

Colonnade Program Course Proposal: Explorations Category

1. What course does the department plan to offer in Explorations? Which subcategory are you proposing for this course?

ENV 280, Introduction to Environmental Science (Natural and Physical Sciences Subcategory)

2. How will this course meet the specific learning objectives of the appropriate subcategory? Please address all of the learning outcomes listed for the appropriate subcategory.

The course goal for ENV 280, Introduction to Environmental Science: By the end of the course, students should be aware that environmental pollution, hazards, and change occur and can influence human health and the environment. Students will be introduced to concepts related to human population, sustainability, our urban world, people and nature, science and values, and a global perspective. This will familiarize students with the application of science to solve real-world environmental problems.

Course objectives for ENV 280, Introduction to Environmental Science:

Students who complete ENV 280, Introduction to Environmental Science, will be able to:

- Describe principles of environmental science.
- Explain concepts within major themes of environmental science, such as human population, sustainability, our urban world, people and nature, science and values, and a global perspective.
- Apply the scientific method as a way of understanding the environment.
- Describe environmental change, both anthropogenic and natural.
- Discuss application of the scientific method in the study of selected environmental issues, impacts, and pollution problems.
- Analyze environmental data to determine trends pertinent to the solution of specific problems.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Examine their personal role in the sustainability of environmental resources.
- Investigate the ethical, political, social, and environmental justice issues related to selected environmental problems.
- Describe the importance of protecting water and air quality.
- Utilize critical thinking skills to evaluate environmental issues.
- Demonstrate oral, written, and/or computer skills for analyzing and presenting environmental information.

1. Demonstrate an understanding of the methods of science inquiry.

Learning Objective 1 for the Colonnade Explorations, Natural and Physical Sciences Subcategory, is met by the following course objectives:

- Apply the scientific method as a way of understanding the environment.
- Discuss application of the scientific method in the study of selected environmental issues, impacts, and pollution problems.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Demonstrate oral, written, and/or computer skills for analyzing and presenting environmental information.

2. Explain basic concepts and principles in one or more of the sciences.

Learning Objective 2 for the Colonnade Explorations, Natural and Physical Sciences Subcategory, is met by the following course objectives:

- Describe principles of environmental science.
- Explain concepts within major themes of environmental science, such as human population, sustainability, our urban world, people and nature, science and values, and a global perspective.
- Describe environmental change, both anthropogenic and natural.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Describe the importance of protecting water and air quality.
- Demonstrate effective oral, written, and/or computer skills for analyzing and presenting environmental information.

3. Apply scientific principles to interpret and make predictions in one or more of the sciences.

Learning Objective 3 for the Colonnade Explorations, Natural and Physical Sciences Subcategory, is met by the following course objectives:

- Analyze environmental data to determine trends pertinent to the solution of specific problems.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Examine their personal role in the sustainability of environmental resources.

4. Explain how scientific principles relate to issues of personal and/or public importance.

Learning Objective 4 for the Colonnade Explorations, Natural and Physical Sciences Subcategory, is met by the following course objectives:

- Describe principles of environmental science.
- Explain concepts within major themes of environmental science, such as human population, sustainability, our urban world, people and nature, science and values, and a global perspective.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Examine their personal role in the sustainability of environmental resources.
- Investigate the ethical, political, social, and environmental justice issues related to selected environmental problems.

3. Syllabus statement of learning outcomes for course. NOTE: In multi-section courses, the same statement of learning outcomes must appear on every section's syllabus.

The following statements of learning outcomes will appear in all, ENV 280 – Introduction to Environmental Science, syllabi.

Course Description: An introductory course to the study of environmental issues. This course provides a general understanding of application of science to the solution of contemporary environmental problems.

This course fulfills the Natural and Physical Sciences Subcategory of the Explorations Category of Colonnade. Students completing ENV 280 will gain the ability to:

1. Demonstrate an understanding of the methods of scientific inquiry in environmental science.
2. Explain basic concepts and principles in one or more of the sciences.
3. Apply scientific principles to interpret and make predictions in one or more of the sciences.
4. Explain how scientific principles relate to issues of personal and/or public importance

4. Brief description of how the department will assess the course for these learning objectives.

We will create a comprehensive assessment that addresses each of the four learning outcomes for the Natural and Physical Sciences Subcategory. There will be 15 questions

for each learning outcome. A score of 70% will indicate satisfactory attainment of the learning outcomes. It is anticipated that the percentage of satisfactory scores on the assessment will align with the percentage of students with a 75 or greater in the course. This assessment will be executed via Blackboard at the end of the course for all sections.

