



Environmental Systems (ENVIRSYS) 1A Syllabus

Course Name

ENVIRSYS 1A

Environmental Systems – Semester A

Course Information

ENVIRSYS 1A is the first semester of this two-semester course.

In this course, you'll work through the first three units of your science textbook: Introduction to Environmental Science; Ecology; and Populations.

Course Delivery Method

Online

Contacting Your Instructor

You may contact your instructor through the Blackboard messaging system. Technical support is available 24/7 at www.k12.ttu.edu.

Course Objectives

After completing this course, you should be able to:

1. conduct hands-on laboratory and field investigations using safe, environmentally appropriate, and ethical practices;
2. use scientific methods during laboratory and field investigations;
3. use critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom;
4. understand the relationships of biotic and abiotic factors within habitats, ecosystems, and biomes;
5. recognize the interrelationships among the resources within the local environmental system;

6. summarize methods of land use and management and describe its effects on land fertility;
7. identify source, use, quality, management, and conservation of water;
8. identify renewable and non-renewable resources that must come from outside an ecosystem such as food, water, lumber, and energy;
9. analyze and evaluate the economic significance and interdependence of resources within the environmental system;
10. explain the sources and flow of energy through an environmental system;
11. define and identify the components of the geosphere, hydrosphere, cryosphere, atmosphere, and biosphere and the interactions among them;
12. explain the flow of energy in an ecosystem, including conduction, convection, and radiation;
13. investigate and explain the effects of energy transformations in terms of the laws of thermodynamics within an ecosystem;
14. investigate and identify energy interactions in an ecosystem;
15. describe the relationship between carrying capacity and changes in populations and ecosystems;
16. recognize that environments change naturally;
17. analyze and describe the effects on areas impacted by natural events such as tectonic movement, volcanic events, fires, tornadoes, hurricanes, flooding, tsunamis, and population growth;
18. explain how regional changes in the environment may have a global effect;
19. examine how natural processes such as succession and feedback loops restore habitats and ecosystems;
20. explain the impact of human activities on the environment;
21. identify causes of air, soil, and water pollution, including point and nonpoint sources;
22. investigate the types of air, soil, and water pollution such as chlorofluorocarbons, carbon dioxide, pH, pesticide runoff, thermal variations, metallic ions, heavy metals, and nuclear waste;
23. describe the effect of pollution on global warming, glacial and ice cap melting, greenhouse effect, ozone layer, and aquatic viability;
24. evaluate the effect of human activities, including habitat restoration projects, species preservation efforts, nature conservancy groups, hunting, fishing, ecotourism, all terrain vehicles, and small personal watercraft, on the environment;
25. evaluate cost-benefit trade-offs of commercial activities such as municipal development, farming, deforestation, over-harvesting, and mining;
26. research the advantages and disadvantages of “going green” such as organic gardening and farming, natural methods of pest control, hydroponics, xeriscaping, energy-efficient homes and appliances, and hybrid cars; and
27. analyze past and present local, state, and national legislation, including Texas automobile emissions regulations, the National Park Service Act, the Clean Air

Act, the Clean Water Act, the Soil and Water Resources Conservation Act, and the Endangered Species Act.

ENVIRSYS addresses the required Texas Essential Knowledge and Skills (TEKS). These can be found at the [Texas Education Agency](#) website.

Textbook and Materials

Textbook(s)

The required digital textbook for this course is:

- Withgott, J., Lisowski, M., Scotchmoor, J., Thanukos, A., & Savvas Learning Company. (2021) *Environmental science: your world, your turn*, 7th edition. Savvas Learning Company. ISBN 978-0-13-745189-0.

This digital textbook can only be purchased through the TTU K-12 partner bookstore, MBS (see the [TTU K-12 website](#) for a link to MBS). Once you make your purchase, you will receive your credentials to the online textbook and resources via email, and it may take 1-2 business days.

