Sustainability

The Bachelor of Science in Sustainability provides an interdisciplinary approach to understanding and resolving today’s most pressing and complex environmental, economic, and social challenges. The program is built on a foundation of Arts & Sciences courses that examine sustainable living from multiple perspectives — scientific, political, economic, social, historical, philosophical, anthropological, and literary.

Grounded in this integrative approach and common understanding of the issues, students then choose one of three concentrations for greater in-depth study of sustainability:

1. Sustainable Environment and Science, for primary focus on environmental sciences, natural resources, and energy;
2. Sustainable Management and Organizations, for primary focus on sustainable business strategies and the triple bottom line — economic, social, environmental;
3. Sustainable Communities and Development, for primary focus on designing and managing sustainable spaces in our cities and communities.

The three concentrations include selected courses from Arts & Sciences, Business, Engineering, and Architecture.

The overarching goal of the Bachelor of Science in Sustainability is to provide students with knowledge and methods about sustainability, local to global, and to help improve the quality of individual lives, the productivity of institutions, and the security of our planet.

Candidates for the Bachelor of Science degree in Sustainability in University College may not simultaneously pursue a Certificate in Sustainability (Communities and Development, Environment and Science, Management and Organizations) offered by University College. Bachelor of Science in Sustainability students should pursue this category of courses as a concentration within the Bachelor of Science.

Website: http://ucollege.wustl.edu/programs/undergraduate/bachelors-sustainability

Degree Requirements

Bachelor of Science in Sustainability

All University College undergraduate students must satisfy the same general-education requirements (http://bulletin.wustl.edu/undergrad/ucollege/bachelors/#degreerequirements). Requirements specific to this major include:

Total: 45 units

Required Core Courses: 30 units

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>U69 Anthro 361</td>
<td>Culture and Environment</td>
<td>3</td>
</tr>
<tr>
<td>Bio 209</td>
<td>Introduction to Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>Bio 364</td>
<td>Global Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>Bus 358</td>
<td>Systems Thinking and Decision Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Econ 355</td>
<td>Environmental Economics</td>
<td>3</td>
</tr>
<tr>
<td>ELit 313</td>
<td>Nature and the American Literary Imagination</td>
<td>3</td>
</tr>
<tr>
<td>or ELit 344</td>
<td>Nature Writing and Environmentalism</td>
<td>3</td>
</tr>
<tr>
<td>Phil 2352</td>
<td>Environmental Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PolSci 3312</td>
<td>Environmental and Energy Issues</td>
<td>3</td>
</tr>
<tr>
<td>SUST 328</td>
<td>Environmental Law: Applications Toward Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>SUST 344</td>
<td>Global Development and Sustainability</td>
<td>3</td>
</tr>
</tbody>
</table>

Sustainable Environment and Science Concentration: 15 units, including required U19 SUST 450 Sustainability Capstone, and four other authorized electives chosen from below; other courses with authorization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bio 413</td>
<td>Environmental Science: Regional and Global Perspectives</td>
<td>3</td>
</tr>
<tr>
<td>Bio 419</td>
<td>Ecology</td>
<td>3</td>
</tr>
<tr>
<td>Hist 3643</td>
<td>Science and Society</td>
<td>3</td>
</tr>
<tr>
<td>SUST 146</td>
<td>Introduction to Energy, Environmental and Chemical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GIS 200</td>
<td>Introduction to GIS</td>
<td>3</td>
</tr>
</tbody>
</table>

Students pursuing this concentration are advised to take Calculus and Statistics, to count toward math/science distribution or general elective.

