An Initiative to Incorporate Sustainability into Stanford's Undergraduate Education for Citizenship Curriculum

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This process has been the collaborative effort of Elaine Albertson (EARTHSYS-Land,'11), Noel Crisostomo (EARTHSYS-Energy,'10), David Geeter II (EARTHSYS-Anthro,'11), Theo Gibbs (ANTHRO,'11), Eli Pollak (CEE,'12), Students for a Sustainable Stanford and the Associated Students of Stanford University. The work has benefited from the inclusion of a diverse collection of academic stakeholders including Vice-Provost John Bravman, Pamela Matson (Dean of the School of Earth Sciences), Debra Satz (Philosophy), Ursula Heise (English), and Julie Kennedy (Director, Earth Systems Program).

What does it mean to be a "cultured and useful citizen" in the 21st century?

Leland and Jane Stanford founded the university with an untraditional choice: that the university be avowedly practical, producing "cultured and useful citizens" when most universities were concerned only with the former.[1] More than 130 years later, Stanford's Education for Citizenship (EC) requirement builds on this tradition to "provide students with some of the skills and knowledge that are necessary for citizenship in contemporary national cultures and for participation in the global cultures of the 21st century."

In today's globalized and rapidly changing world, new analytical skills are needed to understand and effect resourceful change on our environment and future. When considering the environmental impact of today's actions on future generations, an academic framework for decision analysis is essential to building and defining modern citizenship."

We recognize and emphasize that the concept of "sustainability" is not an exclusive concern of one particular discipline but rather is integral to an inherently multi-disciplinary education in ethics and citizenship. In a real sense, sustainability can be conceptualized as intergenerational citizenship. Reaching beyond a narrow environmental science-based definition, this interpretation builds on the "three E's" model: the balance of ecology, economy, and equity. We seek to build an intellectual tool, rather than a behavioral or ideological prescription; this is not an environmental literacy requirement. Stanford should provide students with the scientific, historical, and philosophical background in sustainability they need in order to place their actions in a broader, intergenerational context. In this way, we can make decisions that uphold our civic responsibility to "meet the needs of the present without compromising the ability of future generations to meet their own needs."[2]

Sustainability is a vital and actionable asset to Citizenship Education at Stanford

Sustainability is an essential aspect of Education for Citizenship at Stanford. Fundamentally, sustainability seeks to achieve a balance in social, economic, and environmental challenges over time and space -- a core value of the University. Its consideration of inter-temporal

citizenship allows students to explore the humanist and social science aspects of international environmental norms. Given the complexity of current global issues, being versed in sustainability will define what it means to be "cultured and useful" citizens now and in the coming decades. Stanford needs to provide its students a comprehensive liberal education, one that allows them to build an interdisciplinary expertise that is fitting for the shift toward universal concern and one that prepares them to be effective problem solvers.

Acting upon this proposal is a necessary intervention to address this weakness in the current Education for Citizenship requirement. Incorporating the recommended changes outlined in this proposal-- combined with coordinated action by students, our faculty contacts, and the Faculty Senate-- could occur during the upcoming Spring in preparation for the 2010-11 academic year. At the very least, this initiative's confluence with the Stanford Undergraduate Education Study should ensure that sustainability is clearly represented in any future iteration of the Citizenship framework.

Perspectives from Faculty Interviews

In an attempt to outline the interdisciplinary parameters of "sustainability", we reached out to a diverse array of faculty to gain their perspective on the concept, and how it could be best incorporated into Stanford's curriculum. These interviews strengthened our understanding of sustainability as a modern and multi-faceted concept, and deeply informed this updated proposal. A selection of the most important discussion points are paraphrased below (emphasis added).

Professor Pamela Matson - Dean of the School of Earth Sciences

- The concept of sustainability is about *human welfare* in a broad sense and accountability to future generations. It is about weighing the needs of future generations against yours. This is where social and moral ethics come in too.
- Discussion of environmental problems does not capture the essence of sustainability. Courses should teach *how* the basic needs of humans can be met *despite* (for example) climate change. The goal is to give students the perspective to look at the social and environmental picture and tie every thing together.
- Thinking about sustainability does not mean standing outside and looking in at it. It is a *full-fledged engagement* in the matter that must unite people and environment.

Professor Nicole Ardoin - Assistant Professor of Education and Center Fellow at the Woods Institute for the Environment

- There is significant *potential for interdisciplinary classes* on sustainability. We could create team-taught courses with two professors from different schools that together go over some aspect of sustainability. For example, the issue of 'food' where you can get into the regular organic issues, but also into school lunch policy, global development issues, farms, national policy, etc.
- The goal is not to prescribe behavior. This is about *enhancing people's attitudes, values, and knowledge* and citizen action skills to make good choices about environment.

Professor Debra Satz – Department of Philosophy

- You have to consider "*What is sustainable*, what do we want to sustain, what does it mean to sustain, should everything be sustained?
- There is *real demand for education* on the issue – the question is *how to best incorporate* these ideas into the curriculum. Is EC the best place or is there another way to do it?
- Emphasized the difficulties in adding Ethical Reasoning EC option and finding the right classes to fulfill it.