Objective	Assessment Categories
Understanding of the methods of scientific inquiry	<ul style="list-style-type: none"> • The scientific method • Description of each step in the scientific method • The scientific method, hypothesis formulation, and environmental science • Application of the scientific method in environmental science • Measurements and uncertainty • Science and Society • Environmental questions and the scientific method
Explain basic concepts and principles	<ul style="list-style-type: none"> • Major themes of environmental science • Systems concepts • System responses • Population dynamics • Human population growth • Ecosystems • Energy Flow • Biogeochemical cycles • Value of the environment • Toxicology and environmental health • Hydrologic cycle • Waterborne disease • Climate change and global warming • Structure of the atmosphere • Ecology of forests
Apply scientific principles to interpret and make predictions	<ul style="list-style-type: none"> • Projecting human population growth • Carrying capacity and sustainability • Exponential growth • Humans, and nitrogen and phosphorus cycles • Water pollution • Air pollution • Risk-Benefit Analysis • Evaluate environmental issues • Formulating of hypotheses and predictions • Gross and net production

<p>How scientific principles relate to issues of personal and public importance</p>	<p>Based on the major concepts/principles shown above, applications to:</p> <ul style="list-style-type: none"> • Human population growth and natural resources • Environmental health and pollution • Environmental hazards in your home • Water quality • Safe drinking water • Water consumption • Air quality • Indoor air quality • Hazardous and solid wastes • e-waste • Environmental goods and services • Cost of environmental pollution • Forest products and sustainability • Energy consumption, conservation, and alternatives • The future of agriculture
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5. How many sections of this course will your department offer each semester?

The Department of Public Health will offer a 3-6 sections of ENV 280 face to face at the main campus and online through Blackboard. This will accommodate 90 to 180 students per semester if all sections are face to face. If two sections are offered online with four face to face sections, the projected enrollment would be 130 to 220 students.

6. Please attach sample syllabus for the course.

Attached, please find an example syllabus without individual instructor information.

Western Kentucky University
Department of Public Health

ENV 280
Introduction to Environmental Science

Course Meetings:

Tuesday/Thursday 8:00 a.m.– 9:20 a.m.

Professor:

Name

Department of Public Health

Address: WKU, 1906 College Heights Blvd, Office #, Bowling Green, KY 42101

Office Phone: (270)745-????

Email: [@wku.edu](mailto: @wku.edu)

Course Website: WKU Blackboard System

Office Hours and Appointments:

- Tuesday/Thursday 11:00 a.m. to 1:00 p.m.
- Meetings by appointment (please email)

Required Text:

Botkin, D.B. and E.A. Keller. 2011. Environmental Science: Earth as a Living Planet.
John Wiley and Sons, Inc. 8th Edition. 567 pp.

Course Description:

An introductory course to the study of environmental issues, including the major themes of human population, sustainability, the urban world, people and nature, and science and values, with a global perspective. This course provides a general understanding of the application of science to the solution of contemporary environmental problems.

Course Goal:

By the end of the course, students should be aware that environmental pollution, hazards, and change occur and can influence human health and the environment. Students will be introduced to concepts related to human population, sustainability, our urban world, people and nature, science and values, and a global perspective. This will familiarize students with the application of science to solve real-world environmental problems.

Learning Objectives for the Colonnade Program:

This course fulfills the Colonnade Program's requirements for the Natural and Physical Sciences subcategory of the Explorations Category. As part of that program, ENV 280 has the following learning objectives:

Students will demonstrate the ability to:

1. Demonstrate an understanding of the methods of science inquiry.
2. Explain basic concepts and principles in one or more of the sciences.
3. Apply scientific principles to interpret and make predictions in one or more of the sciences.
4. Explain how scientific principles relate to issues of personal and/or public importance

Course Objectives:

The course objectives for ENV 280 are designed to fulfill the Colonnade Program requirements. Upon successfully completing ENV 280, students will be able to:

- Describe principles of environmental science.
- Explain concepts within major themes of environmental science, such as human population, sustainability, our urban world, people and nature, science and values, and a global perspective.
- Apply the scientific method as a way of understanding the environment.
- Describe environmental change, both anthropogenic and natural.
- Discuss application of the scientific method in the study of selected environmental issues, impacts, and pollution problems.
- Analyze environmental data to determine trends pertinent to the solution of specific problems.
- Demonstrate an appreciation for the complexity of environmental problems and the application of science to create interdisciplinary solutions, including community solutions.
- Examine their personal role in the sustainability of environmental resources.
- Investigate the ethical, political, and environmental justice issues related to selected environmental problems.
- Describe the importance of protecting water and air quality.
- Utilize critical thinking skills to evaluate environmental issues.
- Demonstrate oral, written, and/or computer skills for analyzing and presenting environmental information.

