Are We Serious About a Real Transformation?

Charles L. Redman
Director and Professor
Global Institute of Sustainability

- 30 years of research
  - Rapid Urbanization
  - Ecology and Services
  - Water Management
  - Social and Life Sciences
  - Knowledge to Action
  - Decision Making Under Uncertainty
- Problem solving as well as basic research
Eight design aspirations guide ASU's transformation into a New American University

01. Leverage Our Place
    ASU embraces its cultural, socioeconomic, and physical setting.

02. Transform Society
    ASU catalyzes social change by being connected to societal needs.

03. Value Entrepreneurship
    ASU uses its knowledge and encourages innovation.

04. Conduct Use-Inspired Research
    ASU research has purpose and impact.

05. Enable Student Success
    ASU is committed to the success of each unique student.

06. Fuse Intellectual Disciplines
    ASU creates knowledge by transcending academic boundaries.

07. Be Socially Embedded
    ASU connects with communities through mutually beneficial partnerships.

08. Engage Globally
    ASU engages with people and issues locally, nationally and internationally.
Sustainability Business Practices
Walking the Walk

1. Carbon Neutrality
   - American College and University President’s Climate Commitment (ACUPCC)
     - Energy – Purchased, Site Generated, Natural Gas

2. Zero Waste
   - Solid Waste
   - Water Waste
     - Water capture
     - Largely still to be defined
Sustainability Business Practices

3. Active Engagement

- Using our campus as a living laboratory
- Sustainability Logo

4. Principled Practice

- Procurement’s Green Purchasing Policy
- ASU Campus Grown Foods
School of Sustainability Established in 2007
Vision of SOS

- **Awareness** of the challenges facing us and the connectedness of the world
- **Creativity** to deliver innovative solutions
- **Stewardship** of natural, human, and cultural resources
- Governance and **institutions** that continuously learn and adapt
- **Values** that enhance equity, justice, and inclusiveness
Is Sustainability Interdisciplinarity on Steroids?

- Earth Systems Science
- Social Sciences
- Resource Economics
- Technology and Design
- Policy and Governance

Epistemological Pluralism and Agility in an increasingly uncertain world
Real World Problem Solving on a Par with Research

Global/Local Challenges Define “Tracks” within the School Of Sustainability
Central Question #1: Interdisciplinary Faculty and Rewards

- Where should faculty be housed?
- Joint appointments: upsides, downsides
- How should rewards be realigned?
  - Allocation of resources
  - Publication in new journals
  - Attracting new students, funding
Undergraduate Student Profile

589 Students (fall 09)
- 17% freshmen, 28% sophomores, 34% juniors, 18% seniors, 3% post-baccalaureate
- 60% male and 40% female
- 47 honors students
- 6 international students (reported as Non-Resident/Alien)
- 18% minorities (includes Asian, Black or African American, Hispanic/Latino, American Indian or Alaskan, and Native Hawaiian or Pacific Islander; and 8% of total population did not report)
BA in Sustainability

**Cr. Hrs.**

**Term 1-2**
- 6

<table>
<thead>
<tr>
<th>SOS 110 Sustainable World</th>
<th>SOS 111 Sustainable Cities</th>
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</table>

**Term 3-4**
- Choose 2 courses, one related to track.
- 6

<table>
<thead>
<tr>
<th>SOS 320 Society and Sustainability</th>
<th>SOS 321 Policy and Governance in Sustainable Systems</th>
<th>SOS 322 International Development and Sustainability</th>
<th>SOS 323 Sustainable Urban Dynamics</th>
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</thead>
</table>

**Term 5-6**
- Choose 3 courses, one related to track.
- 9

<table>
<thead>
<tr>
<th>SOS 324 Sustainable Energy, Materials &amp; Technology</th>
<th>SOS 325 The Economics of Sustainability</th>
<th>SOS 326 Sustainable Ecosystems</th>
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</table>

**Term 7**
- Choose 1 additional major course.
- 3

**12**

**Major Course Electives**

**3**

<table>
<thead>
<tr>
<th>SOS 484 Sustainability Internship</th>
<th>or</th>
<th>SOS 494 Workshop/Service Learning</th>
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</table>
**Minor in Sustainability**

**SOS 100 (online)**

**Choose courses from two themes**

- Earth Systems
- Human Transformation of the Earth
- Coupled Human-Environment Systems
- Social, Political, and Economic Treatment of Natural Resources and Environment

**Courses commensurate with major**

- 3 Cr. Hrs.
- SOS 300 (new course)
- 300/400 level Electives
- 300/400 level Electives

