SUS

Sustainability Studies

SUS 302: Integrative Assessment Models
Use, evaluation, and development of integrated assessment models. These model typically integrate environmental concerns with variables from other disciplines for the purpose of providing policy advice to decision-makers. Students will learn about the most frequently used integrated assessment models and what we can learn from them. The models studies will include the World3 model, which was the basis of the famous book "The Limits to Growth."
Prerequisite: SBC 201; U3/U4 status
3 credits

SUS 303: Demographic Change and Sustainability
This course will assess the unprecedented demographic changes and diversity of the 21st century, through an interdisciplinary approach. It will explore themes such as population ageing and decline, migration in population replacement, demographic change and sustainable public health, social welfare programs, environmental degradation, and differential vulnerabilities (e.g., gender, poverty, age, education, ethnicity and race, empowerment and rights).
Prerequisite: SBC 115
3 credits

SUS 306: Business and Sustainability
This course examines the interface between business and sustainability. It considers opportunities for the development and growth of profit and not-for-profit businesses associated with the promotion of sustainability. It also covers how environmental concerns and related governmental regulations influence business operations and profitability. Students will apply career skills and concepts from environmental economics to understand how business functions (e.g., operations, public relations, sales, health and safety, and corporate social responsibility) are influenced by environmental concerns. The course will highlight current issues and cases, provide an overview of theory and practice, and generate research to test students' hypotheses, and generally explore opportunities and threats to business viability. Review of current affairs, case analyses, role plays, field trips, and guest speakers will be included along with required reading in seminal theory and research.
Prerequisite: SBC 206

SUS 307: Environmental Economics and Management
This course presents advanced concepts in environmental economics and management through a series of detailed case studies. The cases include those concerning the US sulfur-dioxide permit trading system, the Kyoto Protocol, zoning, coastal fisheries, the use of ethanol in gasoline, tradable development rights in the Long Island Pine Barrens and the conservation of endangered species.
Prerequisite: SBC 206
SBC: STAS
3 credits

SUS 308: Economic Development
This course teaches students about economic development and its relationship to the environment. Students learn about both the theory of economic growth and the way development has proceeded in various regions of the world. Examples will come from the Asian tiger economies of East Asia and the development disasters in Sub-Saharan Africa. The relationships between the levels and rates of growth of output and various environmental indices will be explored.
Prerequisite: SBC 206
3 credits

SUS 309: Environmental Treaties and Protocols
A multi-disciplinary study of the scientific basis, objective, development, implementation, and intended and unintended consequences of a single major Environmental Treatise or Protocol, such as the Kyoto Protocol. Official documents, secondary literature, as well as commentary on the Treatise or Protocol are studied.
Prerequisite: SBC 111, or ENS 101, or GEO 101; U3 or U4 standing
DEC: H
SBC: STAS
3 credits

SUS 320: Energy and Mineral Resources
This class will explore the origin, distribution, and importance of energy and mineral resources to modern civilization, with an emphasis on fossil fuels and non-renewable mineral resources extracted from Earth. Geological processes responsible for the formation and distribution of energy and mineral resources, as well as current and future supply and demand are discussed. The environmental implications of the extraction and use of energy and mineral resources as well as techniques to minimize the impact on the environment will be discussed.
Prerequisite: one D.E.C. E or SNW course
DEC: H
SBC: STAS
3 credits

SUS 343: Age of the Anthropocene
Provides a deeper understanding of the ways in which humans have interacted with and transformed the planet during recent geologic time, including the Holocene, Industrial Revolution, and into the present. We consider Earth as a global ecosystem, characterized by interacting and dynamic systems, including natural and anthropogenic. This course critically examines the current interpretations and applications of the term Anthropocene, and identifies the key tenants and societal outcomes of this powerful, and sometimes conflicting, idea as applied today in science, sustainability, and beyond.
Prerequisite: one of the following courses:
SBC 111, SBC 113, ENS 101, GEO 101, GEO 102, ENV 115, CHE 131
DEC: H
SBC: STAS
3 credits

SUS 350: Contemporary Topics in Sustainability
This course deals with the meaning and the application of the idea of sustainability. First, the mathematics of exponential and linear growth, and the concept of stability in complex systems will be developed. The idea of stable equilibrium and the long-term/short term distinction will also be discussed. Then, various subjects of sustainability--populations, species, habitats, ecosystems, resources, cultures, modes of production, economic systems, and political systems will be considered. Various purposes of sustainability for its own sake, for human welfare, for the welfare of nature will also be discussed. May be repeated as the topic changes.
Prerequisite: SBC 111; U3/U4 status
3 credits

SUS 366: Philosophy of the Environment (III)
Philosophical questions raised by human relations with the natural world, ranging from basic concepts such as nature, ecology, the earth, and wilderness, to the ethical, economic, political, and religious dimensions of current environmental problems, including the question of whether there are values inherent
in nature itself beyond those determined by human interests alone. This course is offered as both PHI 366 and SUS 366.

