ACAP
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Agenda Item 40

UNIVERSITY OF SOUTH CAROLINA
COLUMBIA CAMPUS

PROPOSAL TO THE SOUTH CAROLINA COMMISSION ON HIGHER EDUCATION TO ESTABLISH BACHELOR OF ARTS DEGREE, ENVIRONMENTAL STUDIES

SUBMITTED August 24, 2012

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PRESIDENT
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CLASSIFICATION

Name of Proposed Program:	**Bachelor of Arts, Environmental Studies**
Academic Unit Involved:	**Environment and Sustainability Program School of the Earth, Ocean and Environment College of Arts and Sciences University of South Carolina, Columbia Campus**
Designation of Degree:	**Bachelor of Arts (B.A.)(4 year)**
Proposed Date of Implementation:	**Fall 2013**
CIP Code:	**03.0103**
Identification of program as New or Modified:	**New**
Site:	**University of South Carolina, Columbia Campus**
Program qualifies for supplemental Palmetto Fellows Scholarship and LIFE Scholarship Awards:	**No**
Delivery Mode:	**Traditional**

JUSTIFICATION

The University of South Carolina-Columbia requests approval to offer a new program leading to the Bachelor of Arts degree with a major in Environmental Studies to be implemented in Fall 2013. The 120-credit hour curriculum consists of general education requirements, major prerequisites, major requirements, and electives.

Purpose and Objectives:
The purpose of the proposed program is to prepare students to address complex environmental problems that require knowledge and understanding from multiple social science, humanities, and science disciplines that are framed in an environmental context. Students will learn to make sound analyses and judgments about interdisciplinary environmental challenges, and to seek and develop sustainable solutions that productively integrate social and economic needs with scientific and technical understanding. Impending environmental challenges include climate change, increasing drought and other extreme weather events and their impacts on infrastructure and food, energy and water supply, loss of biodiversity, increases in infectious disease, and invasive species. South Carolina has serious environmental issues that impact its economy and quality of life. These include large increases in population and tourism in our culturally and economically valuable coastal regions; the need to ensure safe and clean energy

supplies, which rely heavily on coal and nuclear power; and impacts associated with one of the nation's largest and most productive ports.

Program Need:
There is a fundamental need to increase opportunities for environmental learning in the nation's colleges and universities. College graduates will enter a society that will be increasingly impacted by serious environmental issues. These include climate change, threats to water resources and food supplies, degradation of natural resources and amenities, and increased contamination of resources with pathogens and pollution. These challenges require an informed citizenry and educated workforce to make wise decisions and develop new sustainable solutions for increasingly complex environmental problems. Accordingly, the professional and work opportunities are evolving to meet these needs, and growth in "green" jobs has been predicted to make up as much as 10% of new job growth over the next 30 years.[1] There is a recently increased emphasis on development of alternative energies and protection and wise use of environmental resources, which will serve to increase the need for enhanced opportunities for environmentally literate graduates.[2] According to a report from the Pew Charitable Trust,[3] between 1998 and 2007, green sector jobs grew by 36% while all jobs in SC grew at only 2.2%. The University of South Carolina, within the Environment and Sustainability Program, recently established a B.S. with a major in Environmental Science, which will produce graduates that are prepared for increased workforce needs focused on science and technology. However, a large portion of environmental jobs are based in non-science fields, such as legal or consulting positions,[4] and a wide range of management and government positions will require an understanding of environmentally-related social and economic issues. South Carolina has increasingly important environmental issues, such as exponential increases in population and tourism in our culturally and economically valuable coastal regions, safe operation of our nuclear facilities and landfills, and impacts associated with one of the nation's largest and most productive ports. The health and economic security of future South Carolinians requires a workforce and public community that are educated in the complexities of environmental resources and their interaction with social and economic systems.

Higher education in environmental studies requires an integration of disciplines to provide the understanding and insights needed for such complex social and economic systems and solutions for emerging environmental problems. The University of South Carolina provides large and comprehensive academic resources that are required for such a high quality, interdisciplinary education. The capacity exists to utilize faculty expertise from multiple colleges and schools and to integrate a broad range of existing courses, in order to create unique interdisciplinary programs that will attract a wide range of new students.

The four primary justifications for the creation of the new program in Environmental Studies are: 1) increasing student demand for undergraduate degrees in Environmental Studies, which will balance the recently established degree in Environmental Sciences, 2) growth of career

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[1] U.S. Metro Economies: Current and Potential Green Jobs in the U.S. Economy. October 2008. Global Insight; prepared for the U.S. Conference of Mayors & the Mayors Climate Protection Center.
[2] Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy. September 2008. Center for American Progress.
[3] The Pew Charitable Trust, Clean Energy Economy: South Carolina. 2009. http://www.pewcenteronthestates.org/uploadedFiles/wwwpewcenteronthestatesorg/Fact_Sheets/Clean_Economy_Factsheet_SouthCarolina.pdf
[4] U.S. Metro Economies: Current and Potential Green Jobs in the U.S. Economy. October 2008. Global Insight; prepared for the U.S. Conference of Mayors & the Mayors Climate Protection Center.

opportunities in environmentally-related fields that include a significant social or human relations component, 3) lack of a large, interdisciplinary program in South Carolina that brings together the relevant social, economic, and scientific disciplines, and 4) the large number of 2-year schools that have programs that naturally feed into a comprehensive 4-year degree program.

