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A Framework for Leadership for Sustainability Education at Portland State University

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Abstract: In response to the hitherto unchallenged assumptions supporting a globalized economy, the Leadership for Sustainability Education (LSE) program, formerly Leadership in Ecology, Culture, and Learning, was developed as part of an emerging sustainability movement. This article highlights the favorable conditions that provided the context for the evolution of the LSE program, including organizational policies and practices at Portland State University, and a commitment to community-university partnerships that conveyed the University's motto, "Let Knowledge Serve the City." We discuss the potential that higher education has to transform practices and ways of thinking necessary for ecological sustainability and social justice. Following this overview, we outline the main elements of the LSE Master's degree program, including the four key learning areas: self-understanding and commitment, systemic view of the world, bio-cultural relationships, and tools for sustainable change. Additionally, we describe the types of learning experiences and assessment strategies employed throughout the program. We conclude by sharing the key authors and thinkers who influence the program and coursework.

Key Words: Leadership, sustainability education, master's degree program

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Heather L. Burns is Assistant Professor and Coordinator, Leadership for Sustainability Education program, in the Department of Educational Leadership and Policy at Portland State University in Portland, Oregon. She is also the PSU Coordinator of the Learning Gardens Laboratory, a garden-based education site. Dr. Burns completed her doctorate in Educational Leadership with an emphasis in Sustainability Education. Her research interests include sustainability pedagogy in higher education, sustainable food systems, garden-based education, and the roles of community-based learning and service-learning in creating sustainable change. Dr. Burns has been an urban gardener and farmer for many years and is certified in Permaculture Design.

Sybil S. Kelley is Assistant Professor of Science Education and Sustainable Systems at Portland State University in the Leadership for Sustainability Education program. In addition, she teaches the Elementary Science Methods courses in the Graduate Teacher Education Program. Sybil has spent over 15 years working in formal and informal educational contexts. Her programming and research has focused on connecting K-12 students and teachers in underserved schools and neighborhoods to authentic, project-based learning experiences that contribute to community problem solving. Taking a collaborative approach, Sybil supports teachers and community-based educators in aligning out-of-school learning experiences with state and local academic requirements. Her research focuses on investigating the impacts of these experiences on student engagement and learning and teacher self-efficacy and instructional practices. Prior to her work in education, she worked as an environmental scientist and aquatic toxicologist.

Historical Context: 2000-2010

The launching of Sustainability Education in the Graduate School of Education at Portland State University (PSU) began in 2000. Fourteen years ago, sustainability was still in its infancy at PSU similar to many higher education campuses. As issues related to global warming and socio-economic injustices began to coalesce, the global south was surfacing on the international scene as never before: the concept of *development* itself hitherto unchallenged was being questioned and tested. Counter narratives to the taken-for granted assumptions of capitalist economic growth began to spread across academia as scholars and practitioners alike engaged with concern and passion to de-bunk the myths and promises of globalization. PSU was no exception. As concerns for the environment and social justice began to deepen on a global scale, the time was right at PSU to launch a Master's degree program in the Graduate School of Education that specifically focused on issues related to sustainability. The courses that were being newly designed were aimed at sustainability, and after several iterations, we called the program *Leadership in Ecology, Culture, and Learning* (LECL) with "culture" and "leadership" playing significant roles in supporting the examination of issues related to sustainability (Parajuli & Williams, 2005). The framework that guided the program's early development and implementation was one developed by Parajuli known as the "Partnership Model of Sustainability" that included: Inter-Species Partnership; Inter-Economic Partnership; Inter-Generational Partnership; and Inter-Cultural Partnership, guided by four key concepts: Economy, Ecology, Equity/Social Justice, and Bio-Cultural Diversity (Williams & Brown, 2012). The new courses that were developed in the program drew upon this framework with a view that collectively, the courses would cover content that addressed these concepts. Viewing

“sustainable development” as an oxymoron we did not use this terminology. Instead, the courses that were newly designed were interdisciplinary and aimed specifically at sustainability education with an emphasis on partnership, and at developing future leaders in the field of education, broadly defined.

