

COCONINO COMMUNITY COLLEGE  
COURSE OUTLINE

Prepared by: Bryan Bates, M.A.  
Revised by: Bryan Bates  
Status: Permanent  
Effective: Fall 2015

March 23, 2001  
December 16, 2014

A. Identification:

1. Subject Area: Environmental Studies (ENV)
2. Course Number: 113
3. Course Title: Global Environmental Issues
4. Credit Hours: 3
5. Course Description: Students will examine the scientific basis of and reasons for concern about human population growth, loss of biodiversity and atmospheric alterations (global climate change). Prerequisite: ENG 100 or placement beyond prerequisite course and any science course numbered 100-level or above or Consent of Instructor. Three lecture.

B. Course Goals:

To provide students with the scientific basis by which to evaluate concerns about human impact on the biophysical world. To examine in depth three fundamental issues: Human population growth, loss of biodiversity and atmospheric alteration/ global warming.

C. Course Outcomes: Students will:

1. diagram basic patterns of energy flow and matter cycling within nature;
2. document from readings and discuss in class the biological effect of different synthetic compounds on different species including potential effects on humans;
3. review basic concepts of water properties, quality and treatment technologies;
4. draw schematic diagrams of current technologies used to clean wastewater and/or other polluted waters;
5. outline, in broad terms, the carbon cycle and the relative timeframe for a Carbon atom's travel through the cycle;
6. diagram oceanic thermohaline circulation;
7. compare the amount of energy trapped by different atmospheric gasses;
8. graph or otherwise portray the rates at which different continental populations use fossil fuels and the change in CO<sub>2</sub>e in the atmosphere;
9. evaluate how energy use affects economic growth;
10. and present in class one global environment issue including problems statement, problems drivers and viable solutions.

D. Course Outcomes Assessment will include:

1. a final exam;
2. and instructor evaluation of student presentation on an environmental problem and its resolution.

E. Course Content will include:

1. energy flow and nutrient cycles diagram within the natural world;
2. role of different synthetic compounds on environmental and human health;
3. basic concepts on water properties, quality and treatments;
4. natural and technological water cleansing processes;
5. basic properties of greenhouse gasses;
6. nutrient cycles;
7. oceanic thermohaline circulation;
8. sources of and relative concentrations of greenhouse gasses;
9. comparison of fossil fuel use based on continents or major countries;
10. compare use of energy by different continents or major countries affects their economic growth;
11. problem statement and a proposed plan on how to solve one environmental problem;
12. community structure, population dynamics, and carrying capacities;
13. human population growth and energy consumption;
14. changes in-species metabolism and reproduction, food production and water quality;
15. historic and natural-species loss;
16. biotic community energy flow analysis;
17. changes in atmospheric composition over time and relative to economic development;
18. changes in oceanic CO<sub>2</sub> concentration and effects on ocean ecosystems;
19. anthropogenic particulate and chemical emissions;
20. and classroom presentation of a global environmental problem, drivers of the problem and viable solutions.