Demand: Undergraduate programs in Environmental Studies and Sciences have become increasingly standard offerings at U.S. colleges and universities. In a 2007 census of 652 institutions sponsored by the Council of Deans and Directors of the National Council for Science and the Environment, 840 environmental programs were reported, with 69% being specifically named Environmental Studies or Environmental Science(s).[5] Environmental Studies degrees generally have higher concentrations of course work in the social sciences and humanities, compared to the greater science and technology focus of Environmental Science(s) degrees.[6] Within the U.S., an average of 40% of the four year institutions offer one or more interdisciplinary degrees, but in a 2007 census, South Carolina was one of only 9 states with fewer than 25% of their institutions offering such degrees.[7] While other South Carolina institutions, namely Winthrop and Wofford, offer B.A. degrees in Environmental Studies, the University seeks approval to offer the program to provide students increased access to this important field, and the University of South Carolina is optimally prepared to implement rapidly an Environmental Studies degree. This proposed program will be able to utilize the existing large number of diverse and environmentally-relevant course offerings at USC-Columbia. This, in turn, would enhance availability of the degree to the broad South Carolina community, potentially retaining students who would otherwise be attracted to out-of-state programs.

Student demand for Environmental Studies (and Environmental Science) has also been demonstrated by student participation in the University's School of the Environment (SOE), which in 2011 was re-named the Environment and Sustainability Program. The interdisciplinary minor in Environmental Studies has been available since 1996 and over the last three years has had an average enrollment of 38 (an increase over our prior 6 year average of 20.) Many of these students consistently request the ability to focus more deeply in this area through a major in Environmental Studies. An active student organization (SAGE- Students Advocating a Greener Environment, whose goal is to promote environmental action, awareness and leadership on campus and throughout the community) submitted a petition, dated September 5, 2006 and signed by 22 of its more than about 50 members, to the USC Faculty Senate requesting approval of an environmental studies major. The USC Student Senate also passed legislation, SBL(06)025 on September 20, 2006, requesting the same. A Bachelor of Science degree in Environmental Science was implemented in Fall 2009, and it has grown rapidly to over 100 declared majors (well above our projections.) Recent student comments to our undergraduate director from students minoring in environmental studies indicate that considerable demand exists for a B.A. degree, which would incorporate critical social, economic, policy, communications, and/or humanities components that are not encompassed by the existing B.S. degree. Enrollments in the proposed program are estimated to begin at 20

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[5] Vincent, S. 2010. Interdisciplinary Environmental Education on the Nation's Campuses; Elements of Field Identity and Curriculum Design. Council of Environmental Deans and Directors (CEDD), National Council for Science and the Environment (NCSE).
[6] Romero, A. & P. Silveri. 2006. Not All Are Created Equal: An Analysis of the Environmental Programs/Departments in U.S. Academic Institutions from 1900 until May 2005. J. Integrative Biol. 1:1-15.
[7] Vincent, S. 2010. Interdisciplinary Environmental Education on the Nation's Campuses: Elements of Field Identity and Curriculum Design. National Council for Science and the Environment, Washington, DC.

headcount in 2014-2015 and increase to 100 headcount in 2018-2019. Based on our experience with the B.S. in Environmental Science, these are likely to be conservative projections. Estimates are based on the current number of Environmental Studies minors, existing student requests for an Environmental Studies major, current enrollment in the new B.S. in Environmental Sciences, and the student headcounts in other out-of-state Environmental Studies degree programs. The program is not subject to any separate accreditation process.

Careers and Graduate Demand: The University of South Carolina and its students recognize that there is a trend of increasing employment in environmental occupations.[8] Not only are new environmental positions being created, but the "graying" of the workforce and projected retirements will result in an expansion of entry level positions for graduates in a range of public and private sector environmental fields. Traditional careers with an environmental component show a continuing increase.[9] These careers, with an estimated 1.7 million total number of jobs in 2002, spanned a variety of organizations, with about one-half in federal, state and local government, and the other half in environmental industry.[10] Moreover, a variety of new careers is emerging,[11] including such fields as conservation and pollution mitigation; clean energy; energy efficiency; environmental education and communication; policy, advocacy and environmental activism; and environmental support jobs in federal, state, and non-governmental organizations. Increasingly, industries and small businesses are incorporating sustainable business practices, including energy conservation, waste reduction, auditing and monitoring, and accompanying management and planning support.[12]

Within South Carolina, environmental careers constitute a broad spectrum of private and governmental positions in diverse areas such as water and wastewater treatment; land conservation; multiple areas within the SC Department of Health and Environmental Control (DHEC), SC Department of Natural Resources (DNR), SC Parks Recreation and Tourism (PRT) and SC Department of Transportation (DOT); local and county government; industries such as the paper producers, forestry, automotive (BMW has a major environmental component to its manufacturing processes); recycling; and, like USC, most universities within the state have an environmental component within facilities to manage wastes, permits, recycling, energy production, etc. Students completing this degree will be well poised for these careers. As noted in the curriculum section below, students will be encouraged to tailor their 9-10 hours of selected courses towards their career goals.

Feeder or Progression Institutions: The National Council of Environmental Deans and Directors (CEDD), of which the University of South Carolina is a member, conducted a survey of its 116 four-year institutions, and the results indicated that approximately 50% of all students who are environmental majors at CEDD institutions entered from community colleges. Therefore, we would expect students attracted to the new University of South Carolina Environmental Studies degree program could also come from the state's technical colleges and the University's two-year campuses.

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[8] Doyle, Kevin; *Environmental Career Trends: 2002*. Environmental Careers Organization (ECO), Boston, MA, 2002 Doyle, 2002
[9] Ibid.; Council of Environmental Deans and Directors (CEDD) Workforce Committee Survey Results, October 2002 http://www.cnie.org/ewebeditpro/items/O62F1724.xls , accessed October 19, 2004
[10] Doyle, 2002
[11] The Pew Charitable Trust, Clean Energy Economy: South Carolina. 2009http://www.pewcenteronthestates.org/uploadedFiles/wwwpewcenteronthestatesorg/Fact_Sheets/Clean_Economy_Factsheet_SouthCarolina.pdf
[12] UNEP Background Paper on Green Jobs, 2008. United Nations Environment Programme.

