Faculty Sustainability Group Recommendations for University Sustainability Requirements and Student Learning Outcomes

Submitted to the GE Subcommittee for its Meeting of June 1, 2015

Summary of Recommendations

The Faculty Sustainability Group recommends that the GE Subcommittee:

1. approve an Upper Division University Sustainability Requirement of one course
2. approve a Lower Division University Sustainability Requirement of one course for native students (those who enter as freshmen)
3. allow the Upper Division University Sustainability Requirement to be an overlay for Upper Division GE or for the Major
4. allow the Lower Division University Sustainability Requirement to be an overlay for Lower Division GE or for the Major
5. approve the following modified Student Learning Outcomes for the University Sustainability Requirements

Proposed Student Learning Outcomes for the University Sustainability Requirement

1. Students should be able to discuss different aspects of sustainability: its environmental, social, and economic dimensions, and should understand central related concepts.
2. Students should be able to articulate key threats to global environmental sustainability.
3. Students should understand the local, regional, and global sustainability implications of their individual and professional actions and choices, and the importance of intercultural understanding and tolerance for a just and sustainable world.
4. Students should understand the interconnectedness, exchanges and feedbacks between human activities and natural systems.
5. Students should be able to describe prominent existing or emerging strategies to achieve sustainability.
Background

Cal State East Bay committed itself in 2007 to educating all students on the issue of sustainability, and it claims that its graduates have that knowledge; yet sustainability is not a part of the required curriculum and there are no course criteria (student learning outcomes) for sustainability coursework.

- In Spring 2007 the Academic Senate “Resolved that the Academic Senate of CSU East Bay supports actions to make climate neutrality and sustainability a part of the curriculum (including campus facilities and grounds as learning laboratories) and other educational experience for all students.” (06-07 BEC; April 3, 2007)
- Cal State East Bay’s fifth Institutional Learning Outcome indicates that “Graduates of CSUEB will be able to act responsibly and sustainably at local, national, and global levels.”

Given the very long lag in addressing its own resolution, the Academic Senate should take immediate action to make sustainability study a required part of the curriculum.

Justification for the Modified Sustainability SLOs

The FSG presented draft sustainability SLOs to the GE Subcommittee at its May 11, 2015 meeting. At the request of the GE Subcommittee, FSG attempted to work with the Cultural Groups and Women’s Subcommittee to develop a common model for integrating sustainability and other theme-specific ILO’s into the upcoming semester-based curriculum. In that attempt FSG modified its original recommended sustainability SLOs to use the format proposed by CGW, which included separate outcomes for knowledge, skills, and action. Because the FSG felt that it needed to retain all of the knowledge areas from its original SLOs—as consistent with national and international norms for sustainability SLOs—with the addition of the skills and actions ILOs, the result was criticized as overly prescribed. Therefore, the FSG is resubmitting the Sustainability SLOs in their initial form.

As suggested by the Sustainability SLOs shown in Appendix A, which were drawn from various Academic Consortia on Sustainability, the sustainability SLOs that the FSG is recommending in this document are highly consistent with national and international norms on the subject, in both nature and number.
Justification of the Recommended Sustainability SLOs

The FSG reviewed numerous Sustainability SLOs, including, but not limited to the following:

- Student Learning Outcomes for Sustainability: Assessment Materials Guidebook, American College Personnel Association, Sustainability Taskforce.
- STARS Database of Sustainability Learning Outcomes, American Association for Sustainability in Higher Education (AASHE), which includes over 700 member, 267 are in the database.
- Sustainability Improves Student Learning, a group of academic associations and disciplinary societies working together to:
  - increase students' learning in undergraduate courses, and
  - better prepare students for the 21st-century "Big Questions" that relate to real-world challenges such as energy, air and water quality, and climate change.

Appendix A includes examples of Sustainability SLOs drawn from these sources.

Essentially all Sustainability SLOs focus on three broad areas

1. understanding the environmental sustainability problem, and its dimensions from the local to global scales
2. understanding solutions to the sustainability problem, where those solutions must address the needs of the all people
3. inspiring a sense of responsibility in students and empowering them to act

In practice, understanding environmental sustainability problem is often broken down into a number of SLOs:

- Understanding the dependence and interconnectedness of people and nature
- Understanding how human activities disrupt earth’s life support systems
- Understanding the limits of nature to provide the resources and services that support human societies and the limits of its resilience to the environmental stresses resulting from human activities

The FSG recommends that a course that meets the criteria for the University Sustainability Requirement should meet ALL of the SLOs. Students should not be studying these problems independent of solutions. It engenders hopelessness and apathy. But solutions cannot be understood without understanding the problems. We want students to act responsibly, but without understanding the problems and the solutions they cannot do so. Therefore, the FSG recommends that all of those areas must be addressed in any course meeting the University Sustainability Requirement.

Appendix B includes examples of how the proposed SLO’s and their inherently interdisciplinary subject matter might be implemented in various subject contexts.
APPENDIX A:

Examples of Sustainability SLOs from Various Consortia and Institutions

**Sustainability Taskforce of the American College Personnel Association (Synthesis)**

1. Each student will be able to define sustainability and understand the dynamics that undermine it.
2. Each student will be able to explain how sustainability relates to their lives and their values, and how their actions impact issues of sustainability.
3. Each student will be able to utilize their knowledge of sustainability to change their daily habits and consumer mentality.
4. Each student will be able to explain how systems are interrelated.
5. Each student will learn change agent skills.

