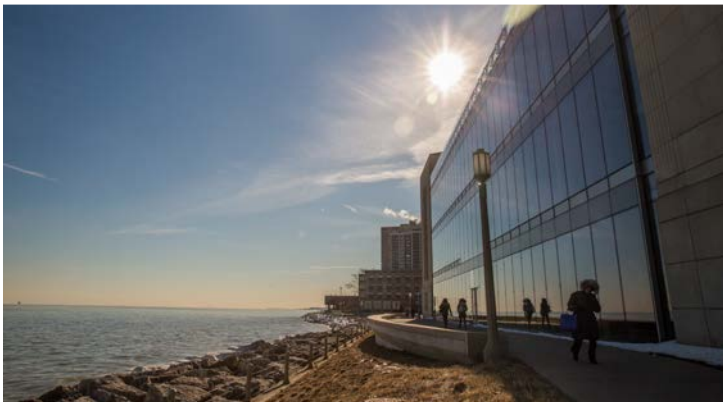


# Sustainability Across the Curriculum

# Report and Recommendations

## LOYOLA UNIVERSITY CHICAGO



# Sustainability Across the Curriculum Working Group

## Loyola University Chicago

### Spring 2018

This report is organized by the following sections:

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#### **Background-**

In the summer and fall of 2016, a group of Loyola faculty and administration convened in a series of meetings to discuss the role sustainability can take in the academic culture of Loyola. Already recognized as one of Loyola's key values towards social justice, sustainability concepts have many roles to play in strengthening and engaging various aspects of the curriculum. The working group undertook a process of dialogue and reflection to define 'Sustainability Across the Curriculum' learning outcomes and competencies and championed an inventory of these efforts across Loyola's schools and academic programs. This survey took place during January 2017, administered by the Department of Institutional Research. This report serves as a repository of the process and the results of these efforts.

*Many thanks to the members of the committee, the Department of Institutional Research, and the Office of the Provost for their support of this work*

## Academic Highlights-

As an institutional value, sustainability is an important concept to incorporate into the academic setting, no matter the discipline. While sustainability has a very specific application for higher education, this can take different permutations depending on the discipline and intervention, from highly applied to theoretical. Loyola has committed to sustainability as an aspect of our mission of social justice. Sustainability manifests at Loyola in the following “proof points”:

- 42.9% of incoming first-year students reported that sustainability was important or very important in their decision to attend Loyola. (Enrollment Management, 2016)
- Loyola currently offers 14 academic programs (Masters, Bachelors, Minors) that directly address sustainability.
- Over 4,000 students participated in engaged learning through their courses in 2016-17. Of these 45-50% were related to sustainability topics.
- Approximately 450 students participated in Living-Learning Communities in 2016-17. 78 of those students were enrolled in the GreenHouse Learning Community, a sustainability-themed community.
- Approximately 200 students participated in Alternative Break Immersions in 2016-17. Of these, 35% addressed sustainability topics.
- Over 1,384 courses at Loyola are focused on sustainability or incorporate one of the sustainability learning outcomes identified by Loyola.
- Loyola has reduced its greenhouse gas emissions over 22% since 2008 with a goal of becoming carbon neutral for campus energy use by 2025.
- Loyola is a Gold rated institution under the Sustainability Tracking, Assessment and Rating System (STARS) credentials from the Association for the Advancement of Sustainability in Higher Education (AASHE).