At least 14 of South Carolina two-year colleges offer one or more environmental courses and/or technical environmental degrees that would prepare students to enter the proposed degree, including Midlands Technical College in Columbia and Central Carolina Technical College in Sumter. While these programs are designed to meet educational and environmental training needs, we believe that a number of students who enter those programs are interested in transferring to four-year degree programs. At the University of South Carolina, transfer students in the Fall 2011 constituted approximately 29.7% of new students (1,961 of 6,597 new students); while not all transfer students come from two-year institutions, we believe that students who begin at these institutions will enter the Environmental Studies program as transfer students.

Centrality of the Program to University of South Carolina's Mission:
1. University of South Carolina Mission: The primary mission of the University of South Carolina, a multi-campus public institution serving the entire state of South Carolina, is the education of the state's diverse citizens through teaching, research and creative activity, and service. In **teaching**, the University is committed to providing its students with the highest-quality education, including the knowledge, skills, and values necessary for success and responsible citizenship in a complex and changing world. A particular strength of the University of South Carolina is the excellence, breadth, and diversity of the institution's faculty. With regard to **research**, the University aggressively pursues an active research agenda that enriches its academic program and student learning experiences. The University is dedicated to using research to improve the quality of life for South Carolinians. Another important facet of the University's public mission is **service** - to its community, state, nation, and the world in such areas as public health, education, social issues, economic development, and family support systems.

2. The Environment and Sustainability Program Mission: The mission of the Environment and Sustainability Program (E&SP), which is one of three academic units within the School of the Earth, Ocean and Environment that is housed in the College of Arts and Sciences, includes facilitation of a university-wide focus on the environment by supporting interdisciplinary activity among faculty and students; education and coordination of basic and applied research to address state, national, and world environmental issues; promotion of the application of new knowledge and creation of new technologies to advance environmental understanding and sustainable practices; and contribution to the success of the campus as a model for sustainable behavior through utilization of the campus as a laboratory to demonstrate positive change and providing leadership for a sustainable future.

3. Centrality of Proposal: These missions of the university and the E&SP will be directly supported by the development and implementation of the Bachelor of Arts with a major in Environmental Studies. The degree directly supports the University's and Environment and Sustainability Program's goals of bringing together strong education, research, and service capabilities to form a unique, interdisciplinary program that serves growing public needs.

It is projected that a number of the students in Environmental Studies will matriculate into either environmental graduate programs (such as the University's Master of Earth and Environmental Resources Management degree program) or into more traditional graduate school or professional programs that include a focus on environmental issues (examples include law, medicine, energy policy, conservation biology sustainable development, and behavioral

ecology.[13]) The "feeder" system will allow the Environment and Sustainability Program, as well as the College of Arts and Sciences, to maximize its potential graduate enrollment and increase the number of environmental professionals available to the state. The undergraduate program should be particularly attractive to students interested in pursuing graduate degrees in law, specifically environmental law. An expansion of the group of practicing attorneys with a working knowledge of environmental principles will further the missions of the University of South Carolina and the Environment and Sustainability Program, as well as significantly impact environmental policy in the state of South Carolina.

As mentioned above, we also anticipate that this program will be attractive to students who begin studies or who develop an interest in environmental subjects while at a two-year college and who wish to continue their education to obtain a B.A. degree.

Relationship of Program to other Programs within Institution:
We propose a program based on the environmental strengths of the University of South Carolina to create a nationally recognized program that builds off of the strong, comprehensive basis at the University and offers a unique educational resource to the state for the following reasons: 1) The focus on interdisciplinary strengths across the University allows us to complement the major's core courses with innovative courses in areas such as environmental communication, environmental management and policy, and natural history studies, thereby utilizing existing courses but combining courses from various disciplines to create an interdisciplinary major; 2) The major is complemented by the University's investment in the Environmental Awareness Living and Learning Community on sustainability; from their first year, majors will have the unique opportunity to live together in sustainability-oriented communities and to live in model "green" residence halls supported by a faculty principal; 3) Coalescing academic perspectives for integrative study is consistent with strong, interdisciplinary trends in environmental research and scholarship and will strengthen environmental and sustainability research and scholarship activities among faculty; 4) These programs can serve to direct students into environmentally oriented graduate programs and support interdisciplinary environmental collaborations across campus and with other colleges and universities.

Similarities and Differences between the University of South Carolina's proposed Environmental Studies program and those at other institutions:
Given the large and increasing demand for environmentally trained students, there is a need to increase education opportunities in South Carolina. A review of the environmental programs in South Carolina indicates that while a number of universities and colleges offer environmental components within their degrees, only Winthrop and Wofford offer Bachelor of Arts degrees in Environmental Studies . Other related programs are as follows:

Two-Year College Programs. Of the 16 South Carolina Technical Colleges, at least 14 offer environmental courses and/or technical environmental degrees or certificates in environmental areas (albeit primarily technical, science or engineering areas.) Although degree programs from these schools are important to South Carolina, most of the career opportunities listed above require a four-year degree. Therefore, students attracted to the new Environmental Studies degree program may also come from state technical colleges as well as the two-year campuses of the University.

[13] Hanover Research Council. 2009. Environmental Studies Program Demand. Washington, DC. www.hanoverresearch.com.

