

# SUSTAINABILITY

## SPRING 2024

### COURSE LIST

#### **SEE 250: Introduction to Sustainability Energy & Environment. 3 Hours**

**Tues/Thurs 9:30 am - 10:45 am with Erin Gibbemeyer**

Multidisciplinary introduction to sustainability, energy, and environment intersecting the arts, natural sciences, public policy, ethics, environmental justice, spirituality, and economic systems. Students will learn about complex issues from different disciplinary points of view, be introduced to current literature on sustainability, and learn how ethical, scientific and sociopolitical perspectives work together in the investigation of sustainability issues.

#### **SEE 280. Sustainable Communities. 3 Hours**

**Tues/Thurs 3:35 pm - 4:50 pm with Theo Majka**

Introduction to fundamental concepts in Sustainability with a focus on the built environment, locality, and community. Includes investigation of how the relationship of social and environmental justice is intrinsic to the study of sustainable communities. Key concepts include social constructions of privilege and social inequality, as well as the characteristics of resilient and adaptive communities.

#### **SEE 301. Earth Systems & Global Climate Change. 3 Hours**

**Mon/Wed/Fri 10:10 - 11:00 am with Bob Brecha**

This course examines global climate change through the interactions of different components of the Earth system. It explores how changes in the atmosphere, hydrosphere, cryosphere, biosphere and lithosphere interact to impact the Earth's climate, and how human activities contribute to such changes, resulting in the present global warming.

#### **SEE 303. Constructions of Place. 3 Hours**

**Tues 5:05 - 7:50 pm with Geno Luketic**

Multidisciplinary, art and design-based course that explores the complex connections between our sense of place, space, and the environmental conditions that influence landscapes and communities on local and global levels. We use the history and practice of Eco-Art and comparisons of built and natural environments as a starting point to explore topics including art history, studio arts, photography, design and socially-engaged art through both scholarly and experiential, project-based learning.

#### **SEE 310. Sustainability Scenarios. 3 Hours**

**Mon/Wed 3:35 - 4:50 pm with Felix Fernando**

Introduction to the structure, development, communication, and limitations of scenarios used for visioning trajectories and outcomes for human and environmental systems. The course more deeply examines the structure of scenarios as frameworks and stories for engaging critically with a multiplicity of possible outcomes. In analyzing and developing scenarios that address environmental risks and sustainable practices, students learn what a scenario is, how a scenario is created, and in what ways a scenario can be applied, compared and evaluated. Prerequisite(s): SEE 250 or SEE 280.

#### **SEE 402. Sustainability Research II. 3 Hours**

**Tues/Thurs 11:00 am - 12:15 pm with Zach Piso**

Interdisciplinary exploration of the issues of sustainability as they affect the Dayton community. Course will also explore political philosophy and the ethical foundations of public policy. Students will choose an in-depth community-based research project. CAPSTONE COURSE for the BS in Sustainability, Energy and Environment, or BA in Sustainability Studies. Prerequisites: PHL 103 or ASI 120; SEE 250; and Junior or Senior standing.

**SEE 340. Food, Energy and Water Nexus. 3 Hours**

**Mon/Wed/Fri 12:20 - 1:10 pm with Bob Brecha**

Analysis of the complex interactions between three fundamentally important systems. Examination of past history, present status and future scenarios for the food, energy and water (FEW) nexus. Prerequisites: SEE 250.

**SSP 580. Applied Sustainability. 3 Hours**

**Mon/Wed 5:05- 6:20 pm with Felix Fernando**

A capstone course that applies sustainability research methods to local and regional community-based projects. This course will model collaborative transdisciplinary research with a focus on systems, complexity, resilience and community. Students will work with community-based partners. Aspects of the project will be self-designed to reflect student interest and expertise.

