Sustainability Studies (SUS)

Major and Minor in Sustainability Studies

Director: Dr. Arlene Cassidy
Email: arlene.cassidy@stonybrook.edu
Program Office: W0511 Melville Library
Program Coordinator: Ginny Clancy
Phone: (631) 632-9404
Email: ginny.clancy@stonybrook.edu
Website: http://www.stonybrook.edu/commcms/sustainability/

Sustainability Studies (SUS)

The Sustainability Studies major, leading to a Bachelor of Arts degree, provides the skills, knowledge, and preparation for students to understand and address the environmental, social, political, economic and ethical issues related to the transformation of our current societies to ones that are sustainable. The curriculum integrates principles and methodologies from social sciences, natural sciences, and humanities.

The major prepares students for entry-level employment in the public, private, or non-profit sectors in a variety of fields including economic development, foreign aid, public administration, law, diplomacy, public policy, public health, resource and energy conservation, business, finance, international trade, or eco-tourism. The major prepares students for graduate study in social science, political science, law, management and business.

The major builds on the interdisciplinary sustainability core curriculum. Students will enroll in major-specific courses in their junior and senior year. As part of the preparation, students will work in teams with students enrolled in related majors to collaboratively solve problems. Students are encouraged to take advantage of internships, project courses, independent research, and field courses to gain real-world experience.

Requirements for the Major and Minor in Sustainability Studies (SUS)

Requirements for the Major in Sustainability Studies (SUS)

A. Required Foundation Courses (32-33 credits)

1. MAT 131-C or MAT 125-C
2. ECO 108-F Introduction to Economics
3. POL 102-F, 4 Introduction to American Government
4. SBC 104-B Introduction to Moral Reasoning
5. SBC 111 Introduction to Sustainability Studies
6. SBC 115 Intro to Human Demographics
7. SBC 201 Systems and Models
8. SBC 205 Introduction to Geospatial Analysis
9. SBC 206-F Economics and Sustainability
10. SBC 113-E Physical Geography
11. BIO 201-E Fundamentals of Biology: Organisms to Ecosystems
12. ENV 115-E Chemistry, Life, Environment

B. Career and Leadership Skills (6 credits)

1. CSK 102 Career Leadership Skills: Working in Teams
2. CSK 302 Technical Writing and Communication.

Two of the following courses, each 1 credit:

1. CSK 101 Career Leadership Skills: Advocacy and Change
2. CSK 104 Career Leadership Skills: Negotiation and Conflict Resolution
3. CSK 105 Career Leadership Skills: Leadership
4. CSK 106 Career Leadership Skills: Communication Methods and Strategies
5. CSK 107 Career Leadership Skills: Assessment

C. Core Courses (27 credits)

Required:

1. SUS 302 Integrative Assessment Models
2. SUS 301 Environmental Ethic Required seven (7) three-credit courses with a minimum of one (1) course in each of the following five groups:

Group 1: Physical Environment and Renewable and Non-Renewable Resources

1. ENV 304-H Environmental Global Change
2. ENV 340 Contemporary Topics in Environmental Science
3. SUS 342-H Energy and Mineral Resource
SUSTAINABILITY STUDIES (SUS)

4. EHI 342-H Materials in Natural and Human Environment
5. EHI 343 Sustainable Natural Resources

Group 2: Ecology
1. EHI 310 Preservation and Restoration of Ecosystems
2. EHI 311 Ecosystem-Based Management
3. BIO 351 Ecology

Group 3: Human Population
1. SUS 303 Demographic Change and Sustainability
2. SBC 310 Migration, Development and Population Redistribution
3. EHI 321 Human Reproductive Ecology

Group 4: Economics
1. EDP 303 Spatial Economics
2. SUS 306 Business and Sustainability
3. SUS 307 Environmental Economics and Management
4. SUS 308 Economic Development

Group 5: Environment, Policy and Society
1. SUS 305-F Collective Action and Advocacy
2. SBC 307-K 4 Environmental History of North America
3. SBC 311-H Disasters and Society: A Global Perspective
4. SBC 312-F Environment, Society, and Health
5. EDP 305-H Risk Assessment and Sustainable Development
6. SUS 341-H Environmental Treatises and Protocols
7. SUS 350 Contemporary Topics in Sustainability
8. SBC 487 Research
9. SBC 488 Internship