Four-Year Programs. Two South Carolina colleges and universities, Winthrop and Wofford, presently offer bachelor-level programs in Environmental Studies. These programs are similar in scope to the proposed degree; however, as outlined below, the University of South Carolina's proposed program is distinguished by the existing, highly diverse, interdisciplinary faculty and curriculum strengths that serve to form the basis of the new major. Two other universities offer related, but dissimilar degrees: Clemson offers a BS in Environment and Natural Resources and Furman offers a BS and BA in Earth and Environmental Science with a very strong geology component.

ENROLLMENT

Admissions Criteria:

Students may be admitted to the environmental studies major when entering the University of South Carolina as a freshman or from an accredited college or university with a minimum grade point average (GPA) of 2.80.

PROJECTED TOTAL ENROLLMENT						
YEAR	FALL		SPRING		SUMMER	
	Headcount[1]	Credit Hours[2]	Headcount[1]	Credit Hours[2]	Headcount[3]	Credit Hours[4]
2013-2014	20	300	25	375	2	6
2014-2015	35	525	40	600	4	12
2015-2016	50	750	60	900	6	18
2016-2017	70	1050	80	1200	8	24
2017-2018[5]	100	1500	100	1500	10	30

[1] Cumulative enrollment
[2] Based on 15 credit hours per semester
[3] Summer enrollment based on 10% Spring enrollment
[4] Based on 3 hours/student per Summer
[5] Year 1 students will graduate prior to Year 5

Enrollments in the proposed program are estimated to begin at 20 headcount in 2014-2015 and increase to 100 headcount in 2018-2019. Estimates are based on the current number of Environmental Studies minors, the existing student expressed demand for an Environmental Studies major, our current enrollment in Environmental Science, and the student headcounts in other out-of-state Environmental Studies degree programs.

ESTIMATED NEW ENROLLMENT						
YEAR	FALL		SPRING		SUMMER	
	Headcount	Credit Hours[1]	Headcount	Credit Hours	Headcount	Credit Hours
2013-2014	5	75	5	75		
2014-2015	10	150	5	75		
2015-2016	10	150	5	75		
2016-2017	20	300	5	75	1	3

2017-2018	30	450	5	75	1	3

[1] Based on 15 credit hours per semester

CURRICULUM

(Curriculum for the Bachelor of Arts with a major in Environmental Studies was approved by the University of South Carolina Faculty Senate on November 2, 2011.)

Admission, Progression and Transfer Standards:

1. Any student applying for transfer to the Environmental Studies major from other programs within the University, or from accredited colleges and universities, is required to have a minimum grade point average of 2.8 on a 4.00 scale and a minimum of 12 credit hours.

2. Environmental Studies majors may enroll in a course for major credit a maximum of twice to earn the required grade of **C** or higher. For the purposes of this standard of progression, withdrawal with a **W** does not constitute enrollment.

Learning Outcomes:

- Students will demonstrate their knowledge of fundamental concepts in environmental studies.
- Students will be able to utilize information from more than one discipline related to environmental studies and be able to synthesize that information to analyze interdisciplinary environmental problems.
- Students will demonstrate effective writing skills.
- Students will demonstrate effective oral communication skills.

Degree Program:

(120 total hours required)

Degree candidates for a Bachelor of Arts with a major in Environmental Studies must satisfy the general education requirements prescribed for the Bachelor of Arts. These requirements are designed to provide students with a broad experience in the liberal arts and sciences and opportunities to develop intellectual skills in analysis, synthesis, and evaluation, as well as competence in written and oral communication.

I. General Education Requirements (47-64 hours)

See College of Arts and Sciences, General Education Requirements, Bachelor of Arts, 2012-2013 Undergraduate *Bulletin*.

- Effective, Engaged, and Persuasive Communication: Writing (6 Hours)
- Analytical Reasoning and Problem-Solving (6-8 Hours)
- Scientific Literacy (8 Hours)
- Global Citizenship and Multicultural Understanding: Communicate Effectively in More than One Language (0-9 Hours)
- Global Citizenship and Multicultural Understanding: Historical Thinking (6 Hours)
- Global Citizenship and Multicultural Understanding: Social Sciences (6 Hours)
- Aesthetic and Interpretive Understanding (3 Hours)
- Fine Arts and Humanities Requirements (9 Hours)*Stand-Alone or Overlay Eligible Requirements* (3-9 Hours)*:*
    - Effective, Engaged, and Persuasive Communication: Speech

- Information Literacy
- Values, Ethics, and Social Responsibility

Students may satisfy these requirements in one of two ways:
(1) by completing three separate courses that are approved to satisfy the Speech, Information Literacy, and Values, Ethics, and Social Responsibility requirements (stand-alone)
or
(2) by completing up to two courses that are specifically designated to satisfy two general education requirements (overlay).
At least one of these requirements must be satisfied by a course not applied elsewhere in general education.

II. Specified Major Prerequisites

The following courses fulfill some of the general education requirements and must be completed for a major in Environmental Studies:

MATH 122 or MATH 141
STAT 201, STAT 205, STAT 509, or STAT 515
CHEM 111
Either sequence BIOL 101/101L and BIOL 102/102/L OR MSCI 101 and MSCI 102
One from ENVR 101/101L, GEOL 101, GEOL 103, GEOL 201, or GEOG 201
POLI 201
ECON 221, ECON 223, or ECON 224

III. Major Requirements (36-37 hours)[14]

All majors must complete at least 36-37 hours of approved courses, including the core requirements of 27 hours. Majors must complete enough additional hours from the selected courses to bring them to the required 36-37 hours total. Students are required to develop a program of study in consultation with their advisor. A minimum grade of **C** is required for all courses used to fulfill major requirements.