Sustainable Management and Organizations Concentration: 15 units, including required U19 SUST 450 Sustainability Capstone, and four other authorized electives chosen from below; other courses with authorization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 270</td>
<td>Marketing Concepts</td>
<td>3</td>
</tr>
<tr>
<td>Bus 305</td>
<td>Leadership for Organizational Success</td>
<td>3</td>
</tr>
<tr>
<td>Bus 3501</td>
<td>Public Relations</td>
<td>3</td>
</tr>
<tr>
<td>Bus 356</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>Bus 375</td>
<td>Contemporary Organization Development: Creativity, Innovation, Sustainability</td>
<td>3</td>
</tr>
<tr>
<td>Bus 3777</td>
<td>Accounting and Finance for Sustainable Operations</td>
<td>3</td>
</tr>
</tbody>
</table>
HRM 520 Organizational Behavior and Administration 3

Sustainable Communities and Development Concentration: 15 units, including required U19 SUST 450 Sustainability Capstone, and four other authorized electives chosen from below; other courses with authorization.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthro 312</td>
<td>Ancient Civilizations of the Old World</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 336A</td>
<td>Sustainability (A46)</td>
<td>3</td>
</tr>
<tr>
<td>ARCH 472</td>
<td>Sustainable Development (A46)</td>
<td>3</td>
</tr>
<tr>
<td>Bus 359</td>
<td>Introduction to Governmental Budgeting</td>
<td>3</td>
</tr>
<tr>
<td>History 3066</td>
<td>The American City in the 19th and 20th Centuries (L22)</td>
<td>3</td>
</tr>
<tr>
<td>SUST 106</td>
<td>Introduction to Political Theory</td>
<td>3</td>
</tr>
<tr>
<td>SUST 299</td>
<td>The Study of Cities and Metropolitan America</td>
<td>3</td>
</tr>
<tr>
<td>SUST 315</td>
<td>Introduction to Historic Preservation</td>
<td>3</td>
</tr>
<tr>
<td>SUST 343</td>
<td>Managing LEED Certification</td>
<td>3</td>
</tr>
<tr>
<td>SUST 352</td>
<td>Universal Design: Process, Principles, and Application</td>
<td>3</td>
</tr>
<tr>
<td>SUST 362</td>
<td>Practical Applications of Sustainable Design I</td>
<td>3</td>
</tr>
<tr>
<td>SUST 363</td>
<td>Practical Applications of Sustainable Design II</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional Information
Undergraduate and graduate degree and certificate programs offered through University College are not offered by the Olin Business School at Washington University and do not come under the accreditation responsibility of the Association to Advance Collegiate Schools of Business (AACSB). No more than 25 percent of course work applied to a Bachelor of Science in University College may be in business disciplines.

Courses

U19 SUST 106 Introduction to Political Theory
This course offers an undergraduate-level introduction to the field of political theory. We will focus on three major themes — social justice, power and freedom, and democracy — reading some canonical texts, such as Bentham’s *Introduction to the Principles of Morals and Legislation* and Marx’s *Capital*, but emphasizing contemporary works, such as those of John Rawls, Michael Walzer, Michel Foucault, and Robert Dahl.
Credit 3 units. BU: BA

U19 SUST 107 Environmental Geology and Energy
Environmental impact of current energy sources and potential for alternative energy sources. Energy production effects on global climate change. Interplay of natural and human-induced climate change. Fossil fuel sources and uses. Nuclear power generation and problems with nuclear waste disposal. Examination of proposed disposal sites. Alternative energy sources, including solar, wind, geothermal, and hydrogen, compared to fossil fuel and nuclear power use. Intended for non-science majors. Prerequisites: none.
Same as U13 EPSc 107
Credit 3 units.

U19 SUST 146 Introduction to Energy, Environmental and Chemical Engineering
Key technical issues that face our society and some of the emerging technologies that hold promise for the future are examined and discussed. Relationship to chemical engineering principles is emphasized.
Credit 3 units.

U19 SUST 200 Introduction to GIS
This course introduces students to the fundamental principles and applications of geographic information systems (GIS) and their underlying geospatial science. Topics include spatial data types, map coordinate systems and projections, basic spatial data analysis, and processing and visualizing data in GIS. Lectures are supplemented with lab sessions to develop problem-solving skills using ESRI ArcGIS software (including ArcView/ArcInfo and its Spatial Analyst extension). Same as U90 GIS 200
Credit 3 units.