*We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental. Strategies for a solution demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature.*

Pope Francis (5/24/15, Laudato Si', no. 139)

## Working Group Members-

- Michael Agliardo, SJ, PhD, *former* Assistant Professor, Sociology Department
- Daniel Amick, PhD, Associate Professor, Anthropology Department, & Assistant Director, Institute of Environmental Sustainability
- Jo Beth D'Agostino, PhD, Associate Professor, & Associate Provost for Curriculum Development, Academic Affairs
- Aaron Durnbaugh, LEED AP, Director of Sustainability
- William French, PhD, Associate Professor, Theology Department
- John Frenndreis, PhD, Professor, Political Science Department
- Patrick Green, EdD, Director, Center for Experiential Learning & Clinical Instructor of Experiential Learning
- Justin Harbison, PhD, Assistant Professor, Public Health Sciences
- Robyn Mallett, PhD, Associate Professor, Psychology Department
- Anne Reilly, PhD, Professor, Quinlan School of Business
- Carol Scheidenhelm, PhD, Director, Faculty Center for Ignatian Pedagogy
- Tania Schusler, PhD, Advanced Lecturer, Institute of Environmental Sustainability

*The natural environment is closely related to the social, political and economic environment. It is urgent for all of us to lay the foundations of an integral ecology –this is a question of health –an integral ecology capable of respecting all these human dimensions in resolving the grave social and environmental issues of our time. . . . An integral ecology . . . supposes an ecology of mother earth: taking care of mother earth; with a human ecology: taking care of ourselves; and a social ecology, in the strong sense of the word.*

Pope Francis (7/8/15)

## Sustainability Learning Objectives –

Over 1,384 courses at Loyola focus on sustainability or incorporate one of the learning outcomes listed below. Faculty can incorporate sustainability into their teaching by providing case-studies, peer examples, and discipline-specific curricular resources. Upon completion of a sustainability-related or -focused course, students will be able to:

### Knowledge

- Explain how biophysical and social systems are interdependent and interact to prevent or foster sustainability.
- Describe how sustainability relates to environmental issues, social justice and economic development.
- Reflect and provide examples of how sustainability relates to one's area of study or discipline.

### Values

- Articulate and demonstrate a personal philosophy or commitment to address sustainability in one's personal life, community involvement and civic engagement.
- Articulate and demonstrate a commitment to promote a more just and humane society within a sustainable global environment.

### Skills

- Articulate a long-term vision for individual, societal and ecological well-being.
- Demonstrate ability to apply sustainability through engaged learning on campus or in their community.
- Develop and demonstrate skills as a strategic change agent in the context of sustainability. *See skills list below. A course must demonstrate that it explicitly relates to sustainability as defined on page 1 to be included in the inventory.*

### Change Agent Skills

- Ability to develop and communicate a long-term vision.
- Capacity to consider temporal scales across past and future generations.
- Ability to consider geographic scales and understand and apply spatial differences.
- Ability to integrate or synthesize existing knowledge to create new learning.
- Capability for reflection, contemplation, or discernment as a practice.
- Ability to be adaptable and/or resilient.
- Capacity to engage and work with other disciplines, cultures, sectors or groups.

- Ability to utilize interpersonal skills to connect around shared challenges or goals.
- Ability to apply systems thinking.
- Ability to listen with openness.
- Ability to translate understanding into action.
- Ability to cope with complexity.
- Ability to act as a civic agent, engaging in social and political activities.
- Ability to conduct audits and use indicators to identify trends, thresholds and tipping points.
- Ability to develop and assess strategies, knowing they are incomplete, imperfect or temporary.

Sustainability Across the Curriculum recognizes classes that address sustainability competencies including systems thinking, applying context to issues, interdisciplinary problem solving, and capacity to analyze or synthesize new knowledge from existing data as it relates to environmental, social and economic issues. It works across theory, policy, communications, research, and other practices to integrate and advance a better world for all.

## CASE STUDY

### **Anthropology 104E – The Human Ecological Footprint**

Students in this course learn about historical and global trends in human impacts on the planet and what is driving them. To augment classroom learning, they design research on the consumption and waste disposal habits at our campus. In addition to the study of campus garbage, students are assigned guided reflection essays to help them consider the environmental sustainability of their own consumption and waste discard behaviors and how to change them. This connects to the sustainability competency of understanding individual and collective consequences.

