Course Objective
Creating a sustainable future is not possible without systems thinking. Sustainable design is too complex, with many interacting systems, to be tackled in a linear fashion. However, as with many disciplines, we try to force sustainable design into a way of thinking that is generally compartmentalized. If we want to sustain planetary and human systems for future generations, we need to develop our capabilities to think beyond simplistic or linear solutions. Our goal in this class is to explore holistic thought processes, and challenge our standard ways of thinking.

For students who are keenly interested in new ways of thinking about sustainable solutions to the issues of our time, we will explore ideas, methodologies and frameworks that transcend commonly used tools such as LEED, which can turn sustainable design into a series of checkboxes. Rather, we need to understand how projects fit into, affect and are affected by the larger context of their environment. Each project requires new and holistic thinking to ensure its success in the broader context of its eco-system. Living systems, regenerative design principles and case studies will comprise many of the core discussions.

During the quarter, students will explore systems thinking together. The course will include individual and group exercises, and we will work on a development project together. Lectures will be based on the text as well as various articles and case studies that students will be expected to read ahead of each class and be prepared to discuss. We will have guest speakers who are working in the context of large systems and who will discuss the opportunities of using a systems process and the pitfalls of not thinking in terms of systems. Students are expected to attend and participate in every class. This class will include videos prepared by the instructors, readings, other videos, and a weekly online webinar.

In this course, we will engage with systems thinking resources and tools that allow students to move projects into a developmental, transformative, sustainable direction. We all are co-learners and our intention is that we develop a way of being in the world that comes from a systems perspective inviting the opportunity to be a change agent for ecosystem sustainability.
WEEK 1  Introduction to Systems Thinking Paradigms, and Regenerative Design and Development
The purpose of this session is to provide a general introduction to systems thinking and to provide a solid foundation for the course. Assignments will include readings from the text, other selected readings and videos provided by the instructors as well as various activities, to be discussed.

WEEK 2  Seeing Systems Everywhere
The purpose of this session is to introduce living and mechanistic system paradigms as well as several social paradigms in a way that students begin to experience how living systems work. Students will be asked to observe “systems in the real world” and to present their observations. (This will be an ongoing practice throughout the course.)

WEEK 3  Pattern Thinking
The purpose of this session is to introduce ways of seeing systems through patterns, nested systems, frameworks and mental models using a regenerative development and design paradigm. Students will be introduced to the importance of place as a way to identify and work with systems. They will also be introduced to developmental ways of thinking. The group research project will be introduced.

WEEK 4  Discovering Vocation/Purpose/Guilds
In this session, we will introduce the idea of vocation as a way to understand purpose – natural or man-made purpose, or purpose of a project. The concept of genuine wealth, which includes financial, natural, human, social and produced capitals will be introduced as a way to create and understand living systems that include all stakeholders and that have the potential to continuously co-evolve. Climate Interactive, a way of seeing systems developed by MIT, will be introduced.

WEEK 5  Identifying Potential – Healthy Ecosystems and Value-Adding Roles
The purpose of this session is for students to understand and experience their role in projects beyond the common perceptions of sustainable design and development in a way that promotes co-evolution of healthy ecosystems and human communities. Students will be introduced to the concept of value-adding roles and identification of “potential” as a means to understand and work with systems. We will review the story of place research conducted over the previous two weeks.

WEEK 6  Transformational Leverage
This session is designed to apply the lessons of the previous weeks to complex sustainability challenges so that students can recognize and develop approaches to addressing those challenges. The session will focus on finding the most effective leverage points in a system by finding where exchanges of materials, information, and energy occur.

WEEK 7  Traps and Opportunities
In this session, we will introduce system traps using real world examples and will explore how regenerative systems thinking can be used to find potential and opportunities.
WEEKS 8-9  **Being Developmental and Practice with Systems Thinking in the Real World**
The purpose of these sessions is to apply the tools introduced in earlier sessions in a way that instills confidence so that students have a firm understanding of systems thinking and regenerative design and development principles and methodologies. Students will be encouraged to delve deeply into their own ways of being such that they can become agents of change.

WEEK 10  **Student Presentations**
In lieu of a final exam, students will write a paper and give a presentation based on systems thinking principles and frameworks.

*Text:* “Regenerative Development and Design: A Framework for Evolving Sustainability,” Mang, Haggard, Regenesis, 2016. Additional materials will be provided by the instructors.

*Canvas Dialogue:* In this course students should not expect to be given answers. Students will participate in a graded online discussion based on their own thought processes as they work through the concepts covered in the class and in the homework.

*Class Participation & Attendance:* Our thinking related to systems and sustainability will evolve as new concepts are reviewed and distinguished. Class discussions will include, among other topics, discussion of systems concepts, frameworks, readings, and case studies. Students will observe “systems in the real world” and be asked to discuss their observations in class.

*Quizzes:* There will be a quiz and other assignments based on concepts discussed in class and covered in readings. Quizzes will be completed on Canvas.

*Individual Paper:* Each student will write a five to ten-page paper, double-spaced, that discusses the following: Based on what you are committed to, image a new vision for your neighborhood, city, industry, country or the world using living systems principles.

*Final Presentation:* In lieu of final exam, students will present the highlights of their paper in a five to seven-minute prepared presentation.

*Grading:* Grading will be based on organization, understanding of the frameworks, clarity, depth of thought, and presentation delivery.

*Course Grade:* The course grade is based on the following:

- Canvas Dialogue, Class Participation, Attendance: 30%
- Graded Assignments and Quizzes: 30%
- Systems Thinking Individual Paper (in lieu of final exam): 20%
- Presentation (in lieu of final exam): 20%