Technical Requirements

- Internet access – preferably high speed (for accessing Blackboard)
- Email
- Word processing software such as Microsoft Word
- Adobe Reader (download from [Adobe.com](#))
- Audio and video capabilities (for watching/listening to course content)
- PDF app (free options available)

Technical Skill Requirements

Be comfortable with the following:

- using a word processor
- Internet search engines and browsers
- creating PDFs (see **Requirements for Creating PDFs** in the Syllabus section of your course)

Course Organization

This course consists of 10 lessons and a final examination. The course follows the structure of the textbook. Each chapter is a lesson, and each lesson is subdivided into two or three parts. For each part, you'll complete readings and take notes from your textbook. As you complete each part, you'll take a short multiple-choice quiz (usually ten or less questions). Most lessons will also have a discussion to participate in.

After you've completed all the parts of each chapter, you'll work through a lab and take a chapter test.

Each lesson includes several activities that present content knowledge. Each lesson also includes multiple graded assignments to ensure that you learn the content that has been presented in the activities. Some of the assignments are automatically-graded quizzes, and some are written assignments or activities that your instructor will grade. Be sure you read all instructions carefully and ask your instructor for help if something is not clear.

Course Outline

Please note that some assignments will be hidden from you when you start the course. As you move through the lessons and complete assignments, more will unlock for you.

Lesson	Topic	Approximate Time for Completion
UNIT 1: Lesson 1	Science and the Environment	1.5 weeks
Lesson 2	Tools of Environmental Science	1.5 weeks
Lesson 3	The Dynamic Earth	1.5 weeks
UNIT 2: Lesson 4	The Organization of Life	1.5 weeks
Lesson 5	How Ecosystems Work	1.5 weeks
Lesson 6	Biomes	1.5 weeks
Lesson 7	Aquatic Ecosystems	1.5 weeks
UNIT 3: Lesson 8	Water, Air, and Land	Two weeks
Lesson 9	Atmosphere	Two weeks
Lesson 10	Food and Agriculture	1.5 weeks
Final Exam		

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Assignment Schedule

Each of the following must be completed to complete the course. Items with an asterisk (*) indicate that these are summative assessments for the course.

Lesson	Weeks	Assignments
1	1-2	Checkpoint 1 (non-graded) Textbook Activity, Chapter 1: Graph It: An Introduction to Graphing (non-graded) Lesson 1 Discussion Lesson 1 Lab: What is an Ecosystem? *Lesson 1 Test
2	2-3	Lesson 2 Worksheet Lesson 2 Discussion Lesson 2 Lab: Hypothesizing and Predicting *Lesson 2 Test
3	4-5	Lesson 3 Worksheet Lesson 3 Discussion Lesson 3 Lab: The Heat is On *Lesson 3 Test Checkpoint 2 (non-graded)
4	5-6	Lesson 4 Worksheet Lesson 4 Discussion Dichotomous Key Activity (non-graded) Lesson 4 Quiz Lesson 4 Lab: Abiotic and Biotic Factors *Lesson 4 Test
5	7-8	Lesson 5 Worksheet Lesson 5 Quiz Lesson 5 Discussion Lesson 5 Lab: Invasive Organisms Near You *Lesson 5 Test
6	8-9	Collecting Climate Data Activity Lesson 6 Discussion Lesson 6 Lab: Introduction to Biomes *Lesson 6 Test
7	10-11	Lesson 7 Worksheet Lesson 7 Quiz Lesson 7 Lab: Central Case

Lesson	Weeks	Assignments
		Lesson 7 Discussion *Lesson 7 Test
8	11-12	Textbook Activity, Chapter 14: Map It: The Mississippi River Watershed (non-graded) Lesson 8 Worksheet Lesson 8 Discussion Lesson 8 Lab: Analyzing Land Use *Lesson 8 Test
9	13-14	Lesson 9 Worksheet Textbook Activity, Chapter 15: Real Data: Effects of the Clean Air Act (non-graded) Lesson 9 Discussion Lesson 9 Lab: Greenhouse Effect - PHET Simulation *Lesson 9 Test
10	15-16	Lesson 10 Worksheet 1 Lesson 10 Worksheet 2 Lesson 10 Discussion Lesson 10 Lab: Forming an Opinion about Farm-Raised Salmon *Lesson 10 Test Checkpoint 3 (non-graded)
		Final Exam

Course Credit

The course grade will be calculated as follows:

- 50% coursework average;
- 50% summative assessment average, including the final exam;
- A passing course grade is 70 or higher.