**Faculty Member: Dr. Dan Amick, Anthropology**

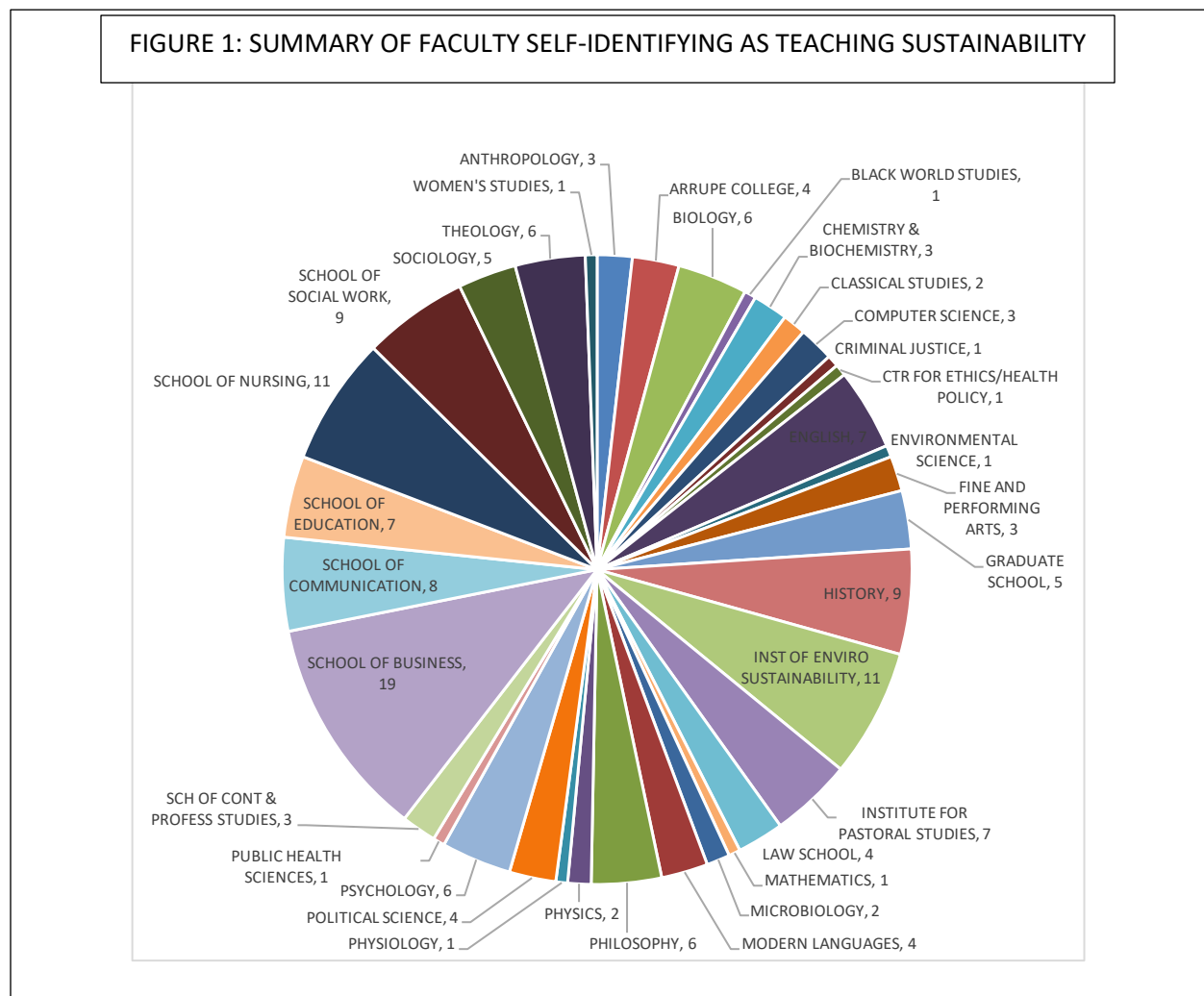


Students conducting a waste audit as part of an Anthropology course on consumption patterns.