Next Phase: 2010 onward

Since the City of Portland and the campus at large were setting the stage and becoming nationally visible for their “green” and “sustainability” initiatives, under new leadership in the program, we changed the name of the LECL program to more closely align with PSU’s overall initiative for sustainability, and called it *Leadership for Sustainability Education (LSE)* in 2010. The program’s overall mission is to prepare learners with the leadership skills and opportunities, through coursework and community-based learning, to take leadership roles in envisioning and designing change and educating for sustainable solutions in our communities (PSU, 2014a). We see sustainability education as: developing the knowledge, perspectives, new ways of thinking, and skills needed to advocate for justice and equity, democratic participation, economic viability, and the regeneration and vitality of communities and ecosystems. We believe this requires a deep ethical understanding of living within the limits of natural systems, as well as personal and communal shifts to ways of being and acting that create healthy and balanced solutions to interconnected problems that face our communities and bioregions. Sustainability education involves shifting to holistic, systemic, connective and ecological ways of thinking and learning. Students and instructors take on the roles of both teachers and learners, and we strive to model education that is inclusive, participatory, experiential, thematic, critically questioning, place-based, and transformational.

Favorable Conditions: Organizational Policies and Practices

At PSU, the president continues to provide visible leadership for four initiatives, all of which intersect and offer the needed organizational validation for Sustainability Education: Diversity, Internationalization, Sustainability, and Partnerships. Since Portland as a city has become known for its civic-minded citizenry and also for its livability and green values, PSU is well positioned for manifestation of the values inherent in sustainability education. Furthermore, in 2006, PSU received its first large grant as a single donation of \$25m that helped launch the Institute for Sustainable Solutions which is “the hub for sustainability at Portland State University, supporting curriculum development, student leadership, and research that contribute to a just, prosperous, and vibrant future for our region and the world” (Portland State University [PSU], 2014b). The creation of the Institute for Sustainable Solutions as an interdisciplinary hub with substantial resources changed the perceptions of and attitudes about sustainability at PSU, allowing for increased interest in and momentum around sustainability work. PSU’s commitment is further visible in a *Declaration of Support for Sustainability* (PSU, 2006) developed by students, faculty, administrators, and staff. This shared sense of commitment and purpose has served to further advance sustainability work at PSU and to strengthen support for the ongoing development of the Leadership for Sustainability Education program at PSU, situating this program as a key leader in sustainability initiatives.

Favorable Conditions: Community-University Partnerships

PSU is known nationally for its community-university partnerships as the community becomes a laboratory for academic learning. PSU’s motto, “Let Knowledge Serve the City” particularly provides a rich framework for sustainability. PSU offers hundreds of community-based learning (CBL) courses across all academic disciplines, both at the undergraduate and

graduate levels. For this, hundreds of community organizations—small and large, private and public—collaborate with faculty to address community issues jointly. PSU faculty and students work with community partners in order to expand and apply teaching and research methods that emphasize the relevance of course content. PSU community-based learning courses are offered throughout the curriculum and are often noted in the schedule of classes with a *CBL* icon. In the Graduate School of Education, the Educational Leadership and Policy department has embraced CBL and makes it a required part of each 4-credit course that students take. Within the Leadership for Sustainability Education program, community-based learning is seen as a vital opportunity for learners to take the academic concepts and theories that they are learning and apply them in a live, real-world setting. Additionally, CBL is a venue for engaging the head, heart, and hands by developing relationships and networks in the community, and working in the field of sustainability education. Community-based learning is carried out in a variety of organizations and educational settings across the metropolitan region. For instance, LSE students with an interest in school and community gardens often volunteer or intern at the Learning Gardens Laboratory, assisting with classes for middle school students or with other projects. Other students volunteer in educational or nonprofit organizations. Students are advised to create a plan for their CBL hours that creates a variety of meaningful experiences that supports their future career goals. Through authentic projects and relationships, sustainability leadership and education concepts can be observed and practiced in real-world contexts.

Favorable conditions including shared values and goals related to sustainability, leadership support at multiple levels in the university, and policies supporting faculty and student engagement in the local community have provided fertile grounds for the development and growth of the Leadership for Sustainability Education Master's degree program at PSU. This

contextual backdrop provides a rich and supportive milieu for our students and faculty alike. This unique program, situated in the Graduate School of Education, combines leadership development with educational theory and practice to provide students with the personal and professional tools to become change agents in their own communities. The following sections highlight the key elements of the LSE program, including guiding principles, learning outcomes, and assessment strategies.