U19 SUST 209 Introduction to Environmental Studies
This course examines the physical, chemical, and biological components of the environment. We will focus on the ecological principles that are the basis of environmental science. We will then explore how environmental studies incorporate concepts from politics, social sciences, economics, ethics, and philosophy. A central theme of the course is the effect of human societies on the environment, and how individual human and societal behavior can be modified to minimize the deleterious effects on the environment. This course is fully online. Only University College students receive credit for online courses.
Same as U29 Bio 209
Credit 3 units. UColl: OLI

U19 SUST 219 Spirituality and Sustainability: Theories and Applications
This course addresses the role spirituality plays in sustainable living. We focus specifically on the concept of transcendentalism or unfiling awareness, the moral foundation for relating interpersonally and with the natural world. Through examining selected economic and scientific readings, spiritual and indigenous traditions, and case studies, students develop a critical understanding of how spirituality and sustainability are interdependent and why this holistic perspective is a crucial element in decision analysis models. The foundation of our research includes E.F. Schumacher, Dr. Vandana Shiva, Michael Porter, and Dr. Donella Meadows; East Asian, Sufi, Hindu and Deep Ecology traditions plus Saami, Aramaic, and Aborigine cultures. Students in this course demonstrate applying
systems thinking and decision analysis, relevant in complex environmental, economic and social equity challenges. Credit 1 unit.

U19 SUST 235 Introduction to Environmental Ethics
A general survey of current issues in environmental ethics, focusing on problems such as the obligation to future generations, protection of endangered species, animal rights, problems of energy and pollution, wilderness, global justice, and business obligations. Students will also learn some ethical and political theory. Same as L30 Phil 235F. Credit 3 units. A&S: TH A&S IQ: HUM Art: HUM BU: ETH

U19 SUST 299 The Study of Cities and Metropolitan America
This course serves as the introductory course analyzing the forces shaping America’s cities and surrounding metropolitan areas. It examines, as well, strategies for dealing with many of the profound social issues affecting urban/metropolitan America. Emanating from an historical perspective, it examines the ways in which industrialization and deindustrialization shaped Northern American cities and the consequences of deindustrialization on urban citizenry. It further surveys the demographic and spatial transformation of American cities examining the consequences of urban transformation on federal, state and local politics, on society and on her institutions. Similarly, the course focuses on the origin and societal changes and emerging goals of urban development, gentrification and evolving patterns of metropolitanism and the necessity for central city as well as neighborhood reconstruction. The dynamics of racial residential segregation, crime and punishment, issues of academic achievement and under-achievement, the social cleavages of urban marginalized communities, family structure, urban homelessness, urban sprawl, and health care, among others, are viewed from the perspective of social justice by exploring social, political, economic, racial, and ethnic factors that impact on access, equity and care. Various theoretical perspectives and philosophies are introduced that have dominated the discourse on race and urban poverty. A field-based component complements the course work, and is designed to build interest, awareness and skills in preparation for outreach to urban communities. Prerequisite: sophomore standing. Credit 3 units. BU: BA

U19 SUST 303 Digital Cartography
In today’s world, it is imperative that students develop the necessary skills to communicate their ideas to a large audience in an efficient manner. Graphics and visual representations are one of the most effective ways to neatly convey complex data sets to readers. This course presents both theoretical and hands-on mapping and graphical problems to students. Students will learn to solve these problems with self-created solutions. The course teaches students the basics of GIS-based mapping for producing publishable work. Students will develop basic skills in computer-aided mapping and computer drafting primarily using ARCGIS, Adobe Illustrator, Adobe Photoshop, and Microsoft PowerPoint. Students will also be introduced to other mapping or statistical programs as needed. Same as U90 GIS 303. Credit 3 units.

U19 SUST 315 Introduction to Historic Preservation
This course explores the history and practice of historic preservation with an emphasis on regional urban issues and the way in which historic preservation contributes toward the development of sustainable communities. Students are exposed to a diverse range of preservation topics that will enable them to apply sound historic preservation principles in professional practice. Course topics include: evaluation and recording of historic properties and districts; Secretary of the Interior’s standards in the process of planning or designing a project; historic preservation in community planning; application process for state and federal tax credit programs; conservation of historic building materials; historic preservation vs. modern building codes and user requirements. We examine case studies of completed projects or projects in progress. Credit 3 units.