**Other Sustainability related courses required for the Major and/or Minor**

**MEE 474/RCL 574. Renewable Energy in Developing Countries. 3 Hours**

**Mon/Wed 3:35 - 4:50 pm**

**HST 379. History of Food History. 3 Hours**

**Tues/Thurs 12:30 - 1:45 pm**

**Tues. 12:30 - 3:20 pm**

**GEO 451. Geographic Information Systems (GIS) for Human Rights. 4 Hours**

**Tues/Thurs 9:30 - 10:45 pm**

**Thurs. 2:00 - 4:00 pm**

**GEO 309. Surface and Groundwater Hydrology. 3 Hours**

**Tues/Thurs 12:30 - 1:45 pm**

**Tues. 2 - 5 pm (Lab)**

**MEE 420. Energy Efficient Buildings. 3 Hours**

**Tues/Thurs 3:35 - 4:50 pm**

**MEE 490. AI in Energy and Sustainability. 3 Hours**

**Tues/Thurs 5:05 - 6:20 pm**

**BIO 496. Marine Biology. 2 Hours**

**Tues/Thurs 12:30 - 1:45 pm**

**BIO 461. Invertebrate Zoology. 3 Hours**

**Tues/Thurs 11:00 am - 12:15 pm**

**BIO 310: Ecology Lecture. 3 Hours**

**Tues/Thurs 9:30 - 10:45 am**

**BIO 310. Lab: Ecology Lab. 1 Hour**

**Mon. 12:20 - 3:35 pm**

**Tues. 2:00 - 5:15 pm**

**PHL 331. Science, Values & Society. 3 Hours**

**Tues/Thurs 2:00 - 3:15 pm**



# SUSTAINABILITY

FALL 2023

TENTATIVE COURSE LIST

**SEE 250: Introduction to Sustainability, Energy & Environment. 3 hrs**

**Tues/Thur 11:00 am - 12:15 pm, Mary Dillion & William Marvin**

Multidisciplinary introduction to sustainability, energy, and environment intersecting the arts, natural sciences, public policy, ethics, environmental justice, spirituality, and economic systems. Students will learn about complex issues from different disciplinary points of view, be introduced to current literature on sustainability, and learn how ethical, scientific and sociopolitical perspectives work together in the investigation of sustainability issues.

**SEE 250 H1: Introduction to Sustainability, Energy & Environment. 3hrs**

**Tues/Thur 2:00 - 3:15 pm, Bob Brecha**

Multidisciplinary introduction to sustainability, energy, and environment intersecting the arts, natural sciences, public policy, ethics, environmental justice, spirituality, and economic systems. Students will learn about complex issues from different disciplinary points of view, be introduced to current literature on sustainability, and learn how ethical, scientific and sociopolitical perspectives work together in the investigation of sustainability issues.

**SEE 322: Urban Sustainability. 3 hrs**

**Mon/Wed 3:35 - 4:50 pm, Felix Fernando**

Exploration of urban sustainability that equips students with knowledge of the vital role cities can play in stewardship of the planet, while creating vibrant and inclusive opportunities for their inhabitants. Economic, social, and environmental forces that shape urban environments and the strategies needed to make cities and suburbs sustainable (economically vibrant, socially just, and environmentally sustainable) will be the focus. Prerequisite(s): SEE 250 or SSC 200 or by the approval of the program director.

**SEE 325: Sustainable Development Goals. 3 hrs**

**Tues/Thur 11:00 am - 12:15 pm, Anthony Talbott**

Analysis of the Sustainable Development Goals as a framework for approaching complex, international challenges of sustainable development, environmental sustainability, climate change mitigation and adaptation, and human rights. Background to the goals, metrics for evaluating progress toward the goals, and interactions between various goals will be evaluated through readings and discussion. Prerequisite(s): SEE 250 or SEE 280.

**SEE 490: SURF Summer Research. 2 hrs**

**Erin Gibbemeyer**

Experiential study of a topic in Sustainability, Energy and the Environment. Students will study a topic of their choosing in consultation with an instructor or faculty advisor. Topics will be problem-driven and focused on developing sustainable solutions at the local, national, or global scale. Prerequisite(s): SEE 250.

**SEE 401: Sustainability Research. 3 hrs**

**Tues/Thur 12:30 - 1:45 pm, Zachary Piso**

Interdisciplinary exploration of the issues of sustainability. The scientific, moral, spiritual, social, political, historical, ethical and economic dimensions of sustainability will be explored. Exploration of the foundations of ethical theory and their application to environmental issues. Students will pursue a research project with the primary focus on sustainability on campus. Prerequisites: SEE 250 and PHL 103 or ASI 112 or ASI 120; completion of General Education Natural Science or CAP Natural Science Requirements: junior or senior standing.