Rationale: Essential Elements of the Program

Master's Degree Program: Leadership for Sustainability Education

We offer a 45-credit Master's degree program in Leadership for Sustainability Education (LSE), housed in the Department of Educational Leadership and Policy (ELP) in the Graduate School of Education. Sixteen of the 45 credits are taken as core classes across all program areas in ELP covering: Research, Sociological/Philosophical Foundations of Education, Developmental Perspectives of Adult Learning, and Educational Organization and Administration. The balance of 29 credits focus on Sustainability Education. We use a cohort model for new admits resulting in the formation and enhancement of community among our students, preparing to be leaders in the field of sustainability education.

We believe that higher education has the potential to transform the way that we think about and relate to the world, creating new epistemologies, and shifting our ways of living towards a paradigm that approaches life from more holistic, systemic, and ecological perspectives. Sustainability education aims to help learners understand their interconnectedness with all life, to become creative problem solvers and active citizens, and to engage personally and intellectually in the tensions that stem from pressing social, ecological, economic, and political issues. Our LSE program seeks to prepare students with the skills, values, and attitudes

that will be required to transition toward a sustainable society. We believe that in order to bring about such change, sustainability teaching and learning must move beyond traditional styles of education in which individuality, rationality, and transfer of knowledge are privileged in the educational process; instead, we embody experiences that develop relationships both with the human and more-than human world throughout our program. Transformational learning is central to sustainability education. Through community-engaged experiences our students have opportunities to become creative problem-solvers. Below, we present our values and learning outcomes for the LSE program.

LSE Guiding Principles

Enduring Understandings/Big Ideas. The following values guide LSE:

- A commitment to social, ecological, and economic justice;
- A commitment to multiple perspectives, including multicultural, interdisciplinary, intergenerational, indigenous, local, and global perspectives;
- The development of reflective practitioners and critical thinkers with strong communication skills;
- The empowerment of change agents with leadership skills and the capacity to collaborate with diverse others;
- The integration of theory, research, assessment and practice;
- A commitment to bio-cultural diversity, ecological restoration, and the greater good;
- The integration of indigenous knowledge and whole systems design;
- The fostering of hope and resiliency through networks and relationships within local and global contexts;
- The fostering of participatory, inclusive, transformational, and lifelong learning; and

- The promotion of applied, experiential, and community-based learning.

Learning Outcomes

Content Knowledge, Attitudes, Behaviors and Actions. The following four key learning areas in LSE highlight the knowledge, skills, attitudes, values, and behaviors that are essential to sustainability leaders and educators. These key learning areas have been adapted from Parkin's (2010) discussion of the qualities of sustainability literate leaders. The LSE program focuses on the following four areas in the courses (see Appendix for list of courses), and as a way to evaluate learning in both mid-program assessments, and end-of-program assessments:

1. **Self-Understanding and Commitment:** Developing an understanding of self by: developing and articulating sustainability values and ethics; developing a personal educational and leadership philosophy; reflecting critically on learning and practices; establishing a commitment to leadership for sustainability education.
2. **Systemic View of the World:** Developing an understanding of sustainability issues as interconnected and holistic by: developing systems thinking; developing a historic and current understanding of the sustainability movement and sustainability education; understanding and valuing the importance of multiple perspectives; critically examining dominant systems and paradigms; analyzing complex sustainability issues globally and locally; articulating a broad-based understanding of sustainability education including its interconnected relationships between ecological, socio-cultural, political, economic, and ethical aspects.

3. **Bio-Cultural Relationships:** Developing relationships and strategies for working collaboratively with diverse groups to affect change by: understanding how power, privilege, and injustice impact relationships; developing sustainability networks and partnerships with diverse others; creating learning communities; demonstrating a theoretical and practical understanding of sustainability leadership and the skills needed for effective leadership; developing ecoliteracy.
4. **Tools for Sustainable Change:** Developing a toolkit for enacting sustainable change by: developing leadership skills; effectively communicating ideas in writing and presentations; synthesizing and applying research, including ELP and LSE core courses and grassroots initiatives to improve sustainability education practices; envisioning and creating sustainable solutions using a whole systems perspective; educating others about complex sustainability issues using interdisciplinary, participatory, transformational, place-based, and culturally-relevant learning theories and pedagogies.

Key Leaders and Thinkers Who Inform the Program and Courses

In our program and via our courses, we draw upon the works of some of the key thinkers and leaders who have addressed a variety of issues related to sustainability and have provided solutions via sustainability education. Their works (writing, videos, lectures) are used in our courses to generate dialogue and action. We have listed these authors below and some of their exemplary works are provided in the References. While our courses are not limited to these thinkers and theorists, they provide an anchor for our discussions on a wide range of sustainability issues. The following broad themes are covered in LSE courses (See Appendix) and while we have listed authors/leaders under each area, we recognize that much of the content is fluid among the broad categories.