Special opportunities
The major endorses the use of independent study courses to further students' intellectual pursuits in alternative ways. Before students may register for an independent study course, they must submit a completed independent study contract which has been approved by their major advisor and the Director of Undergraduate Studies. No student may apply more than 6 hours of independent study credits toward the degree. A grade-point average of 2.50 or greater is required to enroll in independent study courses.

Core Requirements (27 hours)

Required of all majors (15 hours)

ENVR 201 and 202 Environmental Science and Policy I & II (8 hours)
ENVR 590 Environmental Issues Seminar (3 hours)

[14] *Please see current University of South Carolina undergraduate course catalog for information about prerequisites required to enroll in many of these courses.*

BIOL 301 and 301L Ecology and Evolution (4 hours)

Select 4 of 6 (12 hours)

ENVR 548 {=ECON 548} Environmental Economics or ECON 509 Economics of Sustainable Development (3 hours)
ENGL 434 Environmental Literature (3 hours)
GEOG 343 Human Impact on the Environment (3 hours)
HIST 448 American Environmental History (3 hours)
PHIL 322 Environmental Ethics (3 hours)
POLI 477 Green Politics or POLI 478 Environmental Policy (3 hours)

Selected Courses with Advisor Approval (9-10 hours)
Students, in consultation with their advisor, will develop a program of study to meet their educational goals in environmental studies courses. No more than 2 courses should be selected from a single discipline.

The list of courses from which students may select their additional 9-10 hours, in consultation with their advisor, includes:

Approved Courses

ANTH 208 Anthropology of Globalization and Development (3)
ANTH 212 Food and Culture (3)
ANTH 213 Ethnobotany: Plants and Peoples (3)
ANTH 513 Anthropological Ethnobotany (3)
ANTH 525 Ethnoecology (3)
ANTH 569 {=GEOG 569} Environment and Development (3)
BIOL 526 The Fall Flora (4)
BIOL 527 The Spring Flora (4)
BIOL 528 The Summer Flora (4)
BIOL 524 Mycology (4)
BIOL 525 Marine Plants (4)
BIOL 534 Animal Behavior (3)
BIOL 536 Ichthyology (4)
BIOL 570 Principles of Ecology
BIOL 575 Marine Ecology (3)
ECON 500 Urban Economics (3)
ECON 508 Law and Economics (3)
ECON 509 Economics of Sustainable Development (3)
ECON 548 {=ENVR 548} Environmental Economics (3)
ECON 594 Introduction to Econometrics (3)
EMCH 529 Sustainable Design and Development (3)
ENGL 434 Environmental Literature (3)
ENGL 462 Technical Writing (3)
ENHS 492 Special Topics in Environmental Health Sciences (3)
ENHS 555 Conservation and Environmental Health in Marine Systems (3)
ENHS 592 Advanced Special Topics in Environmental Health (3)
ENHS 660 Concepts of Environmental Health Science (3)
ENHS 662 Industrial Health Programs (3)
ENHS 665 Biofilms in Environmental Health and Disease (3)
ENHS 670 Environmental Pollutants and Human Health (3)
ENHS 671 From Air to Alveoli: Exposure Science (3)
ENHS 675 Infectious Disease Ecology (3)
ENVR 399 Independent Study (1-6)

ENVR 500 Environmental Practicum (3)
ENVR 501 Topics in the Environment (3)
ENVR 548 {=ECON 548} Environmental Economics (3)
ENVR 572 {=BIOL 572} Freshwater Ecology (3)
GEOG 202 Weather and Climate (4)
GEOG 321 Cities, Environmental Transformation, and Sustainability (3)
GEOG 324 Landscapes of the United States (3)
GEOG 330 Geography of Disasters (3)
GEOG 341 Cartography (3)
GEOG 343 Human Impact on the Environment (3)
GEOG 345 Interpretation of Aerial Photographs (3)
GEOG 346 Climate and Society (3)
GEOG 347 Water as a Resource (3)
GEOG 348 Biogeography (3)
GEOG 360 Geography of Wind (3)
GEOG 363 Geographic Information Systems (3)
GEOG 365 Hurricanes and Tropical Climatology (3)
GEOG 371 Air Pollution Climatology (3)
GEOG 511 Planning and Locational Analysis (3)
GEOG 516 Coastal Zone Management (3)
GEOG 521 Landscapes of South Carolina (3)
GEOG 530 Environmental Hazards (3)
GEOG 541 Advanced Cartography (3)
GEOG 545 Synoptic Meteorology (4)
GEOG 546 Applied Climatology (3)
GEOG 547 Fluvial Geomorphology (3)
GEOG 549 Water and Watersheds (3)
GEOG 551 Principles of Remote Sensing (3)
GEOG 552 LiDARgrammetric and Photogrammetric Digital Surface Mapping (3)
GEOG 563 Advanced Geographic Information Systems (3)
GEOG 564 GIS-Based Modeling (3)
GEOG 566 Social Aspects of Environmental Planning and Management (3)
GEOG 567 Long-Term Environmental Change (3)
GEOG 568 Human Dimensions of Global Environmental Change (3)
GEOG 569 {=ANTH 569} Environment and Development (3)
GEOG 570 Geography of Public Land and Water Policy (3)
GEOG 571 Microclimatology (4)
GEOG 573 Climatic Change and Variability (3)
GEOL 202 Rocks and Minerals (4)
GEOL315 Earth Surface Processes (4)
GEOL 335 Processes of Global Environmental Change (3)
GEOL 371 A View of the River (3)
GEOL 520 Geochemistry (3)
GEOL 560 Earth Resource Management (3)
GERM 295 Green Technology in Germany (3)
HRTM 383 Ecotourism (3)
HRTM 428 Sustainable Food Service Systems (3)
HRTM 482 Sustainable Tourism Planning and Policy (3)
HRTM 485 Sustainable Tourism (3)
HIST 448 American Environmental History (3)
HIST 492 Topics in History (when appropriate) (3)