Prerequisite: PHI 104 or two PHI courses; or permission of the department

DEC: G
SBC: CER, HFA+
3 credits

SUS 444: Experiential Learning

This course is designed for students who engage in a substantial, structured experiential learning activity in conjunction with another class. Experiential learning occurs when knowledge acquired through formal learning and past experience are applied to a “real-world” setting or problem to create new knowledge through a process of reflection, critical analysis, feedback and synthesis. Beyond-the-classroom experiences that support experiential learning may include: service learning, mentored research, field work, or an internship.

Prerequisite: WRT 102 or equivalent; permission of the instructor and approval of the EXP+ contract (http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/degree_requirements/EXPplus.php)

SBC: EXP+
0 credit, S/U grading

SUS 487: Research in Sustainability Studies

Qualified advanced undergraduates may carry out individual research projects under the direct supervision of a faculty member. May be repeated.

Prerequisite: Permission of instructor

SBC: EXP+
1-6 credits, S/U grading

SUS 488: Internship in Sustainability Studies

Participation in local, state, and national public and private agencies and organizations. May be repeated to a limit of 12 credits.

Prerequisites: U3/U4 status and permission of the Undergraduate Program Director

SBC: EXP+
0-12 credits, S/U grading

SBC

Sustainability Block Curriculum

SBC 111: Introduction to Sustainability Studies

Survey course introduces concept of sustainability. Sustainability is often defined as the ability to provide for the needs of the world’s current population without damaging the ability of future generations to provide for themselves. This course reviews the needs of the current population and future generations, trends that affect our ability to provide those needs, and possible solutions that are environmentally, economically, and socially acceptable.

SBC: SNW
3 credits

SBC 113: Physical Geography Lecture

This study of ecosystems examines modern environmental problems through quantitative methods, analysis, and modeling grounded in basic and applied science and research. The goal of the course is to introduce students to the fundamental processes that dominate the atmosphere, hydrosphere, lithosphere, and biosphere, their characteristics and complex interactions, and their impact on human life and society.

DEC: E
SBC: SNW
3 credits

SBC 114: Physical Geography Lab

This laboratory course provides hands on experience in understanding the geosystems, including distribution and interrelationships of climate, vegetation, soils, and landforms.

Pre- or corequisite: SBC 113
1 credit

SBC 115: Introduction to Human Demography

An introductory course on the study of human population. Measurement issues and data in demographic analysis, as well as demographic perspectives on the basis of a review of major sources of information about population studies will be presented. Theories incorporating social, economic and political explanations for influences on human population growth will be considered. Population processes, with focus on fertility, mortality and migration, are reviewed. Population structure and characteristics, the interaction of the population processes and the number of people in a society of a given age, sex, race, ethnicity, socioeconomic levels, marital status, and gender, are reviewed. Major issues related to sustainability (such as economic development, food and pollution, urbanization, gender and minority empowerment, and the human relationship and ecology with other organisms and species) are reviewed.

Prerequisite: MAT 125, MAT 131, MAT 132, or level 6 or higher on math placement exam

SBC: SBS
3 credits

SBC 116: Introduction to Human Geography

Survey course introduces geography as a social science by emphasizing the relevance of geographic concepts to human problems. Course emphasizes globalization and cultural diversity.

DEC: F
SBC: SBS
3 credits

SBC 117: Design Drawing

This introductory course exposes the student to the fundamental theories and practices employed in visually representing design concepts from observational through technical and speculative drawing. The course content introduces the student to contour drawing, rendering, orthographic projection, and pictorial drawing. Project work engages the student in the application of the above-mentioned drawing techniques and develops skills through the solution of student tailored problems.

DEC: D
SBC: TECH
3 credits

SBC 200: Human Settlement: History and Future

The history of city growth over the millennia as affected by technological change is a basis for understanding the future of human settlement. More than half of the world’s population currently lives in cities and urbanization continues on a global scale. The universality of urban development and resulting patterns will be presented as well as limits on growth of cities. Architectonic and socioeconomic planning theories and strategies for sustainable growth are presented. The development of Long Island, which is a microcosm of national and global patterns, will be discussed in detail.

