

Global Sustainability

January 10, 2011

Title and Description

Course Outline

- Title
- Instructors
- Objectives I
- Objectives II
- Objectives III
- Objectives IV
- Evaluation
- Policies I
- Policies II

Technology and Social Change 220

Global Sustainability

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Technology and Social Change 220

Global Sustainability

Cross-listed with Anthropology, Environmental Studies, Global Resource Systems, Mechanical Engineering, Materials Science and Engineering, Sociology

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Technology and Social Change 220

Global Sustainability

Cross-listed with Anthropology, Environmental Studies, Global Resource Systems, Mechanical Engineering, Materials Science and Engineering, Sociology

Course Description — An introduction to understanding the key global issues in sustainability. Focuses on interconnected roles of energy, materials, human resources, economics, and technology in building and maintaining sustainable systems. Applications discussed will include challenges in both the developed and developing world and will examine the role of technology in a resource-constrained world.

Instructors

Mark Bryden — Department of Mechanical Engineering

Instructors

Mark Bryden — Department of Mechanical Engineering

Arne Hallam — Department of Economics

Instructors

Mark Bryden — Department of Mechanical Engineering

Arne Hallam — Department of Economics

Richard LeSar — Department of Materials Science and Engineering

Instructors

Mark Bryden — Department of Mechanical Engineering

Arne Hallam — Department of Economics

Richard LeSar — Department of Materials Science and Engineering

Meeting Times and Places:

MWF 14:50-15:00 in 120 Ross Hall

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Course Homepage:

<http://www2.econ.iastate.edu/classes/tsc220/hallam/TSC220S2011.htm>

Learning Objectives

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- 1 Explain interactions within the natural environment, the interaction of humans with the natural environment, and the concepts of sustainable physical, economic, and social environments.
- 2 Explain using examples the following ideas or concepts and how they affect sustainability:
 - basic needs and human wants
 - natural resource
 - human resource
 - private good
 - public good
 - production process
 - externality

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Learning Objectives (cont)

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- **Objectives II**
- Objectives III
- Objectives IV
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- Policies I
- Policies II

2 Explain using examples the following ideas or concepts and how they affect sustainability:

- economic development
- income distribution
- political structure
- worldview

Learning Objectives (cont)

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- **Objectives II**
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Learning Objectives (cont)

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- Objectives II
- **Objectives III**
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- 3 Be able to differentiate between renewable and non-renewable resources and describe appropriate policies for dealing with each.
- 4 Be able to use the following concepts in describing and/or modeling a sustainable system.
 - Systems
 - Population: growth, development, and cataclysm
 - Conservation
 - Complementarity

Learning Objectives (cont)

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- 5 Be able to discuss the impact of alternative policies on sustainability and how they differ depending on the natural environment, and the economic and social structure of a given country/society.
- 6 Understand how individual actions affect the sustainability of natural, built, and human systems.

Learning Objectives (cont)

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Student Evaluation

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- **Evaluation**
- Policies I
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1. There will be three examinations during the semester along with a final examination.

Student Evaluation

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1. There will be three examinations during the semester along with a final examination.
2. There will be a ten problem sets during the semester.

Course Policies

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- **Policies I**
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1. Students are expected to attend class on a regular basis. Extra credit of two percentage points will be given for perfect attendance. Two percentage points will be deducted for each class missed beyond three.

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2. Plagiarism is unacceptable. You will receive a zero score on any assignment in which plagiarism is detected. A second occurrence of plagiarism will result in a failing grade for the course.

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3. Students are expected to take examinations at the time and on the days they are scheduled. Unless you are in an ambulance or unconscious, you will be expected to notify the instructors of any reason you might miss an examination prior to the actual time of the examination.

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- 4 Any student who feels s/he may need an accommodation based on the impact of a disability should contact one of us privately to discuss your specific needs. Please contact the Disability Resources Office (515-294-7220 or TTY 515-294-6635) in Room 1076 of the Student Services Building to submit your documentation and coordinate necessary and reasonable accommodation.