**SEE 435: System Modeling for Sustainability. 3 hrs**

**Tues/Thur 3:35 - 4:50 pm, Robert Brecha**

Interdisciplinary approach to modeling as a tool for analyzing complex systems. Students learn to translate qualitative descriptions for environmental, socioeconomic and energy systems into quantitative output. The course focuses on defining problems and system boundaries and variables, documenting requirements, then proceeding with systems design synthesis and system validation while considering environmental, socioeconomic, and resource impacts. Students learn to examine model outputs to judge validity and to document their procedures. The course will use both standard spreadsheets for simple models as well as open-source system dynamics modeling software. Prerequisites: SEE 250 and MTH 148 or MTH 168 and MTH 207 or MTH 367 or DSC 210 or PSY 216.

**SSP 500: Foundations in Sustainability. 3hrs**

**Wed 6:00 - 8:40 pm, Felix Fernando**

Graduate-level introductory course in Sustainability. A multidisciplinary introduction that examines scientific, economic, policy, ethical and cultural approaches to sustainability issues in a global and local context. Emphasis on examining complex issues from different disciplinary viewpoints, and learning how ethical, scientific and sociopolitical knowledge and inquiry work to investigate and address community, environment, climate change and sustainable development.

**ASI 320: Cities and Energy. 3 hrs**

**Tues/Thur 2:00 - 3:15 pm, Janet Bednarek & Masha Kisel**

Interdisciplinary examination of the influence of energy on the urban environment since the Industrial Revolution, and how this relationship has affected every aspect of city life from infrastructure to culture (literature and film, in particular). Emphasis on the relationship between the development and design of cities and their impact on various forms of difference (e.g., race, class, and gender, among others), as well as the prospects for the future of cities and energy systems. Prerequisite(s): ENG 100, HST 103, or ASI 110.

**Other Sustainability related courses required for the Major and/or Minor**

**BIO 310: Ecology. 3 hrs**

**Tues/Thur 9:30 - 10:45 am and Mon/Wed 9:30 - 10:45 am**

**BIO 310 Lab: Ecology Lab. 1 hrs**

**Mon 12:20 - 3:35 pm, Tues 2:00 - 5:10 pm, Wed 2:30 - 5:40 pm (2 sections)**

**BIO 452: Rivers and Lakes. 3 hrs**

**Mon/Wed/Fri 10:10 - 11:00**

**BIO 452 Lab: Rivers and Lakes Lab. 1 hr**

**Wed 2:30 - 5:30 pm (SUS major seniors only), Fri 1:25 - 4:35 (SUS major seniors only)**

**ENG 342: Literature and the Environment. 3 hrs**

**Tues/Thur 12:30 - 1:45 pm, Mon 3:35 - 6:20 pm**

**GEO 302: Glacial Geology**

Tues/Thur 12:30 - 1:45 pm

**GEO 302 Lab: Glacial Geology Lab. 1 hrs**

Tues 2:00 - 5:00 pm

**GEO 450: Applied GIS. 4 hrs**

Tues/Thur 11:00 am - 12:15 pm and Thur 2:00 - 3:50 pm

**HST 359: History of American City Planning. 3 hrs**

Mon/Wed 3:35 - 4:50 pm

**HST 379: History of Food History. 3 hrs**

Tues 12:30 - 3:15 pm and Thurs 12:30 - 1:45 pm

**HST 394: Animal History. 3 hrs**

Tues/Thur 12:30 - 1:45 pm

**PHL 371: Philosophy and Human Rights. 3 hrs**

Mon/Wed 5:05 - 6:20 pm

**MEE 461: Solar Energy Engineering. 3 hrs**

Tues/Thur 3:35 - 4:50 pm

**MEE 473: Renewable Energy. 3 hrs**

Mon/Wed 5:05 - 6:20 pm

**POL 371: Environmental Policy. 3 hrs**

Tues/Thur 12:30 - 1:45 pm

**REL 269: Care for the Earth. 3 hrs**

Tues/Thur 2:00 - 3:15 pm