from information provided in the course manual
- calculations according to information provided in the course manual
- summary or analysis of the results of the calculations
- preparation of a graph or diagram.

Problem solving requires you to use principles from the assigned reading to solve a problem.

Short essays require you to write two or three paragraphs analyzing a topic. These will often be related to some other element of the lesson, such as an observation, map exercise, or data collection exercise.

Major essays require you to think, synthesize, and analyze major concepts of the lesson. A one- or two-page answer will be appropriate.

Performance Standards

The ability to communicate ideas clearly is very important. In every area of life, **writing counts**. This course is no exception. Your exercises and essays should be well written and well organized, with introductory sentences and conclusions. Proofread your work carefully.

Your instructor will appreciate it if your work is typed or word-processed and double spaced. This is not required, however.

Plagiarism

Webster's *New Twentieth-Century Dictionary of the English Language* (New York: Rockville House Publishers, Inc., 1968, page 1371) defines plagiarize as "to take and pass off as one's own the ideas, writings, etc., of another."

Plagiarism is a very serious Honor Code violation that could result in your suspension from the University. The Honor Code states: "It shall be the responsibility of every student at The University of North Carolina at Chapel Hill to obey and to support the enforcement of the Honor Code, which prohibits, lying, cheating, or stealing when these actions involve academic processes or University, student, or academic personnel acting in an official capacity." Be careful to avoid plagiarism in your written lessons. Your instructor is *required* by the Honor Code to report plagiarism.

The laws of plagiarism apply to all intellectual property, including maps. You must include bibliographic references on the maps that you create in your lessons. The maps in this

course manual were created by the Department of Geography at The University of North Carolina at Chapel Hill, and this information is already included on the maps. You should add a footnote about the source of the data you use to create your map. Failure to do so is plagiarism.

Students with Limited Mobility

This course is designed with active student participation in mind. Many of the lessons require that you go out into the local environment and make observations. For most students this will be a vital part of the learning experience.

However, we recognize that this may not be possible for everyone. For example, active duty military personnel serving at sea, handicapped persons, and prisoners may have restrictions on their movements that will make these observations impossible.

If you fall into one of these categories, **inform the instructor of your circumstances when you send in your first lesson.** We have prepared alternate assignments we will send to you.

Grading and Final Exam

Your written assignments count two-thirds of your final grade; your final exam counts one-third. You must pass the final exam in order to receive credit for the course. The final exam will be in the following format:

Identification—you will choose ten from a list of twelve important concepts and identify them in a phrase or sentence.

Map questions: place names—you will locate ten features of the world's physical geography, such as oceans and mountain ranges, on a blank world outline map. The list of features to study is given in Lesson 1.

Map questions: geographic forces or elements—you will locate ten geographic forces (such as prevailing winds) or elements (such as biomes) on a blank world outline map.

General Description

Short essay—you will choose ten from a list of twelve questions and write a one-paragraph answer with an accompanying drawing or diagram.

Essays—you will choose two from a list of three essays to answer. Your essays should be well organized and to the point. You will write a one- or two-page answer with accompanying drawings or diagrams.

To prepare for the exam, carefully review this course manual and your completed lessons and written assignments as well as the textbook. Remember that many of the questions will be taken from the work you do in the textbook study guide.

The course manual and the exam were designed to complement each other, and if you have carefully completed each lesson you should be able to succeed on the exam. **A set of thorough, detailed written assignments and study guides is your best possible study material for the exam.**

A Final Word

Good luck! I hope you find this course an interesting and useful aid in understanding the world around you.