U19 SUST 317 Urban Ecology: Principles and Practice
More than half of the world’s population now lives in an urban environment. Studies have shown that connecting to nature can benefit people, and savvy municipalities are attuned to the positive role that ecology can plan in the urban core. How can people and nature coexist in ways that are mutually beneficial? This course will explore three things: (1) what urban ecology is: the underpinning and forerunners in the field; (2) why urban ecology is important: potential benefits and impact in the social, economic and environmental realms; and (3) how urban ecology is being tested and applied around the world: implementation techniques and approaches. This course is designed to serve as an introduction to the topic of urban ecology, and may serve as a prerequisite for more in-depth course work, such as an educational trip to experience biophilic cities in person. Credit 3 units. UColl: OLIH

U19 SUST 318 The Business of Sustainability
From manufacturing to education, agriculture to retail, sustainability has become a key element of current business practices. Using sustainability’s triple-bottom line focus on social, environmental and financial impacts, businesses are addressing common challenges related to the costs, metrics, organizational values and practices. Key business concepts in the course include the economics of organizations, sector analysis, stages of business growth, operations and the dynamics of mission driven organizations. Five business sectors — food-based businesses, sustainable production, environmental services, energy businesses and sustainable community development — will be used to provide examples of the challenges and opportunities of applying principles of sustainability to current or new businesses. This course will be especially useful for students considering careers in sustainability. Credit 3 units.

U19 SUST 319 Planning Sustainable Communities
While the media bombards us with talk of sustainability and things “green,” just what does it mean to be sustainable and how is it obtained? This course will discuss what sustainability means, the dimensions of sustainability, and various approaches for achieving sustainability. Its primary goal is to introduce students to the process of producing a sustainability strategic plan for a neighborhood, city, or region. Students will learn how to prepare a baseline sustainability analysis, generate community sustainability goals, formulate sustainability implementation tactics, and devise assessment measures. The course will examine best practices in planning for sustainability from around the country and around the world, but will use St. Louis as a case study in studying current techniques and theories in planning for sustainability.
who have explored the history of the urban form; the nature of the present, and future of this evolution. It discusses key theorists

This course examines key seminal works that analyze the past, present, and future of the metropolis on a global scale. Credit 3 units.

U19 SUST 3312 Environmental and Energy Issues

This course considers the major issues in these increasingly important areas of public policy. We discuss the importance of political processes and actors on such phenomena as global warming, endangered species, and public lands. This course emphasizes the American experience but also considers international implications.

Same as U25 PolSci 3312
Credit 3 units. UColl: PSA

U19 SUST 332 Conservation Biology and Biodiversity

This overview of the fields of conservation biology and biodiversity covers topics such as species preservation, habitat restoration, refuge design and management, and human population growth. Does not count for day, undergraduate biology majors. This is a fully online course. Only University College students receive credit for fully online courses.

Same as U29 Bio 432
Credit 3 units. UColl: OLI

U19 SUST 3322 Sustainability Policy

Same as U25 PolSci 3322
Credit 3 units.

U19 SUST 343 Managing LEED Certification

This course provides in-depth instruction on how to effectively manage the documentation process and project team from Charrette to certification. Emphasis will be placed on integration of design, establishing environmental goals, LEED registration/certification process, and construction phase implementation.

Credit 3 units.

U19 SUST 344 Global Development and Sustainability

This course examines those activities, public and private, designed to bring a greater quality of life to an area, region or country and the people living there. While broad in scope, the discipline of Development can be focused in four ways. The first and broadest is economic development and in particular foreign aid, economic interventions, and the rise of the multinationals. The second focus looks at the cultural dimensions of development and in particular globalization, indigenous cultures, and the development of the new localism. The third explores the political dimensions of development with a particular attention to the systems and models of local, national and regional politics. The fourth analyzes the technological dimension of development with special emphasis on agricultural and communications technologies. By looking at how the field of global development has shifted toward sustainability, we will study principles and practices of sustainable development, particularly in the context of global challenges, exploring these economic, cultural, political, and technological dimensions.

We will apply models and methods to contemporary cases in first, third, and second world cultures that involve business, government, nonprofit organizations, and NGOs.