Students must attempt all assignments in the course. The final exam will not be available until all assignments have been accepted and graded by the teacher.

Students who score below 70% on the final exam will be eligible for one re-exam opportunity.

Coursework

The graded assignments within each lesson are formative in nature. This means that they are designed to assist you in applying and demonstrating the lesson concepts, as well as identifying areas in which you need additional review. You may use all the lesson's learning activities to assist you as you complete the graded assignments.

Summative Assessments

Summative assessments are those that allow you to demonstrate mastery of the course objectives. For summative assessments, you will NOT be allowed to use the learning materials. These are opportunities for you to show what you have learned by that point in the course. Summative assessments may be proctored using the online proctoring system Proctorio. Information about Proctorio is provided in **Remote Proctoring** in the Syllabus section of your course. The summative assessments for this course are as follows:

- **Summative Assessments (20% of Course Grade)**
 - Lesson 1 Test (40 points)
 - Lesson 2 Test (30 points)
 - Lesson 3 Test (30 points)
 - Lesson 4 Test (35 points)
 - Lesson 5 Test (34 points)
 - Lesson 6 Test (30 points)
 - Lesson 7 Test (30 points)
 - Lesson 8 Test (30 points)
 - Lesson 9 Test (30 points)
 - Lesson 10 Test (30 points)
- **Summative Final Exam (30% of Course Grade)**

Course Completion

- Students may not complete the course in less than 30 days.
- All courses expire six months after the enrollment date.

Academic Integrity

It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension.

“Scholastic dishonesty” includes, but is not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an act.

Student Expectations

You will be expected to log into the Blackboard course regularly to be aware of possible announcements/reminders and to pace your progress in the course.

Students are expected to maintain an online environment conducive to learning, which includes “netiquette” (Internet etiquette). Please review the basic rules for [Online Discussion Netiquette](#). Ensure that your email messages, discussion board postings, and other electronic communications are thoughtful and respectful. Diverse opinions are welcome in this course, and you are expected to demonstrate an open mind and courtesy when responding to the thoughts and ideas of others.

The following are prohibited:

- making offensive remarks in email or the discussion board;
- using inappropriate language or discussing inappropriate topics online;
- spamming;
- hacking;
- using TTU or Blackboard email or discussion boards for commercial purposes;
- using all caps (considered shouting in online communications); and
- cyber-bullying or online harassment of any type.

Inappropriate behavior shall result in consequences ranging from a request to correct the problem, to removal from the course or even the university, depending on the severity of the behavior. Disciplinary actions will be taken according to the TTU K-12 Student Handbook.

Communication

- You can expect a reply from your instructor within 2 business days.
- Use the Blackboard Course Messages tool for sending messages to your instructor.

Submitting Assignments

You will submit all assignments through the Blackboard Assignment Tool, rather than by mail or email.

Technical Difficulties

Getting Help

For student assistance with Blackboard, visit [TTU K-12 Support](#).

Computer Problems

A working computer is necessary for online coursework. Computer problems will not be accepted as a valid reason for failure to complete course activities within the allotted time frame. Identify a second computer, before the course begins, that you can use if you experience computer problems.

Server Problems

When the Blackboard server needs to be taken down for maintenance, the Blackboard administrator will post an announcement in your course informing you of the time and date. If the server experiences unforeseen problems, your course instructor will notify you.

Lost or Corrupted Files

You must keep/save a copy of every project/assignment on an external disk or personal computer. In the event of any kind of technology failure (e.g., Blackboard server crash or virus infection, students' own computer problems, loss of files in cyberspace, etc.) or any disputes, the instructor may request or require you to resubmit the files. In some instances, the instructor may need to open another attempt within Blackboard, so communication with your instructor is critical in these circumstances.