The Conservation Leadership Program at ODU

Learning Sustainability and Conservation by Experience

2020 Orientation Workshop, May 19, 2020
Conservation Leadership

• Minor and Grad. Certificate
  • 466/566 Mitigation and Adaptation Studies
  • 467/567 Sustainability Leadership
  • 369/669 Internship Conservation Leadership

• Minor:
  • two electives

• Grad. Certificate:
  • 668: Participatory and Agent-Based Modeling, Simulation and Visualization
  • one elective
Main Concepts

The importance of flows
Strategies for Sustainability:
1. To consume nature’s flows while conserving the stocks (that is, live off the ‘interest’ while conserving natural capital).
2. To increase society’s stocks (human resources, civil institutions) and limit the flow of materials and energy.

Brown et al. (2004)
Main Concepts

Planetary Physiology
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Earth is a Life-Support System for many species
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Everything is about Flows

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For Homo sapiens, the flows are regulated by ethical, social, and - recently - economic rules
Flows have been changed (accelerated) dramatically by modern society;
The planetary physiology is to a large extent dominated by a growing humanity.
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Importance of Mainstream Economic Model

Transition to an economy that meets the need of the present while safeguarding the Earth’s life-support system
Main Concepts

- Every problem is unique
- No definite problem formulation
- There is no stopping rule
- Solutions are better/worse, not right/wrong
- No immediate test for solutions
- There is only a one-shot opportunity
- There is no defined set of options and solutions
- Every problem is a symptom of another problem
- The solver has not right to be wrong
- Explanation of discrepancies determines solution
Wicked Problems

Examples

- Global Climate Change
- Involuntary migration
- Natural Hazards
- Global Change
- Social injustice
- Data security
- Conservation
- Pandemics
- Healthcare
- Inequality
- Nuclear

Main Concepts

- super wicked
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Wicked Problems

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Strategies and approaches to address wicked problems
Main Concepts: Core Questions to ask

What is the syndrome of modern global change; what is the prognosis, and is there a therapy?

Rockstrom and Klum, 2015
Main Concepts: Core Questions to ask

How to think and talk about possible futures, including worst cases?
Main Concepts: Core Questions to ask

What are the root causes and consequences of unsustainability and how does this relate to our ethics?
Main Concepts: Core Questions to ask

Who are we in the Earth’s life-support system?
Active learning supported by learning assistants:
- problem-motivated: research case studies of real-world problems
- 1st course: individual studies based on literature
- 2nd course: group project in the real world (service learning)
- 3rd course: internship with an individual case study on a real-world problem
Main Concepts: Learning by Experience

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All case studies:
● require systems thinking and transdisciplinary approach;
● involve modeling;
● focus on a wicked problem;
● are participatory;
● have a leadership component with a novel participatory leadership style;
● are in principle dynamic resource allocation problems.
Main Concepts: Learning by Experience

- Wicked Problem
  - Introduction
    - The wicked problem and its relevance
    - Why do we need to tackle the problem?
    - What are the ethical, economic, social, and environmental characteristics?
  - Mapping the Decision Space
    - Who is related to the problem?
    - What is the societal, ethical, & legal decision framework?
    - Who can implement interventions?
  - Participatory Modeling (PM)
    - PM or role playing to understanding the wicked problem
    - Conceptual model of the system
    - Stocks, flows, feedbacks, & agents

- System Science - Vulnerabilities
  - What are the system vulnerabilities?
  - Are there system thresholds and tipping points?

- System Science - Hazards
  - What are the external threats?
  - What are the internal threats?
  - Probabilities of these hazards?

- Foresight
  - Scenario approach: The range of possible futures
  - Goal Knowledge: The desirable futures and why are they desirable

- Transformation Knowledge
  - What are effective and feasible interventions?
  - Which interventions can point the system towards desirable future?

- Discussion and Conclusions
  - How well did the case study tackle the wicked problem?
  - What are the main conclusions concerning the systems future?

- Recommendations
Most Case Study focus on Real-World Problems related to Chesapeake Bay and adjacent watersheds.