**Cr. Hrs.**

- 3
- 6
- 3
- 6

**300/400 level Electives**

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<th>Social, Political, and Economic Treatment of Natural Resources and Environment</th>
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</thead>
<tbody>
<tr>
<td>GPH 211 Landform Processes:</td>
<td>ALA 100 Introduction to Environmental Design:</td>
<td>ASB 222 Buried Cities and Lost Tribes: Our Human Heritage:</td>
<td>GCU 141 Introduction to Economic Geography:</td>
</tr>
<tr>
<td>GLG 101 Introduction to Geology I (Physical):</td>
<td>PUP 100 Design for Ecology and Social Equity</td>
<td>GPH 210 Society and Environment:</td>
<td>SGS 103 Contemporary Global Trends:</td>
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<tr>
<td>BIO 100 The Living World:</td>
<td>IND 243 Design for Ecology and Social Equity</td>
<td>GLG 110 Geologic Disasters and the Environment:</td>
<td>ASB 100 Introduction to Global Health:</td>
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<tr>
<td>BIO 187 General Biology I:</td>
<td>PUP 100 Introduction to Environmental Design:</td>
<td>PUP 260 Sustainable Cities</td>
<td>ECN 212 Microeconomic Principles:</td>
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<tr>
<td>ABS 225 Soils:</td>
<td>PUP 100 Sustainable Cities</td>
<td>PUP 131 Sustainable Cities</td>
<td>STS 101 Introduction to Science, Technology, and Society:</td>
</tr>
<tr>
<td>ABS 270 Sustainable Biological Systems:</td>
<td>PUP 100 Sustainable Cities</td>
<td>STS 294 Society and Global Warming</td>
<td>STS 110 Global Technology and Development:</td>
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<tr>
<td>GLG 110 Geologic Disasters and the Environment:</td>
<td>PUP 100 Sustainable Cities</td>
<td>CHM 107 Chemistry and Society:</td>
<td>SOS 110 Sustainable World:</td>
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</tbody>
</table>
Real-World Learning Program – ‘preparatory functional-progressive model’

Activity 1: Aral Sea stakeholder Analysis (dry-run)

Activity 2: Interviews with campus/city experts, fieldtrips

Forms of collaboration

Class-room supported

Class-room driven

Engaging with the world Y3/4

Visiting the world Y1/2

Capstone Y3/4

Simulating the world Y2/3

Bringing the world in Y1/2

Practice-oriented

Transacademic

Science-oriented

Joint Decision Making

Mutual Collaboration

Mutual One way Information & consultation

One way Information & consultation

Levels of interaction

Brundiers, Wiek, Redman, in press
Graduate Student Profile

- 79 students (fall 09)
- 44% women, 56% men
- 20 international students
- 41% Masters; 59% PhD
# MA/MS in Sustainability

<table>
<thead>
<tr>
<th>Cr. Hrs.</th>
<th>Introductory Core Courses</th>
<th>Perspective Core Courses</th>
<th>Challenge Area Courses</th>
<th>Thesis</th>
<th>Non-Thesis</th>
<th>Applied Workshops</th>
<th>Electives</th>
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<tbody>
<tr>
<td>6</td>
<td>SOS 510 Perspectives in Sustainability</td>
<td>SOS 512 Sustainability Resource Allocation</td>
<td>SOS 513 Science for Sustainability</td>
<td>SOS 511 Methodology of Sustainability Research and Problem-solving</td>
<td>SOS 514 Human Dimensions of Sustainability</td>
<td>SOS 515 Industrial Ecology &amp; Design for Sustainability</td>
<td>400 or 500 level</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td>SOS 516 Science, Technology and Public Affairs</td>
<td>SOS 591 Uncertainty and Decision Making</td>
<td>SOS 591 Sustainability and Enterprise</td>
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</table>

## Challenge Area Courses

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### Suggested Electives

- SOS 530 International Development and Sustainability
- SOS 532 Sustainable Urban Dynamics
- SOS 533 Sustainable Water
- SOS 534 Sustainable Energy and Material Use
- SOS 535 Sustainable Ecosystems
- SOS 598 Food System Sustainability

### Applied Workshops

- SOS 594 Applied Workshops
Central Question #2:
Is sustainability a distinct endeavor?

- Should sustainability be infused in every discipline?
- How is sustainability different from other multidisciplinary fields?
- How essential is transdisciplinary, co-production of knowledge and solutions?
- If sustainability is a distinct field how do we measure excellence, rigor, and achievements?
A New Framework for Course Outcomes

Sustainability Research and Problem-Solving Competency

- Systems Thinking Competency
- Anticipatory Competency
- Interpersonal Competency
- Strategic Competency
- Normative Competency

A. Wiek
SCHOOL OF SUSTAINABILITY

AT ARIZONA STATE UNIVERSITY

http://schoolofsustainability.asu.edu

ASU®