Conceptual Framework/Critical Theory: Key courses—Advanced Leadership for Sustainability; Advanced Global Political Ecology; Nonviolence and Gandhi's Educational Philosophy of Sustainability; Spiritual Leadership for Sustainable Change; Sustainability Education.

Leaders: Julian Agyeman, Wendell Berry, Fritjof Capra, Rachel Carson, Anthony Cortese, Paulo Freire, Gandhi, David Gruenewald (Greenwood), Stephen Kellert, Richard Louv, Joanna Macy, David Orr

Pedagogy: Key Courses—Ecological and Cultural Foundations of Learning; Integrating STEM and Sustainability Education through Learning Gardens; Permaculture and Whole Systems Design; Sustainability Education; Theory to Practice; Urban Farm Education: Leveraging Policy and Research to Cultivate Garden-Based Education in Practice.

Leaders: Ray Barnhardt, Heather Burns, Paulo Freire, bell hooks, Angayuqaq Oscar Kawagley, Stephanie Kaza, David Kolb, Jack Mesirov, Melissa Nelson, Parker Palmer, Stephen Sterling, Dilafruz Williams

Curriculum: Key Courses—Ecological and Cultural Foundations of Learning; Integrating STEM & Sustainability Education through Learning Gardens; Sustainability Education; Urban Farm Education: Leveraging Policy and Research to Cultivate Garden-Based Education in Practice.

Leaders: Jeanette Armstrong, Jamie Cloud, Victor Nolet, Stephen Sterling, Michael Stone

Place-Based and Community-Based Education: Key Courses—Ecological and Cultural Foundations of Learning; Integrating STEM and Sustainability Education through Learning Gardens; Permaculture and Whole Systems Design; Sustainability Education.

Leaders: Zenobia Barlow, Ernest Callanbach, David Greenwood (Gruenwald), Wangari Maathai, Kathleen Dean Moore, Gary Nabhan, Gregory Smith, David Sobel

Learning Gardens/ Garden-Based Learning: Key Courses—Integrating STEM and Sustainability Education through Learning Gardens; Permaculture and Whole Systems Design; Sustainability Education; Theory to Practice; Urban Farm Education: Leveraging Policy and Research to Cultivate Garden-Based Education in Practice.

Leaders: Veronica Gaylie, John Jeavons, Michael Pollan, Michael Stone, Alice Waters, Dilafruz Williams

Global/Political Ecology: Key Courses—Advanced Global Political Ecology; Nonviolence and Gandhi's Educational Philosophy of Sustainability.

Leaders: Ernest Callanbach, Gustavo Esteva, Gandhi, Paul Hawken, Satish Kumar, Helena Norberg-Hodge, Pramod Parajuli, Madhu Suri Prakash, Vandana Shiva

Systems Thinking/Permaculture Design: Key Courses—Advanced Global Political Ecology, Spiritual Leadership for Sustainable Change; Permaculture and Whole Systems Design.

Leaders: Bill Deval, Thich Nhat Hanh, Toby Hemenway, David Holmgren, Donella Meadows, Bill Mollison, Peter Senge, George Sessions, Starhawk, Margaret Wheatley

Sustainability Leadership: Key Courses—Advanced Leadership for Sustainability; Spiritual Leadership for Sustainable Change.

Leaders: Greg Cajete, Thich Nhat Hanh, John Mohawk, Melissa Nelson, Peter Senge, Margaret Wheatley

Assessment Measures

We assess students' learning outcomes through both mid-program and end-of-program assessments. In the mid-program assessment, students provide a written self-evaluation for each of the four LSE key learning areas. In their end-of-program comprehensive papers, students write another evaluation of their learning in each of the 4 LSE learning areas, explaining how their learning may have changed and developed over the course of the program, and providing evidence of coursework and projects that contributed to their learning in each area. Students also write and present a project that captures the essence of what they have learned in the LSE program. Students choose a problem area to focus on, depending on their interests, and write both a literature review related to the problem, and an innovative applicable solution that addresses the problem. We use a rubric to assess this comprehensive project. Students are expected to score at least 3 on a 4-point proficiency scale in order to graduate from the LSE program and get a Master's degree. The rubrics measure broad areas that include the following:

- Effectively communicate ideas in writing;
- Access, evaluate, synthesize and apply research and information, including grassroots initiatives and knowledge from core studies, to improve sustainability education practice;
- Reflect critically on one's own learning, practice, and professional development;
- Demonstrate a theoretical understanding of leadership and the skills needed to offer effective leadership for sustainability;
- Critically examine dominant systems and paradigms, and analyze complex sustainability issues locally and globally;

- Articulate a broad-based understanding of sustainability education, including its interconnected relationships between ecological, socio-cultural, political, economic, and ethical aspects;
- Envision and create sustainable solutions using a whole systems perspective;
- Educate others about complex sustainability issues using participatory, place-based, transformational, and culturally-relevant pedagogies;
- Work collaboratively, create learning communities, and develop networks with diverse others;
- Establish a commitment to leadership in bio-cultural sustainability education.

Within each of these categories we look for evidence as part of the rubric scoring guide.

Conclusion

The Leadership for Sustainability Education program supports individuals in developing the knowledge, skills, and dispositions they need to become change agents in their communities. Equipped with self-understanding and commitment, a systemic view of the world, bio-cultural relationships, and tools for sustainable change, our graduates are dispersing throughout the Portland area and Pacific Northwest, and indeed, across the country. They are leading from within, inspiring others with a more hopeful vision of the future, and empowering individuals and communities through the pedagogical practices modeled in LSE. Alumni of LSE are finding leverage points in our ecologically and socially unsustainable human systems, offering solutions and alternatives that become ripples for transformational change.

The demand for the educational experience offered through LSE has grown considerably over the past decade. As the program continues to evolve, we are working to maintain the deep

community experience the program offers, while also making it accessible to a larger number of students. With an increasing recognition that education can be a powerful tool for transformational change, the Leadership for Sustainability Education program continues to grow and develop in response to the challenges of our modern world.

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Appendix

Description of Courses in the Leadership for Sustainability Program:

An Overview

ELP 550: Advanced Leadership for Sustainability

This multi-media seminar course reviews, analyzes and critiques the history, politics and rhetoric of sustainability. A number of key themes related to leadership for sustainability are addressed: The history and meaning of sustainability; approaches to leadership and strategies and skills used by sustainability leaders; the effects of globalization on humans and ecology; whole systems thinking and design; and the role of eco-spiritual values and Traditional Ecological Knowledge (TEK) in sustainability. Inspiration is drawn from local, regional and global initiatives that are creating sustainable economies, systems, policies, and appropriate technologies. Through reading, discussion and experiential service learning, students develop their own sustainability vision into action project.

ELP 548: Advanced Global Political Ecology

In order to grasp the emerging discipline of political ecology, we discuss the following: the impact of a globalized economy on human and non-human communities; the relationship between poverty, global inequity and environmental degradation, the distribution of resource use and conflicts between the global North and global South, the ecological processes, earth democracy and the relationship of these issues in our personal lives. Students apply these concepts in real life through a multi-media study and presentation of a chosen commodity in terms of its production, distribution and consumption.

ELP 517/617: Ecological and Cultural Foundations of Learning

This course explores how we teach and learn ecologically and what constitutes ecological and cultural ways of knowing. This course goes beyond simply justifying or advocating that our education should be grounded in ecological principles and explores how teaching and learning can be designed so that it critically questions cultural norms, is place-based, participatory, experiential, and transformational. Building on the work of numerous sustainability educators, this course engages in multi-sensory and interdisciplinary pedagogical inquiry. Students create a teaching philosophy that reflects an understanding of ecological principles and sustainability pedagogy, and demonstrate the design and implementation of an effective teaching experience.

ELP 519: Sustainability Education

In order to build a robust theory and practice of sustainability education, this course covers local, national and global innovations in light of the UN decade for Education for Sustainability (2005-15). While critically examining earlier traditions such as nature education, environmental education, outdoor education, place-based education, and ecological literacy; students are involved in developing curriculum and teacher preparation modules for K-12, higher education and or community organizations.