Credit 3 units.

of socioeconomic and political metropolitan structures; the transformation of the built environment of the city; contemporary urban policy; and the future of the metropolis.
U19 SUST 345 The Art and Science of Living Sustainably
This is a course on responsible decision making for sustainable living, at home, at work, in our communities, and worldwide. We will examine sociological theories and applications in relation to environmental, economic, social, and organizational questions associated with systems thinking and sustainable development. Our study considers a range of cultural, literary, religious, ethical, scientific, and anthropological perspectives. We read essays by Henry David Thoreau, John Muir, John Burroughs, Rachel Carson, Paul Ehrlich, and Barry Commoner, along with other influential works on conservation and sustainability such as Changes in the Land: Indians, Colonists, and the Ecology of New England; This Sacred Earth: Religion, Nature, Environment; Reweaving the World: The Emergence of Ecofeminism; and Materials Matter: Towards a Sustainable Materials Policy. We review case studies of sustainability programs in communities, business, government, and international development that illustrate successful integration of social responsibilities with operational and technical strategies for sustainable growth. This class utilizes carbon footprint calculators, sustainability assessments, practical solutions and tools, personal Best Practices for Sustainable Living, and a fact-finding field trip. No previous study in this topic required.
Credit 3 units.

U19 SUST 3463 Global Health Issues
Same as U29 Bio 463
Credit 3 units.

U19 SUST 352 Universal Design: Process, Principles, and Application
This multidisciplinary course will provide an introduction to the philosophy, principles, and practice of universal design in a variety of design disciplines including architecture, urban planning, and industrial design. Current international trends will be discussed in the context of the history of universal design and case studies of noteworthy examples. The course will include study of the connections between sustainable and universal design practices, recognition and elimination of barriers, limitations of accessible design practices, and the differences between regulatory standards and universal design outcomes. Students will examine the impact of the environment on people with differing abilities including variations in perception, cognition, and movement.
Credit 3 units.

U19 SUST 355 Environmental Economics
Environmental economics is a subfield of economics concerned with environmental issues, both theoretical as well as applied and public-policy oriented. Central to environmental economics is the concept of market failure, particularly the existence of externalities. Correcting for externalities and crafting acceptable public policy responses will be a central focus of this course. Topics explored will include: consumer theory and valuation; pollution and production theory; environmental protection and welfare; the Coase Theorem; resource management; and economic growth and environmental sustainability. Prerequisite: Econ 103.
Same as U07 Econ 355
Credit 3 units.

U19 SUST 356 Operations and Supply Chain Management
This course introduces operations management and examines the transformational processes of raw components into finished goods. In addition, the course analyzes how the operations function relates to other organizational functions and focuses on all strategic areas of operational decision-making. Spreadsheets are used in preparing, analyzing, and communicating solutions to management.
Same as U44 Bus 356
Credit 3 units.

U19 SUST 358 Systems Thinking and Decision Analysis
Many of the global challenges we face demand complex thinking, multiple perspectives, critical analysis, and sophisticated models that develop skills and tools for difficult choices. Using current research and best practices in the fields of systems thinking and decision analysis, students in this course will acquire resources, strategies, and tools for making complex organizational and personal decisions.
Same as U44 Bus 358
Credit 3 units.

U19 SUST 360 Practical Applications of Sustainable Design I
Translation of theoretical knowledge into practical, deployable, and tangible methods. Research of materials, systems, and construction methods, employed in the design and construction of environmentally responsible environments. Conserving resources and maximization of comfort through design adaptations to site-specific and regional climate conditions. Describe how the building responds to local climate, sun path, prevailing breezes, and seasonal and daily cycles through passive design strategies. Design strategies for daylighting, task lighting, ventilation, indoor air quality, views, and personal control systems. Integration of natural systems and appropriate technology.
Credit 3 units.

U19 SUST 362 Practical Applications of Sustainable Design II
Transaction of theoretical knowledge into practical, deployable, and tangible methods. Research of materials, systems, and construction methods, employed in the design and construction of environmentally responsible environments. Conserving resources and maximization of comfort through design adaptations to site-specific and regional climate conditions. Describe how the building responds to local climate, sun path, prevailing breezes, and seasonal and daily cycles through passive design strategies. Design strategies for daylighting, task lighting, ventilation, indoor air quality, views, and personal control systems. Integration of natural systems and appropriate technology.
Credit 3 units.