## Sustainability Across the Curriculum Inventory –

Loyola is committed to advancing sustainability across the curriculum. In January of 2017, Loyola undertook a survey of faculty to self-identify those courses that are sustainability focused or address some aspect of sustainability. A general survey was conducted as well as targeted outreach to faculty that were known to incorporate sustainability aspects in their teaching and/or research. Faculty were asked to identify courses they taught during the 2016-17 Academic Year that met the learning objectives listed. Of the 1,689 faculty that received the survey, 400 responded (Figure 1).



Listed in Appendix B are courses that are either sustainability focused or sustainability related. If you know of other courses that should be listed, please [contact](#) the Office of Sustainability to include them. For current course offerings, see [LOCUS](#).

## Core Curriculum & Sustainability-

At Loyola, all undergraduates are required to complete the core curriculum along with the coursework of their degree program. This common curriculum addresses a number of important topics including sustainability. Most significantly, in 2012, Environmental Literacy was incorporated as a requirement for non-science majors under the 'Scientific Literacy' requirement in the form of UCSF 137. However, as defined above, sustainability encompasses many facets of economic and social topics. To reflect this, aspects of the core curriculum that touch on key sustainability learning outcomes are highlighted below (Table 1).

The Loyola University Chicago Core Curriculum seeks to play a key educational role in every Loyola student's undergraduate experience. Designed to provide both breadth and depth to a student's program of study, the Core Curriculum introduces students to key concepts and modes of thought in a variety of areas of human intellectual endeavors. In particular, the Core introduces students to ten central Knowledge Areas of university learning, with a consistent focus on learning outcomes for those Areas. Core coursework develops students' understanding through knowledge and experience in the Knowledge Areas of Artistic, Historical, Literary, Quantitative Analysis, Scientific Literacy, Societal and Cultural, Philosophical, Theological and Religious Studies, Ethics plus written communication. These requirements reinforce the development of six Skills crucial to facing the challenges of contemporary society. Each course promotes at least one of the following skills: communication, critical thinking, ethical awareness and decision-making, information literacy, quantitative and qualitative analysis and research methods, and technological literacy.

Finally, these courses integrate the understanding and promoting of four Values essential to a Loyola education: understanding diversity in the nation or the world; understanding and promoting justice; understanding spirituality or faith in action in the world; and promoting engaged learning.

To complete the Core and University Curriculum, students take 16 courses across ten Knowledge Areas. Two courses are required in six of these areas (Historical Knowledge, Literary Knowledge and Experience, Scientific Literacy, Societal and Cultural Knowledge, Philosophical Knowledge, and Theological and Religious Studies Knowledge) Students begin their studies in these six areas with a foundational (or Tier I) course that introduces them to critical ideas and methods of analyses in that area. After completing the foundational course, students have an array of options to further their studies by taking one of a variety of Tier II classes to pursue their particular interests in more depth. The other four areas (College Writing Seminar, Artistic Knowledge and Experience, Quantitative Literacy, and Ethics) require one course each.



