

# Syllabus

## Environmental Science I (ENVR 1301)



**Credit:** 3 Semester Credit Hours (lecture)

Last Revised: Fall 2018

**Prerequisite/Co-requisite:** Pass the reading and writing portion of TSI or other accepted testing instrument.  
ENVR 1101 Environmental Science I (lab).

### Course Description

A survey of the forces, including humans, that shape our physical and biologic environment, and how they affect life on Earth. Introduction to the science and policy of global and regional environmental issues, including pollution, climate change, and sustainability of land, water, and energy resources.

### Required Textbook and Materials

Environmental Science Systems and Solutions, 6<sup>th</sup> Edition  
Michael L. McKinney  
ISBN: 9781284091700

### Course Objectives

Upon completion of the course the student will be able to:

1. Recognize, describe, and quantitatively evaluate earth systems, including the land, water, sea, and atmosphere, and how these function as interconnected ecological systems.
2. Assess environmental challenges facing humans caused by their interaction with the physical and biological environment (e.g. population growth, energy resources, food production, pollution, water and resource use).
3. Acquire a scientific vocabulary and critical thinking skills related to environmental science.
4. Assess the effectiveness and feasibility of environmental policy and its impact.

# **Course Outline:**

## **UNIT I**

### A. Introduction to environmental health science

#### Chapter 1

1. History of environmental impact and environmental movements
2. Why people pollute
3. The role of the individual
4. Towards a sustainable world

### B. The environment as an integrated system

#### Chapter 3

1. Biogeochemical cycles
2. Energy flows
3. The environment as a system

### C. The biosphere

#### Chapter 4

1. The evolution of the biosphere
2. Biosphere interactions: populations
3. Biosphere interactions: communities and ecosystems

### D. Conserving biological resources

#### Chap. 6 & 11

1. Biodiversity measurement
2. Biodiversity loss
3. Prevention of extinctions
4. Public land issues

### E. Environmental Ethics

Reading TBA

1. Major traditions in Western ethical thought
2. Ecocentric Ethics
3. Animal rights and deep ecology

**EXAM #1**

**UNIT II**

A. Demography

Chapter 2

1. World population changes
2. Distribution of the earth's human population
3. Age structures
4. The consequences of over population
5. Solving the worlds' population problem

B. Feeding the world

Chapter 13

1. Food as a biological resource
2. Hunger
3. Feeding the world
4. Eating animal products
5. Food for the future
6. Food production and supplies
7. Biotechnology and transgenic crops
8. Aquaculture
9. Soil degradation

C. Fundamentals of energy, fossil fuels, and hydroelectric power

Chapter 7

1. Fundamentals of energy, work, power, and thermodynamics

2. Modern society's dependence upon energy
3. Fossil fuels: origins and human use
4. Hydropower

#### D. Nuclear energy

##### Chapter 7

1. Principles of nuclear power
2. Nuclear fuel production process
3. Uranium resources
4. Advantages and disadvantages of nuclear power
5. Safer nuclear reactors
6. Disposal of nuclear wastes
7. Decommissioning nuclear reactors
8. Global nuclear power today and in the future

#### E. Alternative energy sources and energy conservation

##### Chapter 8

1. Biomass energy, fuels, technologies, and environmental advantages and disadvantages
2. Solar energy
3. Wind power
4. Geothermal energy
5. Ocean energy
6. Energy storage and conservation

## **EXAM #2**

## **UNIT III**

#### A. Water resources

##### Chapter 9

1. Water and the hydrologic cycle
2. Water demand
3. Water supply
4. Social solution to water scarcity
5. Economic and legal solutions

## B. Water pollution

### Chapter 15

1. Water purification in nature
2. Pollution overwhelming natural purification
3. Reduction, treatment, and remediation of water pollution
4. Legal and social solutions to pollution

## C. Principles of pollution control

### Chapter 14

1. Pollution defined
2. Myths of pollution control

## D. Toxicology, pesticides and risk

### Chapter 14

1. Toxicology: the science of poisons
2. Pesticides: pollutants made to kill
3. Legal aspects of toxic substance and pesticide control

