

Sustainability Education for Sustainable Development

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Sustainability Topics

1. Sustainable Energy (wind, solar, biofuels)
2. Greenhouse Gases and Climate Change
3. Energy Efficiency in Buildings (LEED)
4. Sustainable Agriculture
5. Ecosystems and Ecosystem Management
6. Water and Water Reuse
7. Industrial Ecology and Sustainability
8. Life Cycle Assessments

Sustainability Topics (Continued)

9. Waste, Byproducts, Recycling, and Environmental Management
10. Community Planning and Sustainability
11. Governments, Policy and Sustainability
12. Stewardship and Ethics
13. Environmental Regulations
14. Measures of Sustainability and Sustainable Development
15. Triple Bottom Line Decision Making and Analysis
16. Natural Resource Economics and Full Cost Accounting

Arizona State University School of Sustainability

B. A. and B.S. degrees

Minor in Sustainability

Masters and Ph.D. programs

Flexible, interdisciplinary, and problem-oriented

Core Competencies in Sustainability

- Systems thinking
- Anticipatory capacities
- Normative competency
- Strategic thinking
- Interpersonal skills

Systems Thinking

- Whole system analysis
- Individual parts
- Problem definition
- Triple bottom line evaluation
- Systematic design process

Anticipatory Capacities

- Regulatory changes
- Market considerations
- Climate change
- Life cycle assessment
- Precautionary alternatives

Normative Competency

- Regulations
- Standards
- Accepted procedures
- Justice and equity
- Environmental assessment
- Sustainability assessment

Strategic Thinking

- Resource requirements
- Viability
- Multidisciplinary team members
- Social value
- Environmental issues
- Stakeholder perspectives

Interpersonal Competency

- Communication
- Collaboration
- Listen and understand
- Effective team member

Sustainability Education for K-State

Introductory course

Inclusion of sustainability in existing courses

Minor and/or secondary major

Graduate certificate

Proposed Introductory Economics Course

Traditional macroeconomics

Natural resources economics

Ecosystem services

Triple bottom line concepts

Social value

Environmental impacts

Full cost accounting

Kansas State University NRES Secondary Major

1. Elective sustainability courses
2. Capstone course with some sustainability problems

Agricultural Resources and Environmental Management

- A. Agro-Ecological Sciences and
Engineering
- B. Social Sciences, Economics, and Policy

- Biobased Products and Bioenergy Certificate Program
 - Conversion (Processing)
 - Feedstocks
 - Sustainability

- Distance Education Cooperative Program
 - Kansas State University
 - Oklahoma State University
 - South Dakota State University
 - University of Arkansas

- Sustainability Courses
 - Sustainability Overview Course (OSU)
 - Life Cycle Assessment (UArk)
 - Natural Resources (SDSU)
 - Sustainability Seminar (KSU)
 - Environmental and Ecological Risk Assessment (UArk)
 - Process Sustainability (KSU)
 - Feasibility and Commercialization (OSU)
 - Community and Natural Resource Management (SDSU)
 - Natural Resource Policy (KSU)

CHE 670 Sustainability Seminar

Renewable Energy, Food, and Sustainability
Greenhouse Gases, Carbon Taxes and Trading,
and Carbon Sequestration
Renewable Energy

CHE 670 in January 2012

Global Aspect of Biobased Products and
Bioenergy

Land resources and production limits

Water resources

Ecosystem management

Feeding the world

Biobased materials and products

Bioenergy