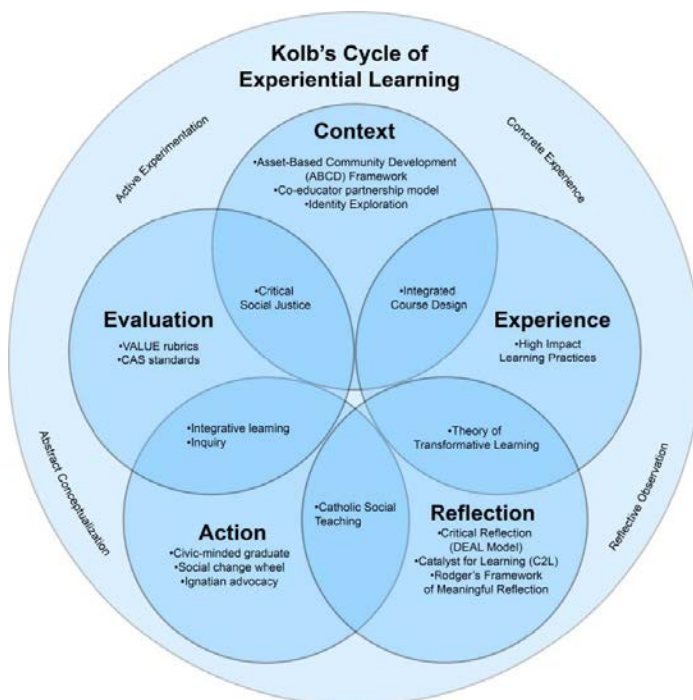
**Table 1: Learning Outcomes and Competencies in the Core Curriculum that align with the Sustainability Learning Objectives listed above.**

<b>Knowledge Area</b>	<b>Core Curriculum Sustainability-Related Learning Outcomes</b>	<b>Core Curriculum Sustainability-Related Competencies</b>
<b>Scientific Literacy</b>	Scientific literacy provides individuals with fundamental principles, concepts, and knowledge of the sciences, and introduces them to the methodology of scientific inquiry. It prepares them to make reasoned and ethical judgments about the impact of science on the individual, community and society.	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of the fundamental principles, concepts, and knowledge of the sciences.</li> <li>• Demonstrate the capacity to make reasoned and ethical judgments about the impact of science on the individual, community, and society.</li> <li>• Demonstrate the capacity to utilize scientific knowledge to promote the health and well-being of the individual, community, and society.</li> <li>• Demonstrate an understanding of the interconnection among the various components of Earth's biosphere and the impact of human activity.</li> </ul>
<b>Societal &amp; Cultural Knowledge</b>	Graduates should understand...the values that constitute the human condition and collective as a society; the political, economic, and social systems of states and societies [including] knowledge of one's own development, self, identify, culture, and state.	<ul style="list-style-type: none"> <li>• Differentiate among historical and contemporary perspectives about the world with a view to fashioning a humane and just world.</li> <li>• Demonstrate an understanding of how our individual self concepts form as a complex interaction of the biological, familial, societal, and cultural contexts in which we develop.</li> </ul>
<b>Philosophical Knowledge</b>	Students should develop intellectual attitudes that enable them...to formulate and defend solutions to philosophical issues, including ethical issues.	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of major philosophical questions with careful attention to the historical and conceptual development of these questions.</li> </ul>
<b>Quantitative Analysis</b>	Quantitative analysis enables one to understand and analyze quantitative information presented in various formats. It involves reasoning by symbolic, numerical, or geometrical means; determining various ways to solve problems; and predicting possible consequences.	<ul style="list-style-type: none"> <li>• Recognize the limitations of mathematical and statistical models.</li> <li>• Develop an understanding of the rudiments of statistics, including sampling and hypothesis testing, and the uses of statistical reasoning in everyday life.</li> </ul>
<b>Ethics</b>	Developing a student's ethical awareness, reflection, and decision-making ability is central to a Core Curriculum.	<ul style="list-style-type: none"> <li>• Recognize the need for ethical judgment.</li> <li>• Distinguish alternative courses of action.</li> <li>• Articulate the relevant ethical values, principles, rights, and virtues from the point of view of each stakeholder.</li> </ul>

## Experiential Learning & Sustainability -

One of the priorities of Loyola's undergraduate education is our focus on experiential learning. In 2012, the University instituted a requirement of all undergraduate students to complete at least one Engaged Learning course prior to graduation. With support from the Center for Experiential Learning, students take courses designated as incorporating service-learning, undergraduate research, public performance, fieldwork, or academic internships. These courses seek to combine service-learning experiences and critical reflection on those experiences to create engaged, justice-oriented citizens through integrative learning for community impact (Figure 2).