D. Systems Courses (3 credits)
One course selected from the two choices below:
1. SBC 401 Integrative, Collaborative Systems Project
2. GEO 301-H Sustainability of the Long Island Pine Barrens

E. Communications and Writing Requirement

Proficiency in writing, oral communication, and computer literacy will be encouraged in all students. In addition to CSK 302, these skills will be developed within the context of other formal coursework and no additional credits are required. To meet the upper-division writing requirement, students must submit two papers from any 300-level or 400-level course in the major to the director of the SUS Undergraduate Program.

Note:
One course passed with a C- may be applied to the major; all other courses offered for the major must be passed with a letter grade of C or higher. Course taken with the Pass/NC option may not be applied to the major.

Minor in Sustainability Studies (SUS)

The Sustainability Studies minor is intended for students who seek to complement their chosen major with a foundation in the social, economic, and environmental aspects of sustainability.

Requirements for the Minor in Sustainability Studies (SUS)

No more than two courses that are used to satisfy your major can be applied to this minor. No more than one three-credit course in the minor may be taken under the Pass/No Credit option. All upper-division courses offered for the minor must be passed with a letter grade of C or higher. Completion of the minor requires 18 credits.

1. Required three introductory courses:
   a) SBC 111 Introduction to Sustainability Studies
   b) SBC 206 Economics and Sustainability

   And one of the following four courses:
   a) SBC 104 Moral Reasoning and Ethics
   b) SBC 115 Introduction to Human Demography
   c) POL 102 Introduction to American Government
   d) ENV 115 Chemistry, Life, Environment

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2. Required three courses from the following:
   a) BIO 301/ECO 301 Sustainability of the Long Island Pine Barrens
   b) SUS 301 Environmental Ethics
   c) SUS 306 Business and Sustainability
   d) SUS 307 Environmental Economics and Management
   e) SUS 308 Economic Development
   f) *ENV 340 Contemporary Topics in Environmental Science
   g) EPD 303 Spatial Economics
   h) SBC 307 Environmental History of North America
   i) SBC 309 Global Environmental Politics
   j) SBC 310 Migration, Development and Population Redistribution
   k) SBC 311 Disasters and Society: A Global Perspective
   l) SBC 312 Environment, Society, and Health
   m) SBC 401 Integrative, Collaborative Systems Studies
   n) SUS 305 Collective Action and Advocacy
   o) SUS 341 Environmental Treatises andProtocols
   p) *SUS 350 Contemporary Topics in Sustainability
   q) EHI 311 Ecosystem-Based Management
   *An Internship with significant practical experience [SBC 488 Internship] or an approved research project [SBC 487 Research] may be substituted for SUS 350 or ENV 340.

Declaration of the Minor

Students should declare the Sustainability Studies minor no later than the middle of their sophomore year, at which time they should consult with the minor coordinator or undergraduate director and plan their course of study for fulfillment of the requirements.

Sample Course Sequence for the Major in Sustainability Studies

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<th>Freshman Fall</th>
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<th>Spring</th>
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SUS

Sustainability Studies

SUS 301: Environmental Ethics
Historically, ethical and moral notions have been concerned with the relations of humans to one another. How does the natural world fit into those traditional views about ethical and moral obligations? Do these views need revision? A selection from issues such as the following will be discussed: animal rights; the intrinsic value of nature; our obligations to nature; the "land ethic"; global environmental justice; "deep ecology", and ecofeminism. Readings will include both historical sources, and recent and contemporary authors.
Prerequisite: SBC 104
3 credits

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 or U4
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 305 - F: Collective Action and Advocacy
This course will address the ways in which people act collectively to address social problems or to change social policy. The course will be divided into two sections: a general introduction to the study of collective action, and a set of case studies in environmental activism.
Prerequisite: SBC 111, ENS 101 or GEO 101; POL 102 or SOC 105

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, completion of three CSK 100-level modules
3 credits

