CENTER FOR SUSTAINABILITY

March 15, 2017 update

Proposal for a new degree program:
Innovation in Sustainability

"Developing an environmentally sustainable society one solution at a time."

Request for Faculty Course Proposals:
We invite LIU Post faculty to help construct a new undergraduate degree program in "Innovation in Sustainability." This program is interdisciplinary and invites students to solve local, regional, and global problems. The Center has funding to support mini-grants for innovative teaching and courses. Please fill out the course proposal form and indicate if funding is necessary.

Following several ad hoc discussions in Fall 2016 and two faculty retreats hosted by the College of Liberal Arts and Science, Faculty in the College of Liberal Arts and Science and the College of Management are invited to participate in a collaborative effort this March and April to develop a new degree program that spans the social sciences, physical sciences, and management.

The goal is to equip students with knowledge of sustainability that spans the local and global dimensions of sustainability and provide students with the tools they need to develop innovative solutions to existing and emerging problems in environmentally-sustainable manner. Thematic areas of interest include (but are not limited to):

We are open to a variety of course topic areas for this new major, and strongly encourage classes that offer students an interdisciplinary learning environment. Thematic areas to consider for your course proposals include the following:

- Sustainable Development (UN Sustainable Development Goals)
- Business Marketing, Entrepreneurship, Accounting, Finance and Sustainability
- Climate Change, Resiliency, and Vulnerability
- Communications, Social Marketing and Media
- Eco-Tourism
- Earth Systems (Biodiversity, Climate and Water Systems, Food and Soils, Energy System)
- Energy Systems
- Environmental Justice
- Ethics
- Economics (Ecological, Micro, Geography, Circular and Regenerative)
- Farm to Table: Food & Sustainability; Permaculture and Regenerative Design
- Geography: Urban - Rural Models of Sustainable Planning
- Globalization, Global Citizenship, and Global Food Systems
- Grassroots Driven, Bottom-up Solutions

- Information Technology: Building Sustainable Apps
- Internships/Field Experiences
- Political Systems (Geopolitics, Nationalism, Citizenship)
- Quantitative Reasoning/Statistics
- Research Methods
- Social Change and Social Movements (Gender, Race and Inequalities)
- Strategic Planning/System Dynamics
- Sustainable Marketing
- Sustainable Suburbs and Cities

We want students in this major to have a rich set of experiences in and out of the classroom:

- Guest speakers motivate students and connect classrooms to off-campus sustainability networks.
- Faculty connect students to their professional networks for research and internship opportunities.
- Cooperative or collaborative learning models draw students into active modes of inquiry. The Center is working collaboratively with the core curriculum Learning Communities to create collaborative learning models and opportunities for experiential learning.
- Place-based learning helps students to understand and experience that local ecologies and communities are essential to sustainability. Consider adding bioregional and watershed models into your courses.
- Field trips inspire students, expand their perspectives, and offer internship opportunities. Faculty in the Center regularly host field trips to the United Nations, local farms, events in NYC and Long Island, conferences, and more. The Center provides a collaborative resource for faculty to work together on community engagement.
- Classroom projects. gardens, renewable energy projects, green roofs, LEED certified green buildings are just a few of the many projects pursued on regional campuses. Our goal is to develop Post into a sustainability laboratory.
- Community engagement. Building campus – community relationships is essential to any college campus. These connections strengthen student contact with entrepreneurs, civic leaders, culturally diverse communities, local scholars and many other “hidden” resources. The Center can help faculty develop service learning project with local organizations.
- Global engagement. With Post’s proximity to New York City, the Center wants to cultivate campus global awareness. The UN’s new Sustainable Development Goals is one of dozens of regionally based campaigns that faculty and students can easily access.

What follows is a preliminary outline of courses for the major. In addition to courses required for the major, we want faculty to understand that students will want to take additional content courses beyond these degree requirements. We want to work with faculty across all programs to ensure students understand the rich array of sustainability related courses that are offered each semester. We also ask you to consider developing new minors in content areas that would complement this major. The following is a draft of the new degree program requirements:

<u>Required Courses:</u>
Intro to Sustainability 3cr
EVS Lab 1 4cr
EVS Lab 2 4cr
Careers in Sustainability 1 cr

EVS Research/Quantitative Methods 3 cr
Capstone: Innovative Solutions + ePortfolio 3 cr
Experiential class 3 cr
Study abroad/internship 3 cr
ECO 49 Economics of the Environment 3 cr

Choose 2 (6 cr):
Entrepreneurship & Sustainability
Project Management
Greening Finance
Sustainable Accounting

Choose 3 (special topics, upper division interdisciplinary courses) (9 cr):
Information Technology, Social Media, Multimedia/Virtual Reality and Sustainability
Marketing & Sustainability
Technological Innovation & Sustainability
Social movements, social change, etc.
Food and Society
Climate Change and Sustainability
Energy Systems
etc.