FIGURE 2: CENTER FOR EXPERIENTIAL LEARNING'S CONCEPTUAL FRAMEWORK



Sustainability is deeply embedded within all five of the categories for experiential learning. Every semester, Loyola's 40-45+ service-learning courses across 30 departments encourage students and faculty to apply course concepts to real-world problems and collaborate with community organization partners to make the world a better place. Many of these courses – which range from Environmental Ethics to Health Equity - address issues related to sustainability broadly considered, including aspects of economic and social/community sustainability.

Sustainability-related learning opportunities are also available through undergraduate research and fieldwork. In

the 2016-2017 academic year, 262 students received research funding through the Loyola Undergraduate Research Opportunities Program (LUROP). Ranging across 30 different majors, these students were engaged in a variety of research questions that seek to address how to create a more just and sustainable world through public health, public policy, climate change, social justice, education, ecology, and more.

Academic internships bring the knowledge and theory learned in the classroom into a professional setting to facilitate action and impact for organizations and businesses in Chicago and beyond. In 2016-2017, 1,244 students from 35 disciplines registered for internship courses. 70% of these students served at a public service or non-profit organization, helping to further the impactful efforts of those groups and to build organizational impact, vibrancy, and capacity despite limited resources.

In total, over 4,000 students worked with 840 community partners to provide 183,000 hours of service valued at over \$4 million in goods and services during 2016-2017, according to the Center for Experiential Learning and Independent Sector.

The eleven learning competencies outlined by the Center for Experiential Learning also relate to those defined as Sustainability Change Agent Skills listed on pages 4 and 5 of this report.

### **Justice-Orientation**

- Identify underlying systemic structures contributing to complexity of community issues
- Apply learning to address identified community issues
- Facilitate freedom of inquiry, pursuit of truth, and care for others, working toward the common good

### **Social Engagement**

- Identify personal role and responsibility to work toward the common good
- Actively demonstrate commitment to community issue
- Demonstrate civic skills and participation to contribute to social change
- Articulate current events and complexity of issues in modern society locally, regionally, nationally, or globally

### **Values-Based Leadership**

- Act responsibly with the interest of the larger community in mind
- Leverage strengths of others to achieve common goals
- Utilize interpersonal skills to develop others
- Assess and utilize empathetic skills to guide and motivate

### **Dialogue in Community**

- Communicate (in writing and orally) with others, and listen to divergent points of view
- Create dialogue with multiple constituencies, including community members
- Practice active listening
- Identify opportunities for multi-modal communication

### **Collaboration**

- Build collaborative relationships with colleagues representing diverse cultures, races, ages, genders, religions, lifestyles, and viewpoints
- Work within a team structure, negotiate and manage conflict, and develop shared goals working toward a larger vision
- Work with others, including those with diverse opinions, and work across differences to come to an agreement or solve a problem

### **Global Awareness**

- Value, respect, and learn from diverse cultures, races, ages, genders, sexual orientations, and religions
- Demonstrate openness, inclusiveness, sensitivity, and the ability to interact with all people and understand individuals' differences
  - Identify how the world's people and societies are interrelated and interdependent

### **Self-Efficacy**

- Exercise sound reasoning to analyze issues, make decisions, and overcome problems
- Obtain, interpret, and utilize knowledge, facts, and data in this process
- Demonstrate originality, innovative ideas, and inventiveness

### **Intentionality**

- Articulate an action plan to be personally involved in community service in the future
- Demonstrate realistic disposition that the action will produce the desired results

### **Project Management**

- Completes a staged project through different stages of initial ideas, developing research questions, methodology, implementation, data analysis and interpretation, assessment, and evaluation
- Facilitate stages of project on a timeline to completion, with personal accountability and effective professional work habits, e.g., punctuality, working productively with others, time workload management

