The Challenge of Teaching Sustainability In and Outside the Classroom

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UMUC is Guided by Two Definitions of Sustainability

United Nations views sustainability as the confluence of Environmental, Social, and Economic issues

ENVIRONMENTAL

ECONOMIC

SOCIAL
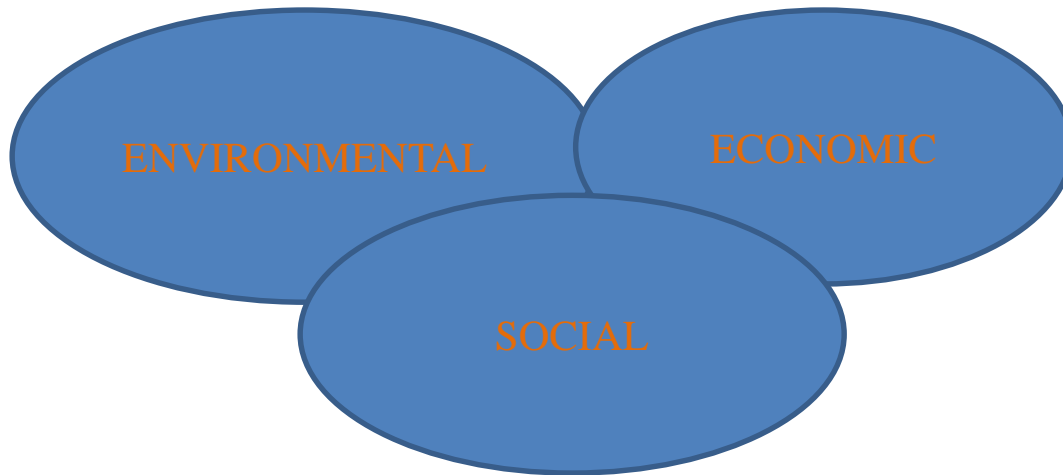
Builds on the Brundtland Commission's definition of sustainable development: *meeting the needs of the present generation without compromising the ability of future generations to meet their own needs.*

Business Definition of Sustainability

- Elkington's *triple bottom line*.

- Triple Bottom Line extends the UN definition into the business world. Since most companies are already addressing financial concerns, this adds social and environmental risk management (often called corporate social responsibility).

The Following Premise Follows from these Sustainability Definitions:

There is a need for educators to operationalize sustainability through approaches that cross disciplinary boundaries and embrace experiential education and problem solving

UMUC Approach to Sustainability

Environmental Management Program (ENVM)

- Offers multiple courses covering sustainability issues and skills development offered every semester

- Completion of program leads to Masters of Science (MS)

- In existence for 2 decades

- Includes 1,2, and 3-credit courses

We Teach Sustainability through an Unique Educational Format that Integrates

– Experiential Learning --- e.g.,Capstone Course

– OER---Online Educational Resources

– Key Environmental Software tools---Crystal Ball, GIS, SMOG, etc.

– Audio-Visual Materials

Entire Curriculum is Consistent with Sustainability Knowledge and Competencies

UMUC ENVIRONMENTAL MANAGEMENT COURSES

ENVM 641 ENVIRONMENTAL AUDITING
ENVM 643 ENVIRONMENTAL COMMUNICATIONS AND REPORTING
ENVM 644 NEW TECHNOLOGIES IN ENVIRONMENTAL MANAGEMENT
ENVM 646 ENVIRONMENTAL/ENERGY LAW AND POLICY DEVELOPMENT
ENVM 647 ENVIRONMENTAL RISK ASSESSMENT
ENVM 648 FUNDAMENTALS OF ENVIRONMENTAL SYSTEMS
ENVM 649 PRINCIPLES OF WASTE MANAGEMENT AND POLLUTION CONTROL
ENVM 650 ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS
ENVM 651 WATER RESOURCE MANAGEMENT
ENVM 652 PRINCIPLES OF AIR QUALITY MANAGEMENT
ENVM 653 LAND USE MANAGEMENT
ENVM 670 ENVIRONMENTAL MANAGEMENT CAPSTONE

UMUC Curriculum and Sustainability Knowledge and Skills Matrix

Sustainability Knowledge and Skills Matrix												
	ENVM 641	ENVM 643	ENVM 644	ENVM 646	ENVM 647	ENVM 648	ENVM 649	ENVM 650	ENVM 651	ENVM 652	ENVM 653	ENVM 670
Analytical Thinking and Problem Reframing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sustainability and Resilience Systems Design			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Understanding of Risk			✓		✓			✓				
Relationship Development			✓		✓				✓		✓	✓
Effective Communications	✓	✓			✓							
Familiarity with Sustainability and related Concepts	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Policies and Regulations affecting sustainability			✓	✓	✓	✓	✓		✓	✓	✓	✓
Management and Assessment Tools	✓		✓		✓				✓	✓		
Public and Private Roles and Responsibilities	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Leadership for change	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Source:	Adapted from information provided by International Environmental Management Association (IEMA)											

Sustainability Highlights

DISCUSSION OF
REPRESENTATIVE
COURSES

ENVM 647

Environmental Risk Assessment

ENVM 649

Principles of Waste Management and Pollution Control

ENVM 653
LAND USE MANAGEMENT

University of Maryland University College

ENVM 670

CAPSTONE COURSE

Conclusions

- Sustainability should be a core organizing element of any undergraduate or graduate environmental planning and management program.

- Principles of sustainability can be integrated into any course related to the environment.

- Sustainability is an evolving concept; therefore, *curricula developers* and *subject matter experts* must constantly be on the look-out for new concepts that have been fused with sustainability such as livability, reliance, and the role of smart city technologies.

Conclusions

- Educators should also be constantly searching for free or inexpensive tools that can be used by undergraduate and graduate students to evaluate various aspects of sustainability.

- Students should be provided multiple experiences with using various tools and methodologies for evaluating sustainability such as Geographic Information Systems (GIS mapping and analysis) tools, risk assessment tools and EPA remediation technology selection tools.

- Many-times tools developed by third parties such as the AARP (that are free) can provide valuable experiences in evaluating various aspects of sustainability as well as enhance the analytical and evaluation skills of students

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