DEC: F
SBC: SBS
3 credits

SBC 201: Systems and Models

Introduction to the dynamic modeling of complex systems. Students will learn to use simulation software that facilitates the
visualization, formulation, and analysis of systems. Students will learn about systems with positive and negative feedbacks, the effects lags on system performance, and the difference between stocks and flows. Systems studied will include ecological models, economic models, chemical models, population models, epidemiological models, and models that include the interactions between population, economic development, and the environment.

Prerequisite: AMS 151 or MAT 125 or MAT 131 or MAT 141
2 credits

SBC 203: Interpretation and Critical Analysis
An introduction to interdisciplinary inquiry and representation in arts, culture, and theory with emphasis on the roles of analysis, argument, and imagination in multiple media. Requires serious engagement with sophisticated texts.
Pre- or corequisite: WRT 102
DEC: G
SBC: CER, HUM, WRTD
3 credits

SBC 204: Population Studies
The course will present basic mathematics of population growth and introduce various approaches for modeling populations, including population viability analysis (PVA). PVA, the quantitative assessment of the extinction risk of rare species or populations, takes biological information (habitat requirements, birth and death rates, population size) and makes predictions about future population sizes. Real examples will be discussed for a range of organisms, from bacteria to plants and mammals. This course will provide also the background for understanding human population growth. The impacts of human population growth in the developed and developing world on the ecology of other organisms, habitats and systems will also be discussed.
Prerequisite: MAT 125
DEC: E
SBC: STEM+
3 credits

SBC 206: Economics and Sustainability
Introduction to the basic economic concepts used in sustainability analysis. Students will learn the basic concepts and how to apply them in various context. Topics include the analysis of situations in which the behavior of individuals indirectly affects the well-being of others, strategic behavior and the environment, and the use of market-oriented policies to help in the stewardship of the environment.
Prerequisite: ECO 108
DEC: F
SBC: SBS+
3 credits

SBC 307: American Environmental History
This course provides an overview of the history of how Americans have used, viewed and valued the natural environment. Beginning with the Indians and the early colonists (15th-16th centuries), the course will examine the cultural, social, economic, political, and technological currents that shaped North Americans' relationships with their environment in early and later industrial eras, after World War II, and finally, in the late 20th and early 21st centuries. Historical snapshots will center on people living in more natural places, such as farms and forests, as well as more built places, such as factories, cities, and suburbs. Events in the northeastern U.S. will provide a geographic focus, but the course will also look at related happenings elsewhere on the North American continent and beyond. Finally, it will examine at the growing array of movements that have identified themselves as 'environmental,' at the 'greenness' of modern culture, and at the environmental dimensions of a globalizing era.
Prerequisite: WRT 102
DEC: K & 4
SBC: SBS+, USA
3 credits

SBC 308: American Environmental Politics
This course will survey the politics of environmental policy-making in the United States. It examines how contrasting political, economic and social interests and values have clashed and contested with one another, and the exerted power, in the environmental policy realm. The course will explore past precedents and roots, but with a view to explain the shape of this realm in the modern United States, including the many actors and institutions: local, regional and national governments, non-governmental organizations and interest groups, as well as the public. It will look at the main patterns by which these groups have defined environmental problems and formulated and implemented solutions. A chief goal is to illuminate how and why solutions of real-world environmental problems, if they are to be effective, differ from those of scientific or engineering puzzles.
Prerequisite: POL 102
DEC: K
SBC: SBS+
3 credits

SBC 309: Global Environmental Politics
This course will explore the politics of environmental policy-making within the international realm. Focused especially on environmental dilemmas that cross national boundaries (i.e., pollution), or that are shared by multiple nations (i.e., global warming) it will look at the ways that such problems have been defined and their solutions sought, both with and without an over-arching state or governance. It will survey the many groups, interests and values that have clashed and competed with one another to exert power and influence international environmental policies, as well as the variety of international institutions and agreements that have sought to formulate and implement solutions. One goal is to illuminate how and why effective solutions to global environmental problems differ from those to scientific or engineering puzzles. The course also aims to spark student engagement with the sometimes overwhelming nature of global environmental threats, the tenuous and sometimes counterproductive ways that knowledge and power can be linked, and the ways individuals may act powerfully in service of "sustainability."
Prerequisite: SBC 111 or ENV 115 or ENS 101 or GEO 101 or permission of instructor
SBC: GLO
3 credits

SBC 310: Migration, Development and Population Redistribution
This course draws upon the contributions of various social and natural sciences (including population and urban geography, demography, political science, sociology, history, economics, public health and environmental sciences) to explore the effects of migratory and demographic shifts on the environment, social welfare, public health, economic development, ethnic diversity, urbanization, public policy and planning. It will examine the political, social, environmental, health and economic effects on sustainability.
Prerequisite: SBC 115
3 credits