Professor Ursula Heise – Department of English

- In spite of good intentions on both sides, there is a disconnect between the humanities and the natural sciences on this issue and others. This proposal has the potential to *increase conversation and cooperation* between the two fields. For example, English could work with Earth Systems on environmental literature classes.
- It is important that the proposal is not issue specific. Should focus on *promoting broad consideration* of what it means to be sustainable and how that applies to citizenship.

Does Stanford offer sustainability education?

Today, a query of "environment" and "sustainability" in the Stanford Bulletin for possible options to fulfill Stanford's Education for Citizenship reveals that none of the four EC tracks include sustainability-related classes or address questions of intergenerational citizenship. In light of sustainability's important role in citizenship, this represents a significant shortcoming in the requirement.

How can we incorporate sustainability into the curriculum?

Adding a "Sustainable Civilization" EC will complement the four existing EC options and strengthen the fabric of a Stanford education by giving students the option to consider how questions of sustainability relate to citizenship in today's changing world. If the proposal is enacted, students will take two out of five classes rather than two out of four. If one imagines that each existing EC option encourages exploration of an essential sphere of citizenship – Ethical Reasoning considers personal citizenship; Gender Studies considers interpersonal; American Culture considers interstate; and Global Community considers international – Sustainable Civilization can be seen as encompassing the inter-temporal aspects of citizenship. In this way, Sustainable Civilization stands on equal footing with the other options as an essential part of citizenship. Highlighting a new Sustainable Civilization option has the potential to encourage faculty cooperation in offering interdisciplinary sustainability classes, and increase dialogue on an issue that sits firmly at the confluence of humanities, natural sciences, and engineering.

Fundamental Criteria and Possible Classes for Sustainable Civilization

The General Education Requirement for Education for Citizenship was created to give students an in-depth examination of citizenship on theoretical, interpersonal, inter-state, and international levels. To be cultured and useful in the 21st century and beyond, Stanford graduates are morally charged with understanding how to be responsible citizens from an inter-generational context. As global citizens in times of extraordinary challenge, we envision that Stanford graduates will have the ability to understand problems and contribute to solutions. We believe that through the retrospective and prospective study of areas in Humanities and Sciences, Engineering, and Earth Sciences, graduates will be best equipped to both lead and foster a "Sustainable Civilization."

Defining Analytical Themes

"Sustainable Civilization" classes must consider at least two aspects of development decisions upon ecology, economy, and equity. Ideal classes will develop a framework to help students gain an interdisciplinary understanding of how activities affect others today and in an inter-temporal context. Sustainable Civilization classes engage students with how humans interact with their environment and can analyze approaches to sustainability in terms of natural or applied science, policy, economics, history, humanities, or other areas including:

Legal, Economic and Political Systems: How do environmental problems affect government decisions, and the converse? How do nations' rights to the commons conflict with others' vulnerability to environmental change and rights to sovereignty? Classes examine policy interventions that have been and can be employed to address environmental issues and how they affect society and justice on local and/or global scales.

Science, Technology and Engineering: How have human technologies affected our environment, and what promise do they hold to make beneficial change? Classes explore technical, logistical, and behavioral drivers and barriers to deploying more environmentally-benign technologies.

Anthropology, Psychology, Philosophy and Art: What connections do humans have with their environment? As humans begin to understand their profound impact on their environment (anthropocene) what changes to this connection are occurring? How have visual or literary representations between this human connection affected the perception of the environment? Classes explore how the study of human behavior can enhance people's attitudes, values, morality, and knowledge and citizen action skills to make good choices about environment.

Earth's Systems: How are anthropogenic systems the planet's natural systems? What are the defining the interactions among them? Classes explore biogeochemical cycles in atmosphere, oceans, and land and the impacts on these cycles of human alteration.

Geography, Political Economies, and History: How have humans approached environmental decision-making over time, and what instigates changes in those decisions? What development decisions have had the most profound impacts on the environment? Classes explore the roles that geopolitics and natural resource scarcity play in environmental and social change.

If this proposal is adopted by the C-USP we recommend the establishment of an interdisciplinary faculty and student committee to determine the criteria most appropriate for the Stanford Undergraduate curriculum. The faculty with whom we interviewed expressed general interest in serving on such a committee.

Thirteen Potential Classes

ANTHRO 115A: Environmental Crises and State Collapse: Lessons from the Past (HUMBIO 115) - J. Truncer
The effects and consequences of long-term human interaction with the environment. How and why past societies adapted, or failed to adapt, to changing environmental conditions and relevance to current environmental problems. Demographic, archaeological, and environmental data assessed using case studies from around the world since the late Pleistocene. Development of agriculture, societal collapse, sustainability, and policy response.