JOUR 302 History and Philosophy of the Mass Media (3)
JOUR 303 Law and Ethics of the Mass Media (3)
JOUR 306 Theories of Mass Communications (3)
JOUR 310 Mass Media and Society (3)
JOUR 311 Minorities, Women, and the Mass Media (3)
JOUR 501 Freedom, Responsibility and Ethics of the Mass Media (3)
JOUR 506 Mass Media Criticism (3)
JOUR 540 Magazine Article Writing (3)
JOUR 542 Public Opinion and Persuasion (3)
JOUR 562 Communicating Science, Health and the Environment (3)
JOUR 571 Faith, Values and the Mass Media (3)
MART 321 Writing for Media (3)
MART 371 The Moving Image (3)
MART 380 New Media Art (3)
MSCI 311 Biology of Marine Organisms (3)
MSCI 390 Science and Environmental Policy (3)
PHIL 320 Ethics (3)
PHIL 321 Medical Ethics (3)
PHIL 322 Environmental Ethics (3)
PHIL 323 Ethics of Science and Technology (3)
PHIL 324 Business Ethics (3)
PHIL 325 Engineering Ethics (3)
PHIL 535 Ecofeminism (3)
POLI 365 State Government (3)
POLI 368 Interest Groups and Social Movements (3)
POLI 370 Introduction to Public Administration (3)
POLI 373 Regulatory Policies (3)
POLI 374 Public Policy (3)
POLI 431 Science, Technology, and Public Policy (3)
POLI 452 The Judicial Process (3)
POLI 462 The Legislative Process (3)
POLI 463 The American Chief Executive(3)
POLI 465 Psychology and Politics (3)
POLI 470 Federalism and Intergovernmental Relations (3)
POLI 477 Green Politics (3)
POLI 478 Environmental Policy (3)
PSYC 487 Community Psychology (3)
SOCY 308 Community Organization (3)
SOCY 310 Social Demography (3)
SOCY 311 Ecology of Human Social Systems (3)
SOCY 315 World Population: Problems and Policies (3)
SOCY 501 Cities and Politics (3)
SOCY 514 Urbanization (3)
SOCY 550 Sociology of Science (3)
SPCH 331 Organizational Communication (3)
SPCH 380 Persuasive Communication (3)
SPCH 464 Speechwriting (3)

IV. Electives

The Bachelor of Arts degree requires a minimum of 120 semester hours in academic subjects.

Example student schedule of courses

Freshman Year

First Semester

Course/Number of Hours	Requirement
ENGL 101 (3 hours)	general education
MATH 122 (3 hours)	general education/major prerequisite
POLI 201 (3 hours)	general education/major prerequisite
ENVR 101 (4 hours)	general education/major prerequisite
UNIV 101 (3 hours)	recommended elective

16 credit hours

Second Semester

Course/Number of Hours	Requirement
ENGL 102 (3 hours)	general education
BIOL 101 & 101L (4 hours)	general education/major prerequisite
HIST 112 (3 hours)	general education
ECON 224 (3 hours)	general education/major prerequisite
PHIL 322 (3 hours)	**Major**

16 credit hours

Sophomore Year

First Semester

Course/Number of Hours	Requirement
ENVR 201 (4 hours)	**Major**
HIST 108 (3 hours)	general education
BIOL 102 & 102L (4 hours)	general education/major prerequisite
Foreign Language (4 hours)	general education

15 hours

Second Semester

Course/Number of Hours	Requirement
ENVR 202 (4 hours)	**Major**
CHEM 111 (4 hours)	general education/major prerequisite
GEOG 343 (3 hours)	**Major**
Fine Arts (3 hours)	general education
Foreign Language (3 hours)	general education

17 hours

Junior Year

First Semester

Course/Number of Hours	Requirement
STAT 201 (3 hours)	general education/major prerequisite
BIOL 301 & 301L (4 hours)	**Major**
ENGL 434 (3 hours)	**Major**
Fine Arts/Humanities Course (3 hours)	general education
Speech (3 hours)	general education

16 hours

Second Semester

Course/Number of Hours	Requirement

POLI 478 (3 hours)	**Major**
ENVR 501 (3 hours)	**Major**
Fine Arts/Humanities Course (3 hours)	general education
Values, Ethics, & Soc. Resp. Course (3 hours)	general education
Elective (3 hours)	elective
15 hours	

Senior Year

First Semester

Course/Number of Hours	Requirement
ENVR 590 (3 hours)	**Major**
Fine Arts/Humanities Course (3 hours)	general education
JOUR 562 (3 hours)	**Major**
Elective (3 hours)	elective
Elective (3 hours)	elective
15 hours	

Second Semester

Course/Number of Hours	Requirement
HRTM 482 (3 hours)	**Major**
Elective (3 hours)	elective
Elective (3 hours)	elective
Elective (3 hours)	elective
Elective (3 hours): optional	elective
15 hours	

Total Hours = 122 (125 with optional elective)

Explanation of the assessments of student learning outcomes to be used:
This program will be assessed by evaluating student outcomes and the assessment process will be reviewed by and approved by the College of Arts and Sciences to ensure that it will meet SACS accreditation requirements. Evaluating the goals and objectives of the program and tying them to specific learning objectives, coupled with annual reporting of results and use of results, will allow the program to develop and improve. Assessment will include direct and indirect measures. Direct measures of student learning will include data derived from student projects in the core courses (ENVR 201, ENVR 202, ENVR 590.) Projects in ENVR 590, the capstone seminar, will be particularly valuable for assessment of student learning: the development of a research plan, a significant environmental writing, and an oral presentation of significant findings. Indirect measures include data derived from student exit surveys and job placements.

