

VIRGINIA WESTERN COMMUNITY COLLEGE

COURSE OUTLINE

For

ENV 162 Environmental Principles in Public Health

Semester Credits: 3 Lecture Hours: 3 Lab/Recitation Hours: 0

Prerequisites

BIO 101 is strongly recommended.

Course Description

Examines critical factors involved in environmental/public health administration in the current post-911 society. Topics covered will include basic principles of general and environmental toxicology, air, water, and soil pollution, detection of pollutants, and risk assessment of toxicants. The threat of chemical and bioterrorism in the modern society will also be discussed.

School of STEM
Virginia Western Community College
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Roanoke, VA 24015
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Textbook

Environment, Rave, Berg, & Hassenzahl, Sixth Edition, John Wiley & Sons, Inc.

(*Note: Textbook is not used for all topics discussed this course.)

Topical Description

Topics		Chapter
I	Introduction to Toxicology I-Routes of Exposure and Elimination of Toxicants	7
	<ul style="list-style-type: none">Principles of absorption, distribution, metabolism and excretionWhat is the fate of toxic compounds in the humanDescriptions of various toxic substances and humans can be exposed to them	
2	Introduction to Toxicology II-Target Organs of Toxicants in the Human	
	<ul style="list-style-type: none">Discussion of cellular and molecular targets of toxicants In the human bodyHow do parents and metabolite chemicals cause toxic responsesExamples of chemical that are toxic to specific organ systems	
3	Environmental Toxicology I-Food Additives	
	<ul style="list-style-type: none">Discussion of some specific food additives and their potential toxic effects in humans	
4	Environmental Toxicology H-Air Pollutants	20
	<ul style="list-style-type: none">Discussion of the typical air pollutants threatening the world todayHuman health effects of air pollutants	
5	Environmental Toxicology III-Water and Soil Pollution	22
	<ul style="list-style-type: none">Discussion of typical water and soil pollutantsMovement of water and soil pollutants in the environmentHealth effects of soil and water pollutantsRemediation of soil and water pollutants	
6	Pesticide Toxicology I-Toxicology of Pesticides and Herbicides	23
	<ul style="list-style-type: none">Overview of the different classes of pesticides used through the yearsHuman health effects of different types of pesticides	

- 7 Pesticide Toxicology II-Sampling Techniques for Pesticides and Herbicides
- Methods used in collecting samples for analysis of pesticides and herbicides in the environment
- 8 Toxicology, Transport and Fate of Industrial Chemicals
- Overview of common industrial chemicals
 - Environmental transport and fate of various industrial chemicals
- 9 Risk Analysis-An Overview of the Risk Assessment Process
- The steps of risk assessment process discussed in detail
- 10 Natural Toxins-Animal Venoms
- Snake, fish, and insect poisons
 - Human health effect of above toxins
- 11 Natural Toxins-Toxic Effects of Plants
- Discussion of plant toxins
 - Human health effects of plant toxins
- 12 Potential Chemical and Biological Agents of Terrorism
- The use of biological and chemical weapons of mass destruction In today's society