U19 SUST 363 Practical Applications of Sustainable Design III
Credit 3 units.

U19 SUST 364 Global Sustainability
Global Sustainability explores our relationship with planet earth. Taking an ecological systems perspective, this course provides students with the knowledge and understanding of the scientific, cultural, social, political, economic, and technological conditions that affect the quality of life on our planet. Due to the cross-disciplinary nature of these conditions and issues, the course will touch on many different subject areas, including ecology, conservation biology, economics, and political science. The overarching theme of environmental sustainability will be interwoven throughout the course. Topics covered include an overview of the global commons, ecosystem integrity and health, the human footprint, biodiversity and human health, the pollution and degradation of the global commons, ecological economics, the international system and environmental politics, resource management, and sustainable development.
Same as U29 Bio 364
Credit 3 units.

U19 SUST 3641 Strategic Planning
If you are a new business owner, experienced manager, executive, entrepreneur or nonprofit director wanting to utilize the newest, easy to use and implement, most practical approaches to strategic planning within your organization, these are the tools to begin your journey. Leading-edge strategic planning tools and
templates can help your successfully focus your new or existing business or nonprofit on lacking the tough issues of today and the future. The course will emphasize how to create, implement and manage successful change within your organization. Using case studies, industry leaders, text and discussion, we will examine and use fundamental principles and tools that relate to successful strategic planning and decision making. Students will develop written and oral presentation skills in the context of strategic planning; understand how to motivate the organization and, as a capstone project, design and receive feedback on a draft strategic plan for their business, function or board.

Same as U44 Bus 364
Credit 3 units.

**U19 SUST 366 Historic Preservation, Planning, and Sustainability**
This course applies principles of historic preservation to a study of the City of St. Louis (Introduction to Historic Preservation, U19 SUST 315, is recommended). We will look at the physical development of St. Louis, from its origin to the present, analyze St. Louis as a sustainable community, and explore what it might look like in the future. Emphasis will be placed on the urban landscape and the built environment, both existing and lost, that tells us what St. Louis is and where it might be going. We will study how early development determined what St. Louis looks like today, how comprehensive planning has created both the success and failure, how federal policies have created lasting gains and regrettable losses, and how historic preservation is the ultimate sustainable activity that connects our past with the future. Credit 3 units.

**U19 SUST 367 Corporate Social Responsibility & Sustainability**
Corporate Social Responsibility (CSR) is an increasingly important dimension of corporate structure and governance as companies struggle to do well and to do good. Examples in recent years include Nike, BP, Walmart and Coca-Cola; all who have faced criticism for gaps in their CSR approach prompting significant company changes. Organizations use CSR to govern resources use, vendor relationships, human resource practices, philanthropic practices, sustainability standards, and environmental impact. This course traces the historical development of CSR to show how organizations form policies and practices in the areas of human rights, labor standards, the environment, health and wellness, anti-corruption, and economic responsibility. In particular, we study the central role of sustainability in CSR, looking at sustainability scoreboards, employee engagement, organizational structures, and resource tracking. Same as U44 Bus 367 Credit 3 units.

**U19 SUST 375 Contemporary Organization Development: Creativity, Innovation, Sustainability**
This course examines contemporary theories and principles of organization development (OD) with an emphasis on creativity, innovation, and sustainability as measures of organizational success. The course is divided into three core sections: methods for creating organizations and new initiatives; competencies and systems for organization development and renewal; and conceptual and practical aspects of organizational sustainability. We also study examples of successful, creative organizations in public and private sectors including business, nonprofit, information technology, health care, and communications. Students will draw on their own work experience as they study and apply course content from multiple disciplines including critical theory, creativity studies, organizational studies, and communications theory.

Same as U44 Bus 375
Credit 3 units.