<u>By completing this program, students will have:</u>
1) Taken at least one year of internship, study abroad, or other forms of focused experiential learning with a goal of expanding students' social networks, building their critical thinking & problem solving skills, and creating career opportunities.
2) Taken one year of business, finance, or marketing courses with a focus on sustainable and innovative business models.
3) Built a strong foundation in the key theories and concepts of environmental sustainability, environmental science, and global sustainable development.
4) Learned essential research methods and translated those skills to a finalized research project (either a thesis paper, new technological solution, business proposal, or more).
5) Organized their coursework into a well-designed ePortfolio for use in graduate applications and career searches.
6) Formally reflected upon their four years of interdisciplinary work and integrated that assessment into their ePortfolio.
6) Worked systematically as individuals and in groups on solving important problems related to climate change, poverty, inequalities, water, land, and more.
7) Engaged with campus and community projects on sustainability.
8) An interdisciplinary training in sustainability issues from the local to the global, grounded in courses in the social & physical sciences, and business & management.
9) Received career development assistance through advising, experiential learning opportunities, and course work.

(See Appendix 1 for additional ideas on developing a stronger focus on food sustainability.)

Purpose of the Center for Sustainability

In 2016 LIU Post launched its new Center for Sustainability, which builds upon over six years of campus initiatives to enhance sustainability on campus and in our community. The Center provides a base for connecting faculty and students so that they may explore important interdisciplinary questions. The Center's mission is to expand interdisciplinary education and research opportunities on and off campus, such that all LIU Post students graduate with a clear understanding of basic sustainability principles. By giving students these learning skills, we believe they will be prepared to meet personal and professional goals.

The Center for Sustainability offers important new interdisciplinary opportunities for faculty and student collaborations, and for improving course content and teaching modalities across the campus and university. This is an initiative that necessitates broad involvement and there are many ways for all LIU Post academic programs to become involved!

Our Approach to Sustainability

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This requires using the world's natural resources sustainably. It also requires a strong commitment to human rights. The United Nations Sustainable Development Goals is the latest global effort to make substantial international improvements; it covers the social, economic, and environmental aspects of sustainability. There are many interacting components of environmental sustainability Issues. Here are a few of those key subsystems:

- Science/Technical - scientific understanding of natural resource and environmental problems, methods of mitigating environmental issues, developing sustainable resource cycles that maintains the local and global environment

- Economics - comparison of the costs of conventional resource cycles vs. environmentally "benign" resource cycles, considering not simply the cost of mining, usage, and disposal of wastes as at present, but also considering all the long-term costs related to resource depletion and environmental damage; development of economically sustainable models

- *Social/Political* - the decision-making process; considers who benefits and who is harmed under the conventional system vs. proposed sustainable solutions; considers the equitable distribution of resources and environmental impacts; the political and regulatory mechanisms by which sustainable solutions can be made

LIU Post: A Sustainable Campus

Education is one of several key elements for becoming a sustainable campus. Ideally all students that graduate from Post will have a basic understanding of sustainability through the core curriculum.

Core Curriculum:

Working with Prof. John Lutz, several Fall 2017 freshman classes will work collaboratively with our students on sustainability topics. The goal is to strengthen student learning outcomes and improve students' sense of identity and connection to the LIU Post campus.

Assessing Campus Literacy in Environmental Sustainability:
What does Post need to become a campus that celebrates and pursues ecological literacy? How should we assess our progress? What metrics are important for measuring student learning? What is needed so that each student who graduates from LIU Post has achieved a basic level of environmental sustainability literacy?

Suggested Books and Resources

Aber, John, Tom Kelly and Bruce Mallory, Eds. The Sustainable Learning Community: One University's Journey to the Future. New Hampshire, 2009.

Kahn, Richard. Critical Pedagogy, Ecoliteracy, and Planetary Crisis: The Ecopedagogy Movement. Peter Lang Publishing, 2010.

Murray, Paul. The Sustainable Self: A Personal Approach to Sustainability Education. Earthscan, 2011.

Orr, David. Ecological Literacy: Education and the Transition to a Postmodern World. Albany: State University of New York Press, 1992.

Stibbe, Arran. The Handbook of Sustainability Literacy: Skills for a Changing World. Green Books Press, 2010.

United Nations Sustainable Development Goals, http://www.un.org/sustainabledevelopment/sustainable-development-goals/

Other Degree Programs we like:

Arizona State University.

https://schoolofsustainability.asu.edu/degrees/

Bard College MBA in Sustainability.

http://www.bard.edu/mba/

College of the Atlantic.

https://www.coa.edu/academics/human-ecology-degree/

Dalhousie University.

https://www.dal.ca/academics/programs/undergraduate/ess/what_will_I_learn/sample_courses.html

Green Mountain College.

http://www.greenmtn.edu/academics/undergraduate/majors/sustainable-agriculture-food-production/

Hofstra University.

http://bulletin.hofstra.edu/preview_program.php?catoid=86&poid=12991

Stony Brook University.

http://www.stonybrook.edu/commcms/sustainability/

Western Washington University.

http://catalog.wwu.edu/preview_program.php?catoid=12&poid=5726

https://cbe.wwu.edu/files/PLANNING%20SHEET-Business%20and%20Sustainability.pdf

University of Wisconsin.

http://sustain.wisconsin.edu/sustainability-programs/curriculum-and-courses/bachelors/

For more information, contact
Dr. Scott Carlin, Earth and Environmental Science, Director, Center for Sustainability, 516-299-3404, scott.carlin@liu.edu

Dr. Carol Boyer, Finance, Associate Director, Center for Sustainability, 516-299-1542, carol.boyer@liu.edu

The best way to stay connected with the Center is to join our Listserve at:
https://lists-1.liu.edu/mailman/listinfo/post-sustainability-committee. (A password is optional.)

