**MOHAWK VALLEY COMMUNITY COLLEG**

**UTICA AND ROME, NEW YORK**

**CWCC Course Syllabus**

**Course Name:** **BI 105: Environmental Science**

**Course Credit Hours: C -** **3, P -** **2, CR -** **4**

**Course Prerequisites/Corequisites:** None

1. ***Catalog Description***

This course increases student appreciation and interest in human interaction with other organisms and with the physical environment. Topics covered include basic ecological concepts as well as human impact on the earth with an emphasis on selected environmental problems (i.e. natural resource use, pollution, wildlife conservation, agriculture, hazardous waste etc.). The laboratory component supplements lecture topics by providing practical experiences. Field experiences are required.

1. ***Course Texts or Bibliography:***

Lecture: Environment, 9th edition, Raven and Berg. Wiley, 2015.

Laboratory: Environmental Science Laboratory Manual, Geary, Adjodha-Evans, Kelly. Pearson, 2016.

1. ***Other Required Course Materials:***

Blackboard Site: There is a Blackboard site connected to this course. You are currently enrolled into the site. You will need to log in and become familiar with the blackboard course site. All supplemental material for the course can be found here and ALL EXAMS WILL BE COMPLETED THROUGH THE Blackboard SITE

1. ***Student Learning Outcomes:*** *(verified by Assessment Liaison on:* *)*

**1. Students successfully completing the course should have a good understanding of the concept of sound science and how the study of ecology can be utilized as a bridge between science and society.**

**2. Students should be able to define ecology and distinguish among the following ecological levels: population, community, ecosystem, and biosphere.**

**3. Students should understand the concepts of energy and thermodynamics and their implications related to organisms and to basic biological processes such as photosynthesis and cellular respiration.**

**4. Students should understand the concept of the ecosystem and the roles of biotic and abiotic factors in those systems.**

**5. Students should understand the following concepts as they apply to ecosystems: Population Dynamics (and the problems of human overpopulation),; The Ecological Niche; How Ecosystems interact with the physical environment; The Cycling of Materials (Biogeochemistry); Major Ecosystems of the World; Human health and toxicology;**

**6. Students should understand the importance of water as a resource(its importance, use, and problem as a resource);**

**6. Students should understand the importance of soil as a resource and the environmental Impacts of agriculture;**

**7. Students should understand the impacts of air Pollution and global climate change.**

1. ***Detailed Course Outline:***

Major Topics and Student Learning Outcomes/Objectives/LECTURE

Week Topics (not inclusive) Reading(s)

1 Introduction to Environmental Science Ch. 1

Human Impacts on the Environment

Population, Resources, and the Environment

Sustainability, Stewardship, and Sound Science

The Global Environmental Picture

2 Ecosystems and Energy Ch. 3

Thermodynamics, Photosynthesis, Respiration

Energy Flow Through Ecosystems

3 Ecosystems and Living Organisms Ch. 5

Evolution and Natural Selection

Interactions Among Organisms

The Ecological Niche and Ecosystem Services

4 FIRST EXAM

5 Ecosystems and the Physical Environment Ch 4

The Cycling of Materials Within Ecosystems (See Ch. 14) Solar Radiation - The Atmosphere (See Ch. 20)

The Global Ocean - Weather and Climate

6 Ecosystems and the Physical Environment (cont.) Ch. 4

Human Effects on Biogeochemical Cycles

Internal Planetary Processes

7 Major Ecosystems of the World Ch. 6

The Earth's Major Biomes

Aquatic Ecosystems

Interaction of Life Zones

8 Soil Resources: What is Soil? Ch. 14

Soil Formation, Properties, and Problems

Soil Conservation and Regeneration

9 SECOND EXAM

10 Population Change and Problems of Overpopulation Ch. 8/9

Factors that Affect Population Size

Demographics - The Human Population

Quality of Life

11 Water: A Limited Resource Ch. 13 The Importance of Water - Water Use and Resource

Problems - Water Management and Conservation

12 THIRD EXAM

13 Air Pollution Ch. 19

The Atmosphere as a Resource

Air Pollution Effects and Controlling

14 Regional and Global Atmospheric Change Ch. 20 Global Climate Change

Ozone Depletion and Acid Deposition

15 Finals week/FOURTH EXAM

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(Disclaimer: This course outline and exam schedule is subject to change in the event of extenuating circumstances and/or at the discretion of the instructor. The topics listed above are not inclusive. That is, we will cover other topics and you will be directed to the appropriate sections in your text or other resources.)