Course Format:

- Face to face

- Web enhanced through Blackboard
- Course readings, discussions, quizzes, in class exercises, assignments, a mid-term, and final exam

Attendance Policy:

- **Turn Off Cell Phones While in Class!!!!!!!!!!**
- Attendance in lecture meetings will be recorded.
- You are highly encouraged to attend all lecture sessions, as there will be in class discussions, quizzes, and exercises.
- If a student will miss a class period due to a university-sanctioned activity, Western Kentucky University requires that the student: (1) identify himself/herself prior to missing the class, (2) provide the instructor with a copy of their travel schedule, and (3) discuss with the instructor the procedure to make up missed work.

Academic Integrity:

Cheating will not be tolerated. Plagiarism and academic dishonesty will not be tolerated. Students are expected to adhere to the Western Kentucky University Code of Student Conduct.

Plagiarism or academic dishonesty on any single assignment, including quizzes, tests, essays, exercises, and discussions, will result in a course penalty up to course failure.

Course Evaluation:

- 5 Discussions – 25% of grade - A discussion will be posted on Blackboard for Sections 1, 2, 3, 4, and 5 of the course
- 10 Quizzes – 25% of grade – Section material – Pop Quizzes and Announced
- 4 Assignments – 20% of grade – Section material
- Mid-term Exam: 15% of grade – Comprehensive over Sections 1 through 6
- Final Exam: 15% of grade – Comprehensive over Sections

Grades:

- Discussions – Section Discussions on the Blackboard Discussion Board
 - Each discussion is worth 50 points
 - 5 Discussions = 250 points
 - 25% of final grade
- Quizzes/Tests – Section Quizzes
 - Each Quiz is worth 25 points
 - 10 Quizzes = 250 points
 - 25% of final grade
- Assignments
 - Section Assignments: Sections 1, 2, 4, and 5

- Each Assignment is worth 50 points
- 4 Assignments = 200 points
- 20% of grade
- Mid-Term Exam: Sections 1, 2, and 3
 - 150 points
 - 15% of final grade
- Final Exam: Sections 4, 5, and 6
 - 150 points
 - 15% of final grade
- Percentage and Letter Grades: A = 90's or 100, B = 80's, C = 70's, D = 60's, F = below 60%

Tentative Course Outline:

- The mid-term exam will take place after completion of Section 3, and will cover Sections 1, 2, and 3. Each exam is comprehensive over half the course material. The final exam will take place on the scheduled final exam date. This exam will cover Sections 4, 5, and 6.
 - Due dates will be assigned in class and will be displayed in the list of tasks for each section on Blackboard.
1. Section 1: Key Themes, Critical Thinking about the Environment, Systems of Change, and Ecosystems
 - a. Chapter 1 and Chapter 2
 - b. Quiz 1
 - c. Discussion 1: An Ecosystem at Risk
 - d. Section 1 Quiz
 - e. Read Chapters 3 and 5
 - f. Section 2 Course Materials on Blackboard
 - g. Assignment 1: "Analysis of a Changing Environment"
 - h. Quiz 2
 2. Section 2: Human Population, Environmental Health, and Economics of Environmental Issues
 - a. Read Chapters 4 and 10
 - b. Discussion 2: Analysis of Human Population Growth
 - c. Quiz 3
 - d. Read Chapter 7
 - e. Assignment 2: Analysis of a U.S. Fishery: Georges Bank
 - f. Quiz 4
 3. Section 3: Water Resources, Climate, and Air Pollution
 - a. Read Chapters 18 and 19
 - b. Water Quality Issue in Class Exercise
 - c. Discussion 3: Water Resources and Air Pollution
 - d. Quiz 5
 - e. Read Chapters 20 and 21
 - f. **Mid-Term Exam – Sections 1, 2, and 3**

4. Section 4: Energy, Agriculture, and the Environment
 - a. Read Chapters 14, 15, and 16
 - b. Assignment 3: Alternative Energy Sources
 - c. Quiz 6
 - d. Read Chapters 17 and 11
 - e. Discussion 4: Pesticides in a Drinking Water Supply
 - f. Quiz 7
5. Section 5: Biological Diversity, Ecological Restoration and Landscapes
 - a. Read Chapters 8 and 13
 - b. Discussion 5: Conservation of a Local Forest
 - c. Quiz 8
 - d. Read Chapters 9 and 12
 - e. Assignment 4: Watershed Assessment
 - f. Quiz 9
6. Section 6: Urban Environments and Our Environmental Future
 - a. Read Chapters 22 and 24
 - b. Quiz 10
 - c. In Class Exercise – Analysis of My Urban Environment
 - d. **Final Exam – See Final Exam Schedule – Sections 4, 5, and 6**