



October 29, 2007

ANDREW A. SORENSEN  
PRESIDENT

Dr. Garrison Walters  
Executive Director  
South Carolina Commission on Higher Education  
1333 Main Street, Suite 200  
Columbia, South Carolina 29201

Dear Dr. Walters:

Accompanying this letter please find a new program planning summary in the Bachelor of Science with a major in Environmental Science, College of Arts and Sciences at USC Columbia.

Sincerely,

A handwritten signature in cursive script that reads "Andrew A. Sorensen".

Andrew A. Sorensen

AAS:nid  
Enclosure

# Program Planning Summary

University of South Carolina

Bachelor of Science  
with a major in Environmental Science

A handwritten signature in black ink, reading "Andrew A. Sorensen". The signature is written in a cursive style with a large initial 'A' and a long, sweeping tail.

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Andrew A. Sorensen, President

**Program Planning Summary: New Program Proposal**  
**Bachelor of Science, Environmental Science**  
**University of South Carolina – Columbia**

**Designation and Proposed Date of Implementation:**

The University of South Carolina-Columbia requests approval to offer a new program leading towards the Bachelor of Science, Environmental Science requiring 128 total credit hours to be implemented in Fall 2008. The 128 credit hour curriculum consists of general education requirements (66-75 credit hours), electives (17-28 credit hours), and major requirements of which 17-18 credit hours are core courses and 17-18 credit hours are selected to either add breadth or specificity to a student's program.

**Justification:**

There is a serious need and unparalleled opportunity to establish a new program in Environmental Science at USC. Impending environmental challenges – such as climate change, more frequent drought and intense storms, loss of biodiversity, increases in infectious disease and invasive species – will require an educated workforce that can integrate scientific understanding with social and economic needs as never before. South Carolina has additional environmental issues, such as exponential increases in population and tourism in our culturally and economically valuable coastal regions, the need to safely operate our nuclear facilities and landfills, and impacts associated with one of the nation's largest and most productive ports. To secure a healthy and environmentally responsible growth for the State 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 Science requires an integration of disciplines to provide the understanding and insights needed for such complex systems and solutions for emerging problems. The University of South Carolina provides large and comprehensive academic resources that are required for such a high quality, interdisciplinary education. There is the capacity 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 Science are: 1) increasing student demand for undergraduate degrees in Environmental Science, 2) growth of career opportunities in environmental fields, 3) lack of a large, interdisciplinary program in South Carolina that brings together the relevant scientific and social disciplines, and 4) the large number of 2-year schools that have programs that naturally feed into a comprehensive 4-year degree program.

The University and its students recognize that there is an increasing trend in employment in environmental occupations.<sup>1</sup> Not only are new environmental positions being created, but the “graying” of the workforce and projected retirements will result in a swell of entry level positions for graduates in a range of public and private sector environmental fields. The demand for Environmental Scientists is predicted to increase by more than 22% between 2000 and 2010.<sup>2</sup> Traditional careers, with an environmental component, such as Biological Scientists, Conservation Scientists, Chemists, Geoscientists, and Economists, also show an increasing trend.<sup>3</sup> 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.<sup>4</sup> Moreover, a variety of new careers are emerging<sup>5</sup> and include such

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fields as: biological and ecological management; forestry, GIS, and natural resources; environmental science and engineering; environmental education and communication; policy, advocacy and environmental activism; and environmental support jobs, federal, state, and Non-governmental organizations

### **Anticipated Program Demand and Productivity:**

The student demand for an Undergraduate Major in Environmental Science is readily illustrated by the increasing establishment of such degree programs in other states.<sup>6</sup> Of the 215 member schools of NASULGC (National Association of State Universities and Land Grant Colleges), at least 108 award undergraduate degrees in Environmental Science/Studies.

Student demand as also been demonstrated by participation in USC's School of the Environment (SOE) offering of the interdisciplinary minor in Environmental Studies since 1996, which has a six year average of 20. Furthermore, students have consistently requested a major in this area. An active student organization (SAGE- Students Advocating a Greener Environment) submitted a petition, dated September 5, 2006, to the USC Faculty Senate requesting approval of an Environmental Major. The USC Student Senate also passed legislation, SBL(06)025 on September 20, 2006, requesting the same.

Enrollments in the proposed program are estimated to begin at 25 headcount in FY 2008 and increase to 100 headcount in 2011-2012. Estimates are based on the current number of Environmental Studies minors, the existing student expressed demand for an Environmental major, and the student headcounts in other out-of-state Environmental Studies/Science degree programs. The program is not subject to any separate accreditation process.

### **Assessment of Extent of Duplication with Existing Programs:**

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, very few degrees are offered at the bachelor level in Environmental Science. Other related programs are as follows:

*Two-Year College Programs.* A review of websites of South Carolina **2-year colleges** that offer environmental or technical environmental degrees indicates that these programs have foci in forestry or natural resources management. Although degree programs (AAgr) from these schools are certainly important to South Carolina, most of the career opportunities listed above require a four-year degree. The national Council of Environmental Deans and Directors (CEDD), of which USC is a member, conducted a survey of its 116 four-year institutions, and the results indicated that 50% of all students who are Environmental majors at CEDD institutions entered from community colleges. Therefore, students attracted to the new USC Environmental Science degree program could also come from state's technical colleges and the two-year campuses of USC.

*Four-Year Programs.* Seven South Carolina colleges and universities presently offer Bachelor level programs in Environmental Science including: Benedict College, Claflin University, Clemson University, Furman University, Lander University, Charleston Southern University (CSU) and Winthrop University. Benedict College's program is specifically an environmental health program. The Clemson program in Environmental and Natural Resources has a natural resource emphasis, which is significantly different than this proposed program as well as the CSU program which also focuses on Natural Resources Management. Winthrop, Lander, Furman, and Claflin offer programs that are similar in their general scope, but focused according to individual

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institutional strengths. As outlined below, the USC proposed program is distinguished by the existing, highly diverse, interdisciplinary faculty and curriculum strengths that serve to form the basis of the new major.

### **Relationship to Existing Programs at USC:**

We propose a program based on the environmental strengths of USC to create a nationally recognized program that builds off of the strong, comprehensive basis at USC 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 Program's core courses with innovative courses in areas such as Climate and Weather, Energy, Humans and the Environment, Natural Systems, and Water Resources, thereby utilizing existing courses but combining courses from various disciplines to create an interdisciplinary major; 2) The Major Program is complemented by USC's investment in Living-Learning communities 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 will strengthen the research and applied technology activities among faculty; 4) These programs can serve to direct students into environmentally oriented graduate programs and support environmental research across campus and collaborations with other colleges and universities.

### **Relationship to Other Institutions:**

In 1998, USC, 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 who share an interest in integrating environmental considerations into their work. Although the primary funding for this initiative has terminated, the partnership still provides a foundation for continued interaction and collaboration on Environmental education, research, and outreach activities. This program will establish collaborative arrangements and articulate agreements so that students at two-year institutions can transition to baccalaureate at USC.

### **Resources Required:**

To administer the new undergraduate degrees, the following new personnel contributions are required: 1) increase in time contribution of School of the Environment Assistant Director; 2) increase in time contribution of SOE Undergraduate Director; and 3) 50% of an Administrative Assistant. Most of the new costs (estimated at \$50,000) are associated with these positions. Additional costs will be off set by tuition generated through the new students. New course offerings and student advisement will be supported through additional faculty hires being generated through other sources.

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<sup>1</sup> Doyle, Kevin; *Environmental Career Trends: 2002*. Environmental Careers Organization (ECO), Boston, MA, 2002 Doyle, 2002

<sup>2</sup> Id