**U19 SUST 3777 Accounting and Finance for Sustainable Operations**
This course will provide students a comprehensive overview of management, accounting & finance as they relate to sustainable business operations. This course will explore the core concepts, strategies and practices of sustainable business while providing real-world examples of these principles to individual cases as well as students' own current organizational settings. The concepts of this course will be taught through the required reading, lectures and guest speakers. Students will be required to put sustainable business accounting & finance concepts into practice by completing a sustainable accounting or finance business audit of an existing business or developing a sustainable business plan, taking into account the triple bottom line principles. Same as U44 Bus 3777 Credit 3 units.

**U19 SUST 3795 Anthropology and Climate Change: Past, Present and Future**
This course provides an overview for interplay between humanity and global climate change that encompasses three-field anthropological subjects. Course material includes the role of climate change in shaping human evolution, human solutions to climatic challenges through time, the impact of human activities on the climate, and modern sociocultural examinations of how climate change is affecting the lives of people around the world. Same as U69 Anthro 3795 Credit 3 units. UColl: OLI

**U19 SUST 381 Evolutionary Medicine**
Evolutionary Medicine examines how human evolution relates to a broad range of contemporary health problems including infectious, chronic, nutritional, and mental diseases and disorders. The primary goal of the course is to compare modern human environments and behaviors with the conditions under which humans evolved to determine the extent to which medical conditions of the present may be a consequence of adaptation to different conditions of the past. Hybrid online. Same as U29 Bio 481
Credit 3 units.

**U19 SUST 4111 Tropical Ecology and Tropical Rainforest Field Experience**
This course explores the terrestrial ecosystems of the tropics, focusing predominantly on the lowland and mountain rainforests, mangroves, cloud forests, and tropical dry forests of the Neotropics. We examine the biological and ecological processes that influence ecosystem dynamics and biodiversity within representative communities. We discuss issues of conservation, sustainable development and resource use, and the human impact on these fragile ecosystems. Lectures are interspersed with student presentations and discussions of primary literature. Same as U29 Bio 4111
Credit 4 units.
U19 SUST 413 Environmental Science: Regional and Global Perspectives
This course examines the interrelationships between humans and their environment, moving from local and regional views up to a global perspective. Taking an ecosystem approach, the course starts with basic ecological principles necessary for understanding our environment. We will then explore how environmental science incorporates concepts from politics, social sciences, economics, ethics, and philosophy; physical and biological resources; conservation, management, sustainability, and restoration; population principles; environmental economics; human impacts (especially pollution and disturbance); environmental health & toxicology; and environmental policy. Lectures and discussions will focus on the major issues involved in environmental challenges, drawing on current, carefully selected articles from some of the most respected magazines, newspapers, and journals published today. Prerequisites: an introductory major’s-level course; or permission of instructor. Same as U29 Bio 413
Credit 3 units.

U19 SUST 4140 Sustainable Development and Conservation: Madagascar
This course focuses on sustainable development in rural subsistence economies, using Madagascar as case study. Students from diverse disciplines are challenged to develop and assess the feasibility of projects that can have a positive impact on communities constrained by poverty traps. The span of projects includes topics such as forest conservation and use, nutrition, health, food security, clean water, education, and bottom-up economic growth. Students in humanities, social sciences, business, design, engineering, physical sciences, law, social work, economics, political science, public health and others use their different perspectives to search for answers. Teamwork and peer teaching are central to the course. Competitively evaluated projects will be field-tested in Madagascar. Selected teams will travel to Madagascar in May and work with the Missouri Botanical Garden Community Conservation Program to adapt projects to conflicting environmental, cultural, economic, and political factors. Poster board sessions for students taking the trip occur in the fall term. Project teams selected to go to Madagascar will be assessed a lab fee at the time their participation in the trip is confirmed. The lab fee covers the cost of airfare, in-country transportation, and approximately three weeks of in-country lodging and food. Undergraduate students should register for the course using one of the undergraduate cross-listed course numbers.
Same as U85 IA 5142
Credit 3 units.

U19 SUST 419 Ecology
A survey of ecological principles underlying the spatial and temporal distribution of populations and biological communities. The focus of this course is on the major concepts of ecological theory. Each concept is illustrated using case studies from the ecological literature. Students are also introduced to the primary literature of ecology and are expected to lead class discussions evaluating this literature. Topics include natural history, temperature and water relations, population ecology, population and species interactions, communities and ecosystems, and large-scale ecology.
Same as U29 Bio 419
Credit 3 units.

