ENVIRONMENTAL SCIENCE/ENVIRONMENTAL SCIENCE HONORS

CREDIT HOURS: 1.0  COURSE LENGTH: 2 Semesters

COURSE DESCRIPTION

The purpose of this course is to enable students to develop knowledge of the ways that humans interact with the natural environment. The focus is on implementation of scientific habits of mind and the application of scientific knowledge, methodology, and historical context to solve problems. Students explore earth dynamics, the influence of technology on environmental quality, environmental quality issues, and conservation and biodiversity. Students frequently engage in meaningful discussion about the impact that human progress has on the environment.

The honors level course requires students to utilize higher order thinking skills such as analysis and synthesis, while completing more rigorous assignments. In addition, more emphasis is placed on research mastery and project based learning.

COURSE PREREQUISITES

Biology and Chemistry

TOPIC OUTLINE

Semester I:

1. Introduction to Environmental Science
2. Earth’s History
3. Plate Tectonics
4. Earth’s Atmosphere
5. Weather and Climate
6. Atmospheric Circulation
7. Earth’s Water
8. Water Use
9. Water Conservation
10. Rock Cycle
11. Soil
12. Soil Conservation
13. Ecology
14. Evolution and Biodiversity
15. Energy Flow in Ecosystems
16. Nutrient Cycles
17. Water Cycle
18. Population Ecology
19. Community Ecology
20. Ecological Succession
21. Threatened and Endangered Species
22. Protecting Biodiversity
23. Terrestrial Biomes
24. Aquatic Life Zones
25. Freshwater Life Zones
26. Population Age Structure
27. Effects of a Growing Human Population
28. Food Resources
29. Pest Management
30. Forestry
31. Rangelands
32. Land Conservation
33. Mining
34. Fisheries
35. Review

Semester II:

1. Introduction to Energy
2. Energy Consumption History
3. Fossil Fuels
4. Coal
5. Synthetic Fuels
6. Introduction to Nuclear Energy
7. Nuclear Power Plants
8. Nuclear Energy and Environment
9. Hydroelectric Power
10. Tides and Waves
11. Solar Energy
12. Wind Power
13. Geothermal Power
14. Hydrogen Fuel
15. Energy Efficiency
16. Introduction to Air Pollution
17. Acid Deposition
18. Climate Change
19. Reducing Air Pollution
20. Noise Pollution
21. Water Pollution
22. Sewage Treatment
23. Solid Waste
24. Hazardous Waste
25. Environmental Health
26. Sustainable Cities
27. Environmental Economics

University of Miami Global Academy reserves the right to revise the course outline as needed throughout the duration of the course