1. ***Detailed Practicum Outline\*:***

BIO 105 Environmental Science

Spring Laboratory Outline

Week Topic Page

1 Microscope 13

• Lab quiz on Microscope

2 Metric System 30

3 Introduction to test equipment 76

4 Stream analysis 1 (FIELD TRIP) 150

Abiotic data

5 Stream Analysis 150

Biotic data

• Lab quiz on test equipment

6 Trenton Green Belt (FIELD TRIP)

7 Recycling Facility (OHSWA) (FIELD TRIP)

➢ Lab report due

8 Soil Analysis part I 86

9 Soil Analysis part II 95

10 Acid Precipitation 118

• Lab quiz on soils

11 Water Quality (Bacteria and Hardness) 108 & 127

• Lab quiz on Acid Deposition

12 Topographic Maps 41

13 Taxonomy 140

14 Chasing Ice Movie

1. ***Potential Course Assessments:***

See below

1. ***Sample Grading Scheme, Parameters, or Policies:***

Final grade for the course will be a combination of lecture and lab

Lecture = 75%, Lab = 25% of your overall grade

Exams 75%

Quizzes 25%

Llab grade will be calculated as follows

Labs 70%

Quizzes 15%

Lab reports 15%

Grading scale

The grading scale for both lecture & lab is as follows:

A: 100 - 90

B: 89 - 80

C: 79 - 70

D: 69 - 60

F: 59 & below

1. ***Course Policies:***

Policies, Rules, & Requests

Accommodations for Students with Disabilities

• Students are expected to contact the instructor with any information pertinent to success in this class. Please read the Disabilities Statement located under Institution Services on the MVCC Blackboard Welcome Page. Also see the information below:

• I would appreciate hearing from anyone in the class who has any type of disability (e.g., physical, learning, psychiatric, vision, hearing, etc.) which may require some special accommodation. Please see me during my office hours so that we can discuss your needs. Before services can begin, you must also contact the Disability Services Office, 792-5644, in Room 153 of the Academic Building on the Utica Campus. (For classes on the Rome Campus, students should be referred to the Student Services Office, PC A30, 334-7727). Staff members will review your documentation, determine your eligibility for accommodations, and decide what those accommodations will be.

Civility Statement:

Mohawk Valley Community College is committed to civility in and out of the classroom. MVCC believes everyone has the right to an environment that creates the safe opportunity for educational, professional and social development. MVCC recognizes its responsibility to model and encourage a culture of civil behavior.

Title IX Statement:

Title IX states that no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance. Protections also extend to sexual harassment and sexual assault or violence that impairs or interferes with access to equitable educational and employment opportunities. For more information, please visit the Title IX website at www.mvcc.edu/IX

Sustainability Statement

Mohawk Valley Community College is committed to development and implementation of a comprehensive sustainability plan. To that end, we are beginning by asking students, faculty, and staff to actively participate in energy conservation measures and proper recycling on campus. The blue bins located in classrooms, and offices are for paper and paper products only. All plastic, metal and glass containers should be placed in the proper recycling bins located in the hallways. Please remember to empty them before depositing them. Any materials that cannot be recycled should be place in garbage cans. It is also important to turn off lights and computers when leaving a room. Together we can make an impact on conserving our resources. Remember to reduce, reuse and recycle!

Academic Affairs DGV Statement:

A few years ago, MVCC initiated a program titled “Diversity –Global View” (DGV), which gave each of our graduates a chance to participate in educational experiences designed to increase awareness of intercultural perspectives. Our goal in doing so was to enhance our students’ understanding of the realities faced by individuals as a result of their race, ethnicity, cultural background, gender, sexual orientation, socioeconomic status, academic abilities and interests, age, religious beliefs, and physical ability. To that end, all graduates who matriculated into programs in the fall 2008 or more recently, or who have changed their major since 2008, are now required to complete the DGV components associated with the degree or certificate program in which they are enrolled. For more information please visit http://www.mvcc.edu/students/registration/dgvrequirement.cfm.

Disclaimer-Academic Affairs

“The above procedures and policies are subject to change, in the event of extenuating circumstances or at the discretion of the instructor.”

*\* For courses that include Practicum time separate than Course time, provide as detailed a description or timeline of what the practicum will entail, e.g. laboratory schedules, internship expectations, etc.*

**Course Outline Contributors:**

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**Date Course Outline Was Approved:**

6/6/18