

SUSTAINABILITY (SUST)

SUST 3XX: Sustainability Designated Elec

Credits: 3

College: Jefferson College of Humanities & Sciences

Schedule Type: Lecture

SUST 100: Fundamentals of Sustainability

As the gateway to the Environmental Sustainability major, this course introduces students to the core concepts of sustainability theory and practice. Students will explore the ethical principles, social structures, technologies, and political and economic processes necessary for humans to live sustainably in community with each other, other species and our natural environment.

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SUST 102: Water Resources and the Envir

This course introduces students to different types, amounts, and integrity of water resources on Earth. Through the lens of sustainability, students study the availability and scarcity of types of water, as well as systems that harness them for human use. Topics in the course include water quality, water pollution mitigation, ownership and distribution of water resources, and the legitimacy of water uses. As they explore these issues, students will also learn and apply principles of chemical, geological, and biological science. First offered Spring 2015

Credits: 4

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SUST 104: The Atmosphere & the Environ.

Human disturbances to the atmosphere include degraded ambient air quality, photochemical smog, the greenhouse effect and climate change, radiative incidence and ozone depletion, air pollution-related health effects and dose-response modeling. This course explores the physical structure and chemical composition of the atmosphere and introduces fundamental concepts of chemistry, including atomic and molecular structures, ions and molecular bonding, stoichiometry, acid/base reactions, and basic reaction thermodynamics.

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SUST 120: Sustainable Food Chains

This course examines one of the most fundamental sustainability challenges that we will face this century: how to feed 9-10 billion people without depleting the planet's soils, water supplies, oil resources and biodiversity. Sustainable Food Chains explores the environmental impact of modern industrial agriculture and examines alternative approaches to food production that reduce the use of non-renewable resources, respect natural processes, and work in harmony with local ecosystems, communities and economies.

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SUST 200: Energy Systems & Politics

The rising international demand for fossil fuels, the increasing concerns about dwindling energy reserves and the growing evidence of climate change are combining to accelerate the search for alternative energy sources. This course will analyze the environmental, economic and political dynamics of the existing energy regime, and help students evaluate the potential and drawbacks of possible energy alternatives.

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SUST 202: Ecological Economics

This course introduces students to general economic theory and how it can be applied to the analysis of sustainability issues. Topics include the economics of sustainable development, cost-benefit analysis related to environmental initiatives, and the evaluation of policies for more sustainable production and consumption.

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SUST 204: Sustainable Plannin & Land Use

This course examines land use and urban planning questions from the perspective of sustainability. Topics include: "smart" growth/development, wilderness conservation, community activism, environmental justice, brownfield and grayfield redevelopment, greenfield preservation, zoning for mixed-use neighborhoods, mass transit planning, and transit-oriented development (TOD).

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SUST 206: Environmental Policy

Environmental problems are essentially social, economic and political problems. This course traces the evolution of environmental policy, legislation, and regulations, both in the U.S. and worldwide, including the background and context of environmental policymaking. Students will also examine the substantive problems and political process of environmental movements, and contemporary environmental thought with regard to issues of sustainability and environmental justice.

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SUST 300: Sustainable Tech for Arch

This course provides students with the skills and vocabularies to converse and enhance their ability to collaborate with professionals. This course is intended as an introduction to sustainable architecture and its technologies that are typically used in practice.

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SUST 302: Life-Cycle Thinkn & Analysis

Industrial Ecology is the study of how industrial processes affect the environment. Students will learn approaches and tools to evaluate products, processes, and systems in their entire life-cycle, including: material flow analysis, design for environment, input-output analysis, life-cycle assessment, industrial symbiosis, and sustainable consumption. PreRequisites: 2 courses from the Science Group and WRIT 21x

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SUST 303: Global Environmental History**Credits:** 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 305: Sustainability Metrics & Report**

This course teaches metrics and reporting frameworks that support evaluation and communication of sustainability. With an eye toward program analysis and business analytics, the course approaches sustainability challenges as data and metrics problems confronting public officials, citizen groups, private companies, and colleges and universities. It teaches students to design sustainability communications, including isolating factors driving unsustainability, selecting metrics and marshaling data appropriate for goal setting, and forecasting the impact of initiatives intended to improve sustainability. In the final project students apply course skills to communicate sustainability using metrics and reporting. Prerequisites: WRIT-2xx

Credits: 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 398: Sustainability Designated Elec****Credits:** 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 400: Sustainability-Non Westn World**

This course examines sustainability issues in such non-European nations as China, Mexico, Brazil and Ghana. It looks at how local economic and cultural factors help shape sustainability strategies and examines the relationship between economic development and sustainability in a comparative framework.

Credits: 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 402: Managing Sustainability in Org**

This course answers the question, How can we effectively manage sustainability in organizations? The course uses contemporary readings, research, cases, and student projects to explore current and future approaches to sustainability within the context of management and organizations both within and beyond the traditional management framework of planning, organizing, leading, and controlling.

Credits: 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 404: Environmental History****Credits:** 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 421: Environmental Policy****Credits:** 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 497: Capstone Seminar I**

Through study of project management techniques, this course helps students explore environmental problems and identify a problem ripe for solution development. Students then translate sustainability into practice by developing a pilot-scale improvement initiative. Connecting to earlier coursework across the curriculum, this course also asks students to practice integrative thinking and to frame their initiative using one or more lenses in the discourse of sustainability. As part one of a two-course capstone sequence for Environmental Sustainability majors, Capstone I concludes with students producing a plan of action to be implemented and evaluated over the course of the following semester.

Credits: 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** Lecture**SUST 498: Capstone: Sustainability Analy**

This capstone course for the Environmental Sustainability degree program uses case studies and a real-world project to review and integrate the skills and knowledge developed in the previous courses in the Environmental Sustainability curriculum. Applying the principles of systems thinking and other analytical tools, students solicit, develop, present, and implement a client-based sustainability initiative.

Credits: 3**College:** Jefferson College of Humanities & Sciences**Schedule Type:** By Appointment, Lecture