SUS 307: Environmental Economics and Management
This course presents advanced concepts in environmental economics and management through a series a 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, MAT 125 or 131
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 why development has proceeding 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, MAT 125 or 131
3 credits

SUS 341 - H: 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
3 credits

SUS 342 - H: Energy and Mineral Resources
The origin, distribution, and importance of energy and mineral resources to modern civilization. The emphasis in this course is 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 DEC E course
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.
Prerequisite: SBC 111, U3 or U4
3 credits

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.
SBC

Sustainability Block Curriculum

SBC 104 - B: Introduction to Moral Reasoning
An introductory inquiry into the formation and evaluation of moral judgments and reasoning. The major theories and problems of ethics are surveyed, such as utilitarianism, Kant's categorical imperative, ethical relativism, egoism, and various concepts of the good and virtue. Readings from historical and contemporary figures.
3 credits

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.
3 credits

SBC 113 - E: Physical Geography Lecture
This study of geosystems 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.
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, socio-economic levels, martial 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.
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.
3 credits

SBC 117 - D: 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.
3 credits

SBC 200 - F: 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 the world's population currently live 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.
3 credits

SBC 201: Systems and Models
Introduction to the dynamic modeling of complex systems with feedbacks. Students will learn to use simulation software that facilitates the visualization, formulations, 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: MAT 125; EHI, EDP, SUS, COS, or EHM major, or permission of the instructor
1 credit

SBC 203 - G: 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
3 credits

SBC 204 - E: 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 impact 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, SBC 201
3 credits

SBC 205: Introduction to Geospatial Analysis (lab course)
Introduction to geographic information systems (GIS) and remote sensing techniques
as applied to documenting, mapping, analyzing, interpreting, and managing natural and cultural resources. Types of GIS data, computer hardware and software used for geospatial analysis, basic cartography, and global positioning system (GPS).

1 credit

**SBC 206 - F: 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 affect 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
3 credits

**SBC 307 - K: 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: U3/U4 standing
3 credits

**SBC 308 - K: 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: ECO 108
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 spur 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, ENV 115, ENS 101, GEO 101, or permission of instructor
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 - H: 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 human consequences of disasters unequally distributed? What are the typical ways in which states, organizations, and communities respond to disasters? Focusing on case studies from around the world, students will discuss: What are the long-term/short-term causes of particular disasters? What forms of suffering the disasters under consideration generated? What state/civil society actions did they trigger? What advocacy networks were put in place in their aftermath?

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

**SBC 312 - F: 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 constructed 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
3 credits

**SBC 313: GIS Design and Application**

This course provides the basic concepts underlying modern geographic information science and technology. Emphasis is placed on the principles of GIS for characterizing environmental systems and computer-based techniques for processing and analyzing spatial data. The course includes three hours of lecture and three hours of laboratory exercises each week.

Prerequisite: MAT 125 or MAT 131
4 credits

**SBC 320 - J: Sub-Saharan Africa: Geography, Cultures, and Societies**

This course presents a broad perspective on Sub-Saharan Africa, a region of sharp geographic, cultural, and economic contrasts.
The legacy of the region’s triple heritage (indigenous, Islamic, and European) is presented as a framework for understanding the complexity and diversity of contemporary Sub-Saharan Africa in terms of distribution of languages, religions, ethnicity, family relations, and governance systems. The influence of globalization, migration, HIV/AIDS, conflicts, population growth, and socioeconomic development policies on modern Sub-Saharan African are discussed.

Prerequisite: U3 or U4 standing
3 credits

SBC 321 - G: 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: SBC 203 or EGL 204
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
3 credits

SBC 330 - G: 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: SBC 203 or EGL 204
3 credits

SBC 331 - G: 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: SBC 203 or EGL 204
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.

3 credits

SBC 401: Integrative, Collaborative Systems Studies
Problem-based capstone course.

Prerequisite: U3/U4, CSK 102
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 a specific role to assist in teaching the course. 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
3 credits, S/U grading

SBC 476: Undergraduate Teaching Practicum II
Work with a faculty member as an 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
3 credits, S/U grading

SBC 488: Internship
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
0-12 credits, S/U grading