ANTHRO 166/266: Political Ecology of Tropical Land Use: Conservation, Natural Resource Extraction, and Agribusiness - L. Curran
Seminar. The state, private sector, development agencies, and NGOs in development and conservation of tropical land use. Focus is on the socioeconomic and political drivers of resource extraction and agricultural production. Case studies used to examine the local-to-global context from many disciplines. Are maps and analyses used for gain, visibility, accountability, or contested terrain? How are power dynamics, land use history, state-private sector collusion, and neoliberal policies valued? What are the local and extra-local responses?

BIO 1: Human Evolution and Environment - P. Ehrlich
Human genetic and cultural evolution and how people interact with their environments, from the ancestors of Australopithecus to current events. Issues include race, gender, and intelligence; pesticide and antibiotic resistance; abortion and contraception; ecosystem services; environmental economics and ethics; the evolution of religion; climate change; population growth and overconsumption; origins and spread of ideas and technologies; and the distribution of political and economic power.

COMM 177/277C: Specialized Writing and Reporting: Environmental Journalism - T. Hayden
Practical, collaborative, writing-intensive course in environmental journalism. Science and journalism students learn how to identify and write engaging stories about environmental issues and science, how to assess the quality and relevance of environmental news, how to cover the environment and science beats effectively, and how to build bridges between the worlds of journalism and science.

CEE 142A: Negotiating Sustainable Development - S. Christensen
Learn how to create a more sustainable world by learning the skills required to negotiating tensions and differences between stakeholders who advocate for their own interests. Explore how ecological, social and economic interests can be effectively balanced and managed.

Students learn to be effective actors in the sustainability movement, and use frameworks to solve complex, multi-party processes. Case study analysis of domestic and international developments. Negotiate on behalf of different interest groups in a variety of arenas.

EARTHSYS 103, CEE 173A: Energy Resources - J. Woodward, K. Knapp
Fossil and renewable energy resources and energy efficiency. Topics for each resource: resource abundance, location, recovery, conversion, consumption, end-uses, environmental impacts, economics, policy, and technology. Applied lectures in energy sectors:buildings, transportation, the electricity industry, and energy in the developing world. Required field trips to local energy facilities. Optional discussion section for extra unit.

EARTHSYS 178, PHIL 278: The Ethics of Environmental Choices - D. Satz, S. Schneider
Investigation of the institutional and individual dimensions of environmental choices. On the institutional side, examine externalities, the tragedy of the commons, sustainable development and environmental policy. On the individual side, discuss individual responsibility, intrinsic value, and moral pluralism. Focus on decision-making including the role of risk analysis, the rate of discount for effects on future generations, cost-benefit analysis, and scientific epistemology.

ECON 106: World Food Economy - W. Falcon, R. Naylor
The interrelationships among food, populations, resources, and economic development. The role of agricultural and rural development in achieving economic and social progress in low-income nations. Emphasis is on public sector decision making as it relates to food policy.

HISTORY 243J/ EARTHSYS 143: Climate Change in the West: A History of the Future- Jon Christensen
Global warming is changing the American West. But this region is no stranger to environmental change and human adaption to harsh environments. How can history help us think more clearly about the current crisis and our choices for the future? Examines the long history of climate change in the West, as well as current warming, through scientific research, historical sources, environmental histories, and visions for the future, including plans for mitigation and adaption, scientific predictions, and science fiction.

HUMBIO 111, ANTHRO 173: Human Dimensions of Global Environmental Change: Resilence, Vulnerability, and Environmental Justice - L. Curran
The complexity of social and political issues surrounding global environmental change. Emphasis is on synergies precipitated by human-induced climatic change. Case studies and scenarios to explore the vulnerability and resilience in households, communities, regions, and nation-states most affected by extreme weather conditions. Their concerns, livelihood changes, and diverse responses of rural smallholders, indigenous communities, the state, and local and regional migrants. Central theme is environmental justice.

HUMBIO 118, ANTHRO 90C: Theory of Ecological and Environmental Anthropology
Dynamics of culturally inherited human behavior and its relationship to social and physical environments. Topics include a history of ecological approaches in anthropology, subsistence

ecology, sharing, risk management, territoriality, warfare, and resource conservation and management. Case studies from Australia, Melanesia, Africa, and S. America.

HUMBIO 166: Food and Society: Exploring Eating Behaviors in Social, Environmental, and Policy Context - D. Bird
The array of forces that affect the foods human beings eat, and when, where, and how we eat them, including economics, business, agriculture, law, politics, trade, ideology, culture, biology, and psychology. The impact of current policies, and actions that might be taken to improve human nutrition and health. Macro-scale influences on food, nutrition, and eating behavior.

URBANST 115, CLASSGEN 123: Urban Sustainability: Long-Term Archaeological Perspectives - M. Shanks
Comparative and archaeological view of urban design and sustainability. How fast changing cities challenge human relationships with nature. Innovation and change, growth, industrial development, the consumption of goods and materials. Five millennia of city life including Near Eastern city states, Graeco-Roman antiquity, the Indus Valley, and the Americas.

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[1] http://www.stanford.edu/about/history/
[2] http://www.un-documents.net/ocf-02.htm