## E. Air pollution: local and regional

### Chapter 16

1. The atmosphere
2. Review of particulates, sulfur oxides, nitrogen oxides, volatile organic compounds, carbon monoxide, and lead
3. International trends

4. Weather and air pollution
5. Indoor air pollution
6. Noise pollution
7. Electromagnetic fields

#### F. Global air pollution and global warming

##### Chapter 17

1. Nature of ozone pollution
2. Effects of increased ultraviolet radiation
3. Controlling CFC releases
4. The greenhouse effect

#### G. Municipal solid waste and hazardous wastes

##### Chapter 18

1. Defining wastes
2. Alternative paradigms for waste management
3. Hazardous wastes

### **EXAM #3**

### **FINAL EXAM – Comprehensive**

#### **Grade Scale**

- A = 90 - 100
- B = 80 - 89
- C = 70 - 79
- D = 60 - 69
- F = less than 60

#### **Course Evaluation**

- |   |     |
|---|-----|
| 1. Class Attendance and Participation   | 10% |
| 2. Three Tests (3 x 15%)                | 45% |
| 3. Class Presentation of Selected Topic | 10% |
| 4. Final Exam                           | 35% |

# Course Policies

1. No food, drinks, or use of tobacco products in class.
2. Do not bring children to class.
3. If you wish to drop a course, the student is responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an 'F' in the course.
4. Additional class policies as defined by the individual course instructor are in the addendum.
5. It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: Cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices.
6. Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

## Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the online resource: <http://www.lit.edu/depts/stuserv/special/defaults.aspx>

## Student Code of Conduct Statement

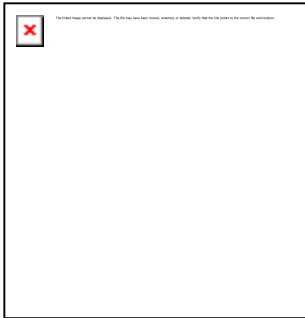
It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at [www.lit.edu](http://www.lit.edu) or obtained in print upon request at the Student Services Office.

## Supplemental Instruction

Supplemental Instruction (SI) consists of group tutoring sessions conducted once a week for 50 minutes for selected subjects. The SI Leader is a peer who helps students learn difficult content in those specific courses. The SI Leader attends the class with the students to keep up with the course content and engage students in interactive learning strategies at the 50 minute sessions. For this course, the supplemental instruction session will be held on – Currently not available.

## Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.



Last Revised: Fall 2018





**Environmental Science I (ENVR 1301)**  
**Section 3A1 – Fall 2018**  
**5.30-8.20pm Thurs. MPC 109**

**Course Syllabus Class Addendum**

**Instructor Contact Information**

Instructor: R. Peter Whittaker

Email: [rpwhittaker@lit.edu](mailto:rpwhittaker@lit.edu)

Office Phone: 409-839-2937

Office Location: MPC 220

Office Hours: M-F 8.00am-5pm (Appointment Recommended)

**Course Requirements**

1. Homework/revision of material is a course requirement.
2. Participation in classroom discussions/activities is also required.

**Course Schedule – Week 1 - 16**

Week 1	Introductions. Introduction to environmental health science
Week 2	The environment as an integrated system
Week 3	The biosphere
Week 4	Conserving biological resources, plus environmental ethics
Week 5	<b>Exam # 1 (9/26/18)</b> , plus demography
Week 6	Feeding the world
Week 7	Fundamentals of energy, fossil fuels, and hydroelectric power
Week 8	Nuclear energy, plus alternative energy sources and energy conservation
Week 9	<b>Exam # 2 (10/24/18)</b> , plus water resources
Week 10	Water pollution
Week 11	Principles of pollution control
Week 12	Toxicology, pesticides and risk
Week 13	Air pollution: local and regional, plus global air pollution and global warming
Week 14	Municipal solid waste and hazardous wastes
Week 15	<b>Exam # 3 (12/5/18)</b> , plus <b>Class Presentations</b> , and review for final exam
Week 16	<b>Comprehensive Final Exam (12/12/18)</b>