List of all new courses to be added within five years:
.
No additional required core courses are proposed during the next five years , however, additional courses may be developed as new faculty are hired and offer courses aligned with their areas of expertise in the environmental field.

Opportunities for distributed (distance) learning:
The BA with a major in Environmental Studies is intended as a traditional delivery program. All of the core requirements in the major and most of the 9-10 hours of selected major courses are available only through traditional delivery. Although all general education courses are available through traditional delivery, some of the general education requirements may be completed

through courses that are also available through distributed (distance) learning delivery. Free electives may be chosen from courses available through distributed learning delivery. At most, 48% of the degree can be completed through distributed learning courses.

FACULTY
Rank and Academic Qualifications:

List of Staff by Rank	Highest Degree Earned	Field of Study
Research Professor #1	Ph.D. , J.D.	Geological and Environmental Science
Assistant Professor #1	Ph.D.	Biological and Conservation Science
Assistant Professor #2	Ph.D.	Environmental Economics
Assistant Professor #3	Ph.D.	Biological Sciences
Assistant Professor #4 (new Fall 2013)	Ph.D.	Water Resources and Geography
Research Assistant Professor #1	Ph.D.	Environmental and Archeological Studies

New faculty and staff to be added in support of program:
The Environment and Sustainability Program has established a core faculty base through joint hires with other departments on campus to begin to build an interdisciplinary and diverse faculty that will meet the teaching, research, and service goals of the program and the University. The E&SP currently has joint faculty with the Economics Department in the Moore School of Business and with the Department of Biological Sciences. We are in the process of hiring an additional joint tenure track faculty member in the area of water resources and policy who will begin in Fall 2013 and have a joint appointment with the Department of Geography.

The potential for developing joint faculty positions with existing faculty in other departments was enhanced through the establishment of the School of Earth, Ocean and Environment (SEOE) in 2009. Through this move, three academic units (Environment and Sustainability Program, Marine Science Program, and Department of Earth and Ocean Sciences) and two research units (Baruch Institute for Marine and Coastal Sciences, Earth Sciences and Resources Institute) were coalesced into the SEOE to facilitate interactions and streamline academic and administrative support functions. This has also facilitated teaching across departmental boundaries, and we anticipate that such shared teaching efforts will increase. As the number of students in the Environmental Studies program increases, they will also be largely accommodated by existing courses taught by other departments, and most courses currently have capacity for the number of students that we anticipate early in the program. Several departments, such as English and History, have offered to teach our core course more frequently if needed. Therefore, faculty needs are expected to be met by existing faculty and the new hire.

Because of the changes made in undergraduate program administrative and staff support with the creation of the SEOE, existing administrative and program staff can accommodate the needs of the proposed program.

Institutional Plan for Faculty Development:

Faculty serving in the Environment and Sustainability Program are eligible for all professional development support, as defined by University policies and the *Faculty Manual*.

Definition of Full Time Equivalents (FTEs):
For University of South Carolina faculty, 1.0 FTE is recognized as a faculty position in which a faculty member is under a full time contract and for which the faculty member meets the requirements of his assigned teaching, service and research obligations. Assigned credit hours of instructional load vary widely among faculty and departments.

Resources Required:
Existing administrative personnel (SEOE Undergraduate Director and administrative assistant) are adequate to support the Bachelor of Arts with a major in Environmental Studies. Additional costs will be offset by tuition generated through the new students. Office space is available within existing School of the Earth, Ocean and Environment space.

Unit Administration/Faculty/Staff Support:

Unit Administration/Faculty/Staff Support						
Year	**New**		**Existing**		**Total**	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2013-2014			2 [1]	.60	2	.60
2014-2015			2	.60	2	.60
2015-2016			2	.60	2	.60
2016-2017			2	.60	2	.60

2017-2018			2	.60	2	.60
Faculty						
2013-2014			5 [2]	3	5	3
2014-2015			5	3	5	3
2015-2016			5	3	5	3
2016-2017			5	3	5	3
2017-2018			5	3	5	3
Staff						
2013-2014			1 [3]	.20	1	.20
2014-2015			1	.20	1	.20
2015-2016			1	.20	1	.20
2016-2017			1	.20	1	.20
2017-2018			1	.20	1	.20

[1] Environment and Sustainability Program currently offers two other degrees: Master of Earth and Environmental Resource Management (MEERM) and BS in Environmental Science. Figures represent estimated percentage of time that will be devoted to BA in Environmental Studies: Director of Environment and Sustainability Program (10%) and Asst. Director/Undergraduate Director of Environment and Sustainability Program (50%.)
[2] Four faculty with 50% and one faculty with 100% appointment in Environment and Sustainability Program
[3] One staff member (Undergraduate Coordinator) with 20% of responsibilities to BA in Environmental Studies.

PHYSICAL PLANT
Since no new academic courses are required, existing classroom space without modification is adequate. Administration space can be accommodated in existing space.

The new faculty hires in the Environment and Sustainability Program will have their primary offices and research space in the tenure granting departments. Office space for additional faculty-student meetings and advising can be accommodated in the current Environment and Sustainability Program and School of Earth, Ocean, and Environment space.

EQUIPMENT
It is anticipated that only commonly used items for instruction and research will be necessary and will be covered by existing resources. Otherwise, no new equipment will be required.

LIBRARY RESOURCES
Environmental Studies is a multidisciplinary area of research and teaching and requires resources in a variety of natural and social science (geography primarily) disciplines. The strength of the USC Library System's collection is that it supports teaching and research in all required subject areas.