ELP 501: Theory and Practice of Sustainability

This course shows the application of theories and models in sustainability design, social justice, and bio-cultural diversity. Through hands-on workshops, personal stories, lectures, and discussion, students experience real life examples of how individuals and institutions have developed a vision and implemented that vision in various areas of sustainability including: Education, Community Leadership and Governance, Food Systems and Policies, Indigenous Practices, and Appropriate Technology. Through group and individual reflection, students explore how they can integrate these experiences and perspectives into their own practice of sustainability education. This course has been offered as a study abroad course in 2011 & 2012 in Costa Rica, and in 2013 in Cuba.

ELP 410/510: Permaculture and Whole Systems Design I

Building on the work of permaculture co-originators Bill Mollison and David Holmgren, this course explores permaculture in-depth while also reviewing the evolution of whole-systems design and the application of self-organization design. The course presents permaculture as an ethically based whole-systems design that uses concepts, principles, and methods derived from ecosystems, indigenous peoples, and other time-tested systems to create sustainable human settlements and institutions.

ELP 410/510: Permaculture and Whole Systems Design II

This course builds upon the knowledge gained in Part I of Permaculture and Whole Systems Design (required prerequisite), and explores in-depth: Methods of whole systems design, advanced pattern literacy, biomimicry, appropriate technology, energy systems, land use philosophy and practice, and education and teaching methods in permaculture. Much of the course is presented through experiential learning exercises, group discussion and projects, and hands-on activities. A portion of this course is dedicated to a final design project, in which student teams create a permaculture design for a specific site.

ELP 410/510: Nonviolence and Gandhi's Educational Philosophy of Sustainability

This course has a two-fold goal: to study the principle of nonviolence as defined by Gandhi and to examine how this principle may be applied in our daily lives, including educational and other work settings to advance sustainability. The course explores the links between *nonviolence* and Gandhi's notions of *community*, *sarvodaya* (*welfare of all*), *anekantvada* (*belief in many doctrines*), *labor*, *self-sufficiency*, *advaita* (*non-dualism*), *enoughness*, *yajna* (*sacrifice*), and *non-exploitative modes of living* proposed by Gandhi and embodied in his educational program of *nai talim* (new education). Focusing on key facets of Gandhian theory and practice for ecological sustainability, contemporary relevance of Gandhi's nonviolence as *a way of living* is examined.

ELP 540: Urban Farm Education: Leveraging Policy and Research to Cultivate Garden-Based Education in Practice

Garden-Based Education (GBE) has the potential to improve educational opportunities for all students, to increase community food security and access to healthful foods, to promote wellness through health and nutrition education, and to reconnect learners of all ages to the natural world. GBE is an emerging approach to learning and teaching that can influence individual and collective knowledge, attitudes and behaviors related to academics, health, and the environment. With the garden serving as classroom, for a community of lifelong learners, this course explores

the policy, curricular, pedagogical, and research contexts related to school food and gardens, and how policies can pose barriers or potential leverage points for systemic change.

ELP 524: Spiritual Leadership for Sustainable Change

This course explores how spirituality is integrated into teaching and learning, and into the work of engaged citizens. Spiritual leadership is explored through such themes such as: authenticity, identity, paradox, relationships, and sustainability. Community-based learning provides an opportunity to examine leadership and sustainability issues through a spiritual lens. Deep questioning and reflection support the exploration of how spirituality is integrated into teaching and learning, and into our daily lives and work. All projects and readings are designed to create an open inquiry into the questions: “What is spiritual leadership?” and “How is spiritual leadership connected to sustainability leadership and creating sustainable change?”

ELP 510: Integrating STEM and Sustainability through Learning Gardens

This course brings together educators from various contexts and stages of professional development (in-service and pre-service teachers, extended-day teachers, informal science educators, etc.) to work together using learning theory and best-practices of science and sustainability education to design instructional units that utilize learning gardens (at schools and/or community sites) as a rich context for STEM learning and teaching. Participants specifically focus on developing standards and inquiry-based curriculum that integrates content, formative assessments, and experiential learning activities.

ELP 503: LSE Thesis

Students work individually with their adviser to define, develop and present a thesis that demonstrates a satisfactory level of knowledge and skill related to sustainability education. The thesis is likely to require 4-6 quarters of work before the completion. Students need instructor's permission before enrolling in the course.

ELP 506: LSE COMPS Exam

This course is designed to provide support to students completing their Comprehensive Examination (Paper). The Comprehensive Examination (Comps) is one of two options (the other is Thesis) required for completing the ELP Master's degree. This course is offered to help students design, write, and present their Comprehensive Paper at the final meeting of the course. Students should have completed a minimum of 35 credits before enrolling in the course.