

CURRENT ENVIRONMENTAL ISSUES IN LATIN AMERICA

INTRODUCTION

This course will provide theoretical and practical knowledge and information about environmental and sustainable development issues and policies, illustrated with examples and case studies from Latin America, particularly Costa Rica. The course has been developed around a practical approach to the environmental green, blue, grey and brown agendas and selected cross-cutting issues of critical interest (energy, climate change and ecologic economics).

OBJECTIVE(S):

1. Introduce students to the main local, regional and global environmental issues our world faces today
2. Encourage students' interest in environmental research by means of weekly research papers and exercises and a final paper and oral presentation in class
3. Discuss on-going conservation science and sustainable development issues in Costa Rica by reviewing key initiatives such as the National Biodiversity Institute (INBio)
4. Develop broad-minded awareness of current environmental issues by following and discussing local and international media coverage.
5. Encourage creative thinking and individual and collective action regarding environmental issues

COURSE DESCRIPTION

Unit I: THE GREEN AGENDA-BIODIVERSITY

CONTEXT

- Definitions: genes, species, ecosystems, protected areas, environmental services.
- The importance of biodiversity
- Biodiversity in Costa Rica

CONFLICTS AND THREATS

- How biodiversity is lost
- Human-generated threats to biodiversity

STRATEGIES AND SUGGESTED ACTIONS

- Protection, inventory and sustainable use
- Financial incentives
- Land zoning and national policies

Unit II: THE GREEN AGENDA-AGRICULTURE

CONTEXT

- Agriculture in history, types of agricultural practices and present trends

CONFLICTS AND THREATS

- Pressure over food, overexploitation, hunger and glut
- Pollution, genetic erosion, deforestation, desertification

STRATEGIES AND SUGGESTED ACTIONS

- Conserving soils, wild relatives of domestic plants
- Intense use of appropriate lands, nutrient management, integrated pest management and other technologies

Unit III: THE GREEN AGENDA-FORESTRY

CONTEXT

- Definitions: types of forest ecosystems, forest management and protection
- Forest values and services
- Status of tropical forests

CONFLICTS AND THREATS

- Deforestation, soil erosion, logging, invasive species, acid rain

STRATEGIES AND SUGGESTED ACTIONS

- Sustainable management policies, education, valuation of environmental services and financial incentives.

Unit IV: THE BLUE AGENDA-WATER (OCEANS, WETLANDS AND OTHER WATER ISSUES)

CONTEXT

- Planet Water
- Oceans and other water-related ecosystems.
- Climate regulation, source of life
- The world as a fresh water reservoir and other values of water systems

CONFLICTS AND THREATS

- Decreased productivity from over-fishing, pollution, climate change
- Changes in sea level, climate change, flooding, eutrofication, ecosystem destruction
- Watershed pollution, drinking water shortages and other water-related conflicts

STRATEGIES AND SUGGESTED ACTIONS

- Water and ocean protection laws, clean-up actions
- Sustainable management of coastal and ocean resources
- Fresh water conservation and distribution projects

Unit V: THE BROWN AGENDA

CONTEXT

- Pollution and waste management
- Types of pollutants (agricultural, industrial, urban)

CONFLICTS AND THREATS

- The dangers of pollution and hazardous chemicals
- Health-related issues
- Waste accumulation and disposal

STRATEGIES AND SUGGESTED ACTIONS

- Providing clean water and safe disposal of waste
- Pollution control
- Reduce, Reuse, Recycle
- International, national and personal efforts

Unit VI: THE GREY AGENDA

CONTEXT

- Population: current and expected issues
- Life in a universal context and how we interact with our planet
- An evolutionary success and a balancing act

CONFLICTS AND THREATS

- Human needs and other species
- Exponential increase in numbers and needs: growing impacts of human populations
- Natural processes of populations growth and collapse
- Health, employment and other population-related crisis

STRATEGIES AND SUGGESTED ACTIONS

- People potential
- Respect and management of carrying capacities
- Improved access to education, healthcare and sanitation
- Bridging gaps: the power of communications and technology transfer

Unit VII: ENERGY

CONTEXT

- Definitions, types of energy and transformation (reversible and non reversible)
- Energy sources (renewable and non-renewable) and uses

CONFLICTS AND THREATS

- A problem of dependency: the oil crisis
- Political, economic, environmental and technological issues
- New conflicts and polemics (bio-fuels vs. food crops)

STRATEGIES AND SUGGESTED ACTIONS

- Alternative sources (solar, wind, hydraulic, geothermal, biomass)
- Energy-efficient societies: Implementing new and more efficient technologies, enforcing policies for better use of energy, changing consumption patterns

Unit VIII: CLIMATE CHANGE

CONTEXT

- Definitions, current status, changes in weather and climate
- The greenhouse effect
- Methods to monitor climate change

CONFLICTS AND THREATS

- Global warming
- Human contributions to climate change: greenhouse gases and changes in land use
- Consequences of climate change: Biodiversity loss, melting glaciers and raising oceans, spread of disease and human mortality, changes in agricultural patterns and performances, flooding, desertification, drought and famine.

STRATEGIES AND SUGGESTED ACTIONS

- International conventions and global actions: the IPCC
- General measures at national levels: Policies, education, enforcement of conventions, energy efficiency, reducing changes in land use.

Unit IX: ECOLOGIC ECONOMICS

CONTEXT

- Definitions, valuation of ecosystem services and ecological costs of development

CONFLICTS AND THREATS

- Poor knowledge of ecosystem values and replacement costs
- Polemic valuation systems
- Lack of policies and enforcement

STRATEGIES AND SUGGESTED ACTIONS

- Generate awareness of economic values of natural ecosystems
- Generate reliable information of ecosystem values and replacement costs
- Mainstream ecologic costs and services into national accounts

METHODOLOGY:

Each week will include three key components: A lecture by teacher, a discussion of assigned readings and current environmental issues as reported by the media (global and local) and a progress review of research methods and topics conducted by the students. The course includes a field trip to the National Biodiversity Institute to introduce students to on-going research and development issues in Costa Rica.



RESEARCH PAPERS

Several essays will be submitted during the course and a final paper will be prepared and orally presented at the end of the course. Topics will be defined and assigned based on students' individual interests.

NEWSPAPER READINGS AND MEDIA FOLLOW-UP

Every week, time will be devoted to discuss relevant environmental issues (local and global) as reported in the local (and other available) media. The objective is to motivate the students to read in Spanish and to be aware of the current issues unfolding in the country/region within the global context.

FIELD TRIP

A field trip to the National Biodiversity Institute (INBio) will be organized to allow students to appreciate the importance of conserving, researching and utilizing biodiversity in a sustainable fashion and to discuss some leading biodiversity conservation strategies and actions.

EVALUATION:

Attendance and Participation	20 %
Class essays and mid-term	40%
Final research paper & oral presentation	40 %
• Written paper (20%)	
• Oral presentation (20%)	