APPENDIX 1

Farm to Table: Organic Farming and Sustainable Food

Vic DiVenere - 2/13/17

Two-Track Program

I) **Sustainable Vegetable Production**

The Farm Curriculum can form the basis of a (36 credit) certificate program similar to that at Delaware Valley University
keying particularly on military veterans (Yellow Ribbon)

Or a Bachelors Degree (B.S.) program with added Sustainable Food Curriculum courses and LIU Post general core coursework.
All B.S. students will complete the capstone and internship.

II) **Sustainable Food**

A Bachelor or Arts program based on liberal arts and sciences, business, and nutrition coursework from the Sustainable Food Curriculum and the Sustainable Vegetable Production Curriculum. Students will take 1, and only 1, hands-on farm course.
All B.A. students will complete either the capstone or internship.

Post Farm Curriculum

- Sustainable Soil Science *(DiVenere)*

A course exploring the biogeochemical processes in soil, the relationship between the geological and biological agents in soil and the growth of plants (crops), practices that lead to the degradation of soils and loss of crop yields, and practices that can result in enhancement of soil health and long term sustainability of our food supply. Also explores the relationship between soil organic matter, the global carbon cycle, and climate.

- Basic Plant Science for Organic Farmers

The basic biology of plants as it pertains to propagation, nutrient uptake and growth, disease resistance, and predation by pests.

- Organic Farming 101

Exploration of the many methods of organic farming
organic fertilizer - composting
growing crops - from seed to harvest
weed control - mulching vs. tillage
dealing with pests
crop rotation for nutrient, weed, and pest management
season extension - the winter harvest

- The Business of Organic Farming

record keeping and USDA Organic certification
finding a niche in the market place
marketing and sales of farm products: CSA, farmers markets, wholesale
(Carol Boyer suggested Lauren Mayer in Business)

- Organic Farming: Fall

a hands-on course on food production combining classroom learning and field experience on the Post Student Farm growing fall/winter vegetables

- Organic Farming: Spring
  a hands-on course on food production combining classroom learning and field experience on the Post Student Farm growing winter/spring vegetables

- Organic Farming: Summer
  a hands-on course on food production combining classroom learning and field experience on the Post Student Farm growing summer vegetables

- Floriculture: Growing and Marketing Flowers

- Urban Farming
  a course combining lecture and hands-on experience in methods of food production in space-limited urban settings, including rooftop container gardens and vertical gardens.

- Organic Farming Guided Research (Capstone)
  field trial and comparison of alternative methods of vegetable (or flower) production students will grow their own trial plots and present a research paper detailing the background, methods, comparisons, and conclusions

- (Organic) Farming Internship
  All students will intern on an approved farm (ideally organic) to experience the entire business of a commercial farm, from starting seeds, to
  to planting in the field, weed suppression, harvesting, and marketing
  students will present a paper detailing the entire production method

- Permaculture
  a course studying the theory of permaculture design in general, and specifically to the application of permaculture concepts to food production on Post Farm, including a tiered food forest tapering southward to perennial vegetables and to permanent annual vegetable beds.

- Value Added: Artisanal Food Products From Fresh Produce

- Culinary Arts for the Kitchen Garden

Sustainable Food Curriculum

- Sustainable Seafood - Aquaculture
  a course exploring aquatic food sources including comparisons of wild fisheries vs. coastal fish farms vs. terrestrial (local) tank- or pond-raised fish, considerations of sustainable sources of fish food in contrast to conventional fish meal that negatively impacts ocean life; using tank or pond fish waste to fertilize vegetable crops (aquaponics).

- Farm to Table: The Local Food Movement and Slow Food

- Ancestral Foods
    a course on the history of people's relationship with food from anthropological studies of pre-neolithic diets, to examination of the diets of indigenous, pre-industrial cultures and health.

- Food and Health *(nutrition)*
    a course examining the modern human diet, the standard American diet (SAD), the changing USDA dietary guidelines, the health impacts of industrial foods, and of personal selection of the available foods

- Food Inc.
    a course exploring the development of the modern American corporate production, processing, distribution, and marketing of food and its impact on health and the security of our food supply.

- The Food Business: Developing a Sustainable Model *(business)*
    a course on how the business of food can support a sustainable and healthy food system profitably

- Food For All: Charitable Food Distribution
    a course combining lecture and field experience either working for a food not-for-profit or a student-run charitable food program

- The Economics of Food *(Dolar)*

- Food and Society *(Brown)*

- The Politics of Food *(Buchman)*

- Sustainable Food Guided Research (Capstone)

- Sustainable Food Internship

-Environmental Sociology (*Brown)*