SBC 311: Disasters and Society: A Global Perspective
This class introduces students to the sociological examination of natural, technological, and industrial disasters. Students will explore how and why disasters are fundamentally social events: What do disasters reveal about society? Why are the
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SBC 312: Environment, Society, and Health

This class examines the interactions between environment, social structures, and institutions. The first part of the class examines the ways in which environmental issues are perceived and construed by various social actors (lay public, state officials, scientists, activists, media). The second part of the class will examine the differential impact of class, race, and gender on the distribution of hazards and risks (what is commonly known as ‘environmental inequality’). In the third part of the class, students will be introduced to different cases of ‘contested environmental illnesses’ (cancer, lead-poisoning, asthma).

Prerequisite: SBC 111, or ENS 101, or GEO 101; POL 102 or SOC 105
DEC: H
SBC: STAS
3 credits

SBC 321: Ecology and Evolution in American Literature

This course is a review of 19th- and 20th-century American writers who trace the evolution of the US with respect to ecological practices through various multicultural perspectives. Literature covered will include transcendentalist essays, utopian/dystopian novels, ecofeminist fiction, and journalism.

Prerequisite: WRT 102
Advisory Prerequisite: SBC 203
DEC: G
SBC: HFA+, WRTD
3 credits

SBC 325: Environmental Writing and the Media

An examination of multiple genres (including: photo journalism, literary nonfiction, fine art and advertising and documentary film) in order to understand ways in which these genres are utilized to inform and manipulate public opinion regarding the environment. The culmination of the course will be a final project using multiple genres.

Prerequisite: WRT 102
Advisory Prerequisite: SBC 203
DEC: G
SBC: HFA+, WRTD
3 credits

SBC 330: Extreme Events in Literature

A course that examines the depiction of extreme events (both natural and human-related) in literature, journalism, art, and film, with special emphasis paid to the extended political and social issues that are raised by the events in question.

Prerequisite: WRT 102
Advisory Prerequisite: SBC 203
DEC: G
SBC: HFA+, WRTD
3 credits

SBC 331: City, Suburb, Sprawl

A course that traces the shift from city to suburb to sprawl in texts that span the late-nineteenth century through the early twenty-first century, with special attention paid to phenomena such as industrialization, immigration, mass society, globalization, and postmodern hyperspace. An interdisciplinary set of texts will include works by novelists, artists, architects, and literary theoreticians.

Prerequisite: WRT 102
Advisory Prerequisite: SBC 203
DEC: G
SBC: HFA+
3 credits

SBC 354: Drawing for Design--CAD

Techniques and Theory of Drawing; Architectural Drawing: Learning Computer Assisted Design (CAD). This course will serve as an introduction to CAD tools relevant to design and architectural rendering.

Prerequisite: SBC 117
SBC: STEM+
3 credits

SBC 374: Environment and Development in African History

Provides a critical exploration of the history and political-economy of environmental changes and human activities in Africa from earlier times to the present. It examines the ways in which the dynamics of human-environment relationship have shaped the development of African societies and economies from the rise of ancient civilizations to the contemporary problems of war and famine. Although significant attention will be given to the pre-colonial era (like the impacts of iron-working, irrigation, deforestation and desertification), the focus of the course will be on the 20th and century and after, looking at the impacts of imperialism, colonialism, globalization and the postcolonial quest for development on the state of the environment in Africa. In the discussion, we will demonstrate that the shaping of African environments and ecologies is a product of complex, evolving and interconnected developments between humans and nature within and beyond the African continent. Offered as both AFS 374 and SBC 374. Not for credit in addition to SBC 320.

Prerequisite: U3 or U4 status
DEC: J
SBC: GLO, SBS+
3 credits

SBC 401: Integrative, Collaborative Systems Studies

Problem-based capstone course.

Prerequisite: U3 or U4 status
SBC: ESI
3 credits

SBC 475: Undergraduate Teaching Practicum

Work with a faculty member as assistant in a regularly scheduled course. The student must attend all classes and carry out all assignments; in addition the student will be assigned specific roles in teaching. The student will meet with the instructor on a regular basis to discuss intellectual and pedagogical matters relating to the course.

Prerequisites: Permission of instructor and undergraduate director

SBC: ESI, EXP+
3 credits, S/U grading

SBC 476: Undergraduate Teaching Practicum II

Work with a faculty member as assistant in one of the faculty member’s regularly scheduled courses. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. Students may not serve as teaching assistants in the same course twice.

Prerequisites: Permission of instructor and undergraduate director

SBC: EXP+
3 credits, S/U grading