The Library's collections strongly support not only core titles in environmental areas, but in many other related disciplines. The Library provides access to 406 periodicals directly related to the environment. Also available are 20 searchable databases concerned with environmental topics. The Cambridge Scientific Abstracts (CSA) group of databases is an excellent example of a database covering the wide range of subjects of interest to students of the environment. CSA databases cover Biology, Chemistry & Biochemistry, Engineering, Environment, Marine Science, Medicine, Pharmacy, and Public Health. Specific resources include *AFSA: Aquatic Sciences and Fisheries Abstracts*, *Biological Sciences*, *Biology Digest*, *Conference Papers Index*, *Environmental Sciences and Pollution Abstracts*, *Metals Abstracts* (METADEX), Oceanic *Abstracts*, *Plant Science*, *Pollution Abstracts*, and *TOXLINE*. As the degree matures, as well as

the literature, access to new and other existing environmental and sustainability journals may be necessary and library resources are allocated for this purpose.

The *Web of Science* indexes multidisciplinary information from approximately 8,500 of the most prestigious, high impact research journals in the world. *Web of Science* also provides a unique search method, cited reference searching. Science coverage in *Web of Science* goes back to 1899. It also provides substantial coverage of social science journals which makes it important for researching the breadth of resources in the field of the environment.

These databases are available to students at the library and remotely by use of proxy authentication. Bibliographic access to research in these journals is promoted by the library's subscriptions to online indexes and by Gamecock Power Search, which allows users to search across multiple disciplines. These resources are available on campus and remotely. The core environmental studies and science section of the book collection includes 1279 titles on "Environmental Sciences (call numbers GE1-350); 2891 on "Ecology" (QH540-549.5); and for Climatology (QC 851-999) 2173. In addition, 491 USC theses and dissertations are available for students. Dissertations are also available online. However, there has been large growth in the number of books related to environmental studies, and library resources are allocated for this purpose in the cost chart on page 22.

Our undergraduate students are eligible for Interlibrary Loan service. Also, through the Library Catalog, books can be requested from any of the member libraries of PASCAL, our statewide academic library consortium. PASCAL items are typically delivered within two days of the request.

The Thomas Cooper Library is designated as a federal government depository and collects the published output of the federal government. The documents collections include publications of U.S. Geological Survey, U.S. Environmental Protection Agency, U.S. Dept. of Health and Human Services, and U.S. Department of Commerce including the National Oceanographic and Atmospheric Administration, among others.

Accreditation, Approval, Licensure, or Certification:

1- Proposed program not subject to specialized accreditation or approval by any state agency other than CHE.
2- Graduates not subject to licensure or certification by others.
However, even though no specialized accrediting agency currently exists for the program, USC faculty are working with the National Council of Environmental Deans and Directors (CEDD) and National Council for Science and the Environment (NCSE) to develop and review curriculum and workforce needs.

Articulation:
In 1998, the University of South Carolina, Clemson University, and the Medical University of South Carolina founded the Sustainable Universities Initiative (http://www.sc.edu/sustainableu/AboutSUI.htm), a statewide network of faculty, staff and students at sixteen institutions who share an interest in integrating environmental considerations into their work Although the primary funding for this initiative has terminated, the partnership has provided a foundation for continued interaction and collaboration on environmental education, research, and outreach activities. In addition to the three founding members, affiliate members institutions include Central Carolina Technical College, Coastal Carolina University, College of Charleston, Francis Marion University, Lander University,

Midlands Technical College, Piedmont Technical College, South Carolina State University, Spartanburg Technical College, Tri-County Technical College, Trident Technical College, Williamsburg Technical College, and Winthrop University.

Costs to the Institution and Sources of Financing

ESTIMATED COSTS BY YEAR						
Category	**Year 1 2013-2014**	**Year 2 2014-2015**	**Year 3 2015-2016**	**Year 4 2016-2017**	**Year 5 2017-2018**	**TOTALS**
Program Administration [1]	44,566	44,566	44,566	44,566	44,566	222,830
Faculty Salaries [2]	154,693	154,693	154,693	154,693	154,693	773,465
Graduate Assistants	49,875	49,875	49,875	49,875	49,875	249,375
Clerical/Support Personnel [3]	7,600	7,600	7,600	7,600	7,600	38,000
Supplies and Materials	3,000	3,000	3,000	3,000	3,000	15,000
Library Resources	3,000	3,000	3,000	3,000	3,000	15,000
Facilities						
Other [4]	30,492	30,492	30,492	30,492	30,492	152,460
TOTALS	**293,226**	**293,226**	**293,226**	**293,226**	**293,226**	**1,466,130**
SOURCES OF FINANCING BY YEAR						
Tuition Funding [5]	221,734	370,207	543,101	740,414	986,568	2,862,024
Program-Specific Fees [6]	6,000	6,000	6,000	6,000	6,000	30,000
State Funding						
Reallocation of Existing Funds						
Federal Funding						
Other Funding						
TOTALS	**227,734**	**376,207**	**549,101**	**746,414**	**992,568**	**2,892,024**

[1] Environmental and Sustainability Program Director at 10% and Assistant Director (also Undergraduate Director) at 50%.

[2] Three faculty at 50% and one faculty at 100%.

[3] One staff member (Undergraduate Advising Coordinator) with 20% of responsibilities to BA in Environmental Studies.

[4] Graduate Assistant tuition abatement

[5] Tuition calculated on undergraduate resident rate for 2011-2012 for all students projected to enroll in BA in Environmental Studies.

[6] Additional lab fees for ENVR 201 and 202; projected at 80 seats per year.