U19 SUST 420 History of American Architecture
“The perennial architectural debate has always been, and will continue to be, about art versus use, visions versus pragmatism, aesthetics versus social responsibility. In the end, these unavoidable conflicts provide architecture's essential and productive tensions; the tragedy is that so little of it rises above the level imposed by compromise, and that this is the only work most of us see and know.” —Ada Louise Huxtable. This course examines the ideological, political, economic and social determinants that have shaped the look of American architecture. Starting with a thorough survey of the historic development of American architecture pursued in a chronological reading of styles, forms, and major architects, the course examines key tensions in the development of American architecture. Students will undertake readings, site visits, and discussions that probe whether there is a distinctly American mode of creating architecture, and what contingencies illuminate or obscure that mode. The central questions of this course: What are the definitive characteristics of American architecture? Does the American practice of architecture espouse an exceptionalism, or does it emulate international precedents (or both)? Do the characteristics of American architecture reveal the social, economic, and political structures of its production? Ultimately, can we read an American building to reveal sense of national identity, individual political agency, the evolution of gender roles, the assertion of disciplinary and economic power, and the evolution of the American artistic sensibility? This course fulfills the Humanities and Fine Arts distribution requirement for the AMCS master’s program.
Same as U89 AMCS 420
Credit 3 units. UColl: ACF, ACH

U19 SUST 450 Sustainability Capstone
This is the required capstone/practicum course for the Bachelor of Science in Sustainability, Certificate in Sustainable Environment and Science, Certificate in Sustainable Management and Organizations, and Certificate in Sustainable Communities and Development. This is a 3-unit experiential course, faculty supervised and tailored to each student’s professional goals, that applies concepts and skills from earlier courses to a hands-on sustainability project in a work or studio setting.
Credit 3 units.

U19 SUST 481 Advanced GIS
This course is designed to move beyond tools and skills learned in Applications in GIS (EnSt 380/580). Classes will feature hands-on exercises selected to help students master advanced GIS analysis tools and techniques, while providing experience in the planning and execution of real-world projects. Primary emphasis will be on applying fundamental GIS concepts, performing spatial analysis, developing proficiency with core ArcGIS software (e.g., Network Analyst extension), resolution of problems, and efficient delivery of results. Readings from books and scientific literature will introduce key concepts and provide real-world examples that will be reinforced in the hands-on exercises, assignments, and projects. As the semester develops, students will gain a variety of new tools and techniques that will allow them to complete a final independent project that integrates the material learned during the course.
Same as L82 EnSt 481
Credit 3 units. A&S IQ: NSM
U19 SUST 492 Decoding the City
While architecture and infrastructure are worthy of study in themselves, often they signify more complex cultural meanings, mask efforts to erase or reorder the city, and conceal histories of injustice. This course presents methods for "reading" the built form of the American city to decode histories of architecture, culture, public policy and economics. City space can be read literally, but this course will unpack the symbolic meanings of urban spaces, neighborhoods, buildings and sites. Students will undertake readings that will present methods for understanding and analyzing the city’s form, before delving into a specific case study of the Mill Creek Valley. As St. Louis’ largest African-American neighborhood, but almost completely erased between 1959 and 1965 using city and federal funds, the site of the neighborhood remains a potent and under-examined part of St. Louis. The course will examine the history of the neighborhood as well as related histories of federal and local urban renewal policies, African-American cultural history and historic preservation. Research into the neighborhood will include experiences at local archives where students will learn to attain and apply primary source documents vital to urban history including Census records, building permits, municipal ordinances and insurance maps. Additional readings will offer insights into possible methods for interpreting and commemorating places that illuminate the urban built environment's historic past. The final project in this course will entail students collaboratively working on a public interpretive project for Mill Creek Valley where they can apply both methods of decoding and curating the city. This course satisfies the Humanities and Social Science requirement for the master’s program in American Culture Studies.
Same as U89 AMCS 492
Credit 3 units. UColl: ACH, ACS, HSM, HUS