**SISL: Sustainability Improves Student Learning (Consortium)**

1. Students will be able to define sustainability.
2. Students will be able to explain how sustainability relates to their lives and their values, and how their actions impact issues of sustainability.
3. Students will be able to utilize their knowledge of sustainability to change their daily habits and consumer mentality
4. Students will be able to explain how systems – ecosystems, individual humans in society – are interrelated.
5. Students will learn change agent skills.
6. Students will learn how to apply concepts of sustainability to their campus and community by engaging in the challenges and solutions of sustainability on their campus.
7. Students will learn how to apply concepts of sustainability globally by engaging in the challenges and the solutions of sustainability in a world context.
San Francisco State

After completion of a course designated as fulfilling the environmental sustainability requirement, students will be able to do at least two of the following:

1. demonstrate how their personal activities impact the environment, and as a result affect the health and well-being of themselves and society.

2. analyze how the well-being of human society is dependent on ecosystems and the materials and services they provide to humanity.

3. explain the interconnectivity of economic prosperity, social equity and environmental quality.

4. identify the most serious environmental problems globally and locally and explain their underlying causes and possible consequences.

5. students will be able to create models, products, designs or creative representations that highlight an understanding of the connections between people, processes and the environment.

Monterrey Institute of Technology and Higher Education, Nuevo León, Mexico


1. An understanding of the ethical responsibility, towards present and future generations.

2. A knowledge of contemporary issues (taken from ABET[1]).

3. An understanding of the carrying capacity of ecosystems, in order to provide services to humankind.

4. An understanding of the social responsibility as a future professional, and as a citizen.

5. An understanding of the impact that human activities have on the Planet, regarding sustainable and unsustainable resources appropriation.

**Higher Education Associations Sustainability Consortium** and **Disciplinary Associations Network for Sustainability**


1. Each student will be able to define sustainability.
2. Each student will be able to explain how sustainability relates to their lives and their values, and how their actions impact issues of sustainability.
3. Each student will be able to utilize their knowledge of sustainability to change their daily habits and consumer mentality.
4. Each student will be able to explain how systems are interrelated.
5. Each student will learn change agent skills.
6. Each student will learn how to apply concepts of sustainability to their campus and community by engaging in the challenges and solutions of sustainability on their campus.
7. Each student will learn how to apply concepts of sustainability globally by engaging in the challenges and the solutions of sustainability in a world context.
APPENDIX B:

Examples of how sustainability SLOs might be implemented in the context of a broad array of subject areas.

1. **Students should be able to discuss different aspects of sustainability: its environmental, social, and economic dimensions and should understand central related concepts.**
   
   Example course learning outcomes:
   
   ● Sustainable development as described in the 1987 Brundtland Report.
   ● The “3 E’s” of sustainability (environment, equity, and economy)
   ● The “triple bottom line”, also known as the “3 P’s” (planet, people, and profit)

   **Examples of central concepts:**
   
   ● tragedy of commons
   ● resource limits
   ● carrying capacity
   ● ecosystem services
   ● physical constraints on energy and materials
   ● biodiversity

2. **Students should be able to articulate key threats to environmental sustainability.**
   
   Example course learning outcomes:
   
   ● Understand the scientific, social, political, and economic causes of anthropogenic climate change.
   ● Understand the combined impact of population size, resource consumption, and technology choices on earth’s life support systems (I=PAT)
   ● Understand how the economic growth paradigm systematically undermines the potential to achieve sustainability.
   ● Understand how environmental externalities and market failures undermine environmental and economic sustainability.
   ● Understand the environmental, economic, psychological, and social aspects of the tragedy of the commons.
   ● Understand how economic discounting undermines intergenerational resource equity and sustainability.

3. **Students should be able to articulate the local, regional, and global sustainability implications of their individual and professional actions and choices, and the importance of intercultural understanding and tolerance for a just and sustainable world.**
4. **Students should understand the interconnectedness, exchanges and feedbacks between human activities and natural systems.**

   **Example course learning outcomes:**
   - Understand and describe society’s dependence on ecological services and the impact of human activities on the ability of the planet to support those services.
   - Understand and explain anthropogenic impacts on climate and dynamic feedbacks that amplify the effects of human activities.
   - Understand and explain impacts of modern agricultural practices on pollinators, and their subsequent effects on crop yields.
   - Understand and give examples of how synergistic effects and cumulative impacts can result in unintended and unanticipated consequences, and irreversible threshold effects.

5. **Students should be able to describe prominent existing or emerging strategies to achieve sustainability.**

   **Example course learning outcomes:**
   - Understand how local, regional, and national governments are promoting sustainability through design, planning, implementation, and enforcement.
   - Understand how sustainable resource management techniques can and are being used to preserve, protect, and enhance the environment, quality of life, and equitable income distribution for current and future generations.
   - Understand how sustainable tourism provides a path to promote global peace, conserve a destination’s built and living cultural heritage, and ensure viable and long-term economic operations.
   - Understand how environmental advocacy can and is being used to promote progress toward sustainability and environmental justice.
   - Understand how environmental law, regulations, and treaties can and are being used to promote progress toward sustainability.
   - Understand how transnational networks can and are being used to support marginalized populations in protecting traditional peoples and the ecosystems they depend on for survival.
   - Understand how sustainability issues are addressed in macro-economic and micro-economic approaches and metrics (e.g. steady state economics, natural capitalism, genuine progress indicator, environmental externalities, full-cost accounting).
   - Understand how business practices can and are being modified to support the Three P’s of sustainability.
   - Understand how different technology characteristics and dissemination patterns affect the potential for environmental, economic, and social sustainability.