### **Critical Reflection**

- Make meaning of experiences in connection with academic knowledge, personal experiences, and civic development
- Demonstrate critical perspectives and analysis
- Cultivate reflective practice
- Demonstrate new frames of reference emerging from connections between experiences

### **Integrative Learning**

- Make connections across learning contexts
- Connect knowledge, skills, values, ethics, and behaviors together
- Identify patterns and themes across experiences
- Articulate meaning in relation to life context

*A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.*

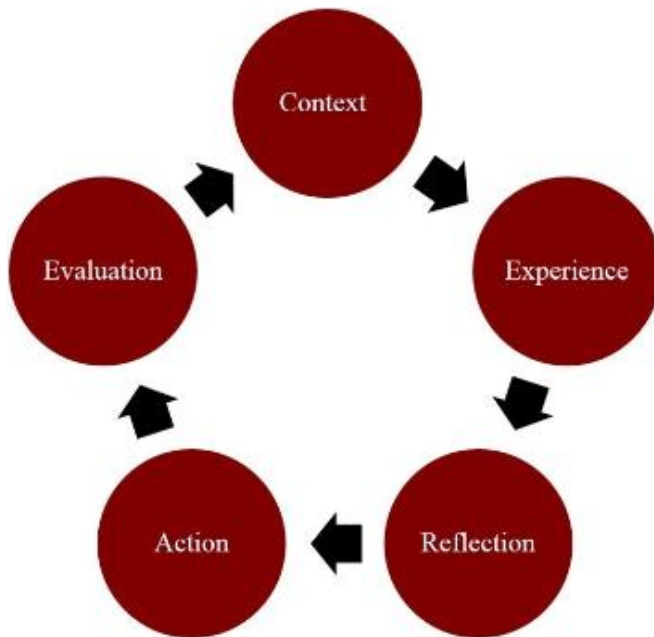
-Aldo Leopold

## Ignatian Pedagogy and Sustainability

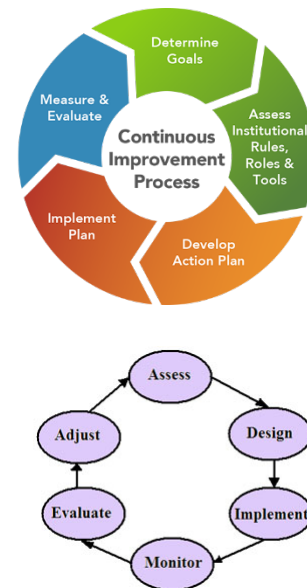
(Adapted from *Five Themes of Ignatian Pedagogy for Sustainability* by Kathleen Smythe and Jay Leighter)

Ignatian Pedagogy is a paradigm for approaching learning that seeks personal growth through ethical orientation, no matter the discipline, institution or room. Introduced in 1993, the Ignatian Pedagogy Paradigm calls for integration of context, experience, reflection, action, and evaluation.

FIGURE 3: IGNATIAN PEDAGOGY PARADIGM



FIGURES 4 & 5: CONTINUOUS IMPROVEMENT PROCESS AND ADAPTIVE MANAGEMENT CYCLE



There are clear similarities to approaches used in Sustainability Science to create change within complex systems. Referred to as the Continuous Improvement Cycle, Adaptive Management, or with other terms, a reflective process improves the subject of the effort while creating improvements.

Incorporating the following strategies into teaching practice may help students move into meaningful learning practices; Active Learning Strategies, Opinion Polls, Reflective Activities, Student-Generated Content, and frank discussions about why subject matter is important to your discipline, to a general education, or contributes to becoming a more informed member of society. Additional resources are available through the [Faculty Center for Ignatian Pedagogy](#).

Source: Faculty Center for Ignatian Pedagogy and [AICU Ecology Educators](#) hosted at Xavier University.

## Sustainability Research –

As part of the survey described earlier, Loyola faculty were invited to indicate if they conducted research that addressed at least one of Loyola’s sustainability learning objectives. Nearly one quarter (24%) of the 200 responding faculty members indicated that their research addressed sustainability within the context of their own discipline. This number includes at least one faculty member in every school across the University, including Arrupe College, and in fifteen disciplines within the College of Arts and Sciences. An overview of these research projects is provided in Appendix C.

The results of this survey indicate that faculty are thinking about sustainability topics in diverse ways that emphasize interdisciplinary inquiry. The research that faculty engage in elevates and emphasizes Loyola’s commitment to sustainability across all disciplines. Engaging diverse faculty across different disciplines on topics related to sustainability also provides key opportunities for undergraduate and graduate students to engage with sustainability research in tangible ways beyond the classroom.

### CASE STUDY

#### “The Evolving Role of the Chief Sustainability Officer: Responsibilities, Attributes, and Impacts”

Dr. Anne Reilly was awarded a Gannon Center for Women and Leadership Faculty Fellowship to fund her research on the gender composition of executive leadership and its impact on corporate sustainability in firms ranked highly by Newsweek’s global “Green Rankings.” Working with three undergraduate student researchers, Reilly and her team concluded that women leaders are highly visible in key executive roles related to sustainability when compared with their male counterparts, fostering an opportunity for more female corporate leadership. This connects to the sustainability competencies of understanding the relationship between sustainability, social justice, and economic development; explaining how social systems are interdependent and interact to prevent or foster sustainability; and articulating a long-term vision for individual and societal well-being.

**Faculty Member: Dr. Anne Reilly,  
Professor of Management,  
Quinlan School of Business**



Professor Anne Reilly (center) with two of her undergraduate research students, Deanna Cabada, BS '17 (left) and Anna Chudzinski, BA '18 (right).



## Recommendations-

The working group suggests the following recommendations for increasing sustainability learning opportunities across the curriculum-

1. Develop additional sustainability-related courses and degree programs targeted to graduate and professional students, and encourage faculty to integrate sustainability into their courses in one of the following ways:
  - a. Include a dedicated unit on sustainability related to the course topic
  - b. Participate with students at a sustainability-related campus event or program connected to a course assignment
  - c. Connect to a sustainability-related community organization for engaged learning opportunities
  - d. Add a sustainability reading and/or assignment connected to the course topic
  - e. Explicitly state sustainability learning outcomes in syllabi
2. Develop a program to recognize current sustainability-focused courses. Concepts include special listing courses in LOCUS, a 'Sustainability Distinction' program, or a minor in sustainability sciences.
3. Develop additional resources to support faculty incorporating sustainability into their teaching, such as providing a course release to develop new sustainability-related courses or degree programs and / or developing a fellows program for faculty interested in integrating sustainability in their courses.
4. Develop new resources to support faculty incorporating sustainability into their research or the research opportunities they provide for students. This could be incorporated into LUROP or through other support such as data sets, flexible space, or partnerships.
5. Develop a means for faculty and staff to share resources related to sustainability in their teaching, research, or other activities. This could be regular Brown Bag series of talks, a more substantial part of the annual Focus on Teaching and Learning Symposium, or an online collection of resources.

*A transition to sustainability involves moving from linear to cyclical processes and technologies. The only processes we can rely on indefinitely are cyclical; all linear processes must eventually come to an end.*

-Dr. Karl Henrik-Robert, MD, founder of The Natural Step, Sweden

## Appendix

- A. SAC Faculty Survey 2017
- B. 2017 Sustainability Course Inventory
- C. SAC 2017 Sustainability Research Inventory
- D. SAC Resource for Faculty
- E. Book and Article Resources
- F. Footprint Calculators
- G. Loyola Sustainability Resources
- H. SAC Examples from Other Campuses

*Sustainability is equity over time. As a value, it refers to giving equal weight in your decisions to the future as well as the present. You might think of it as extending the Golden Rule through time, so that you do unto future generations as you would have them do unto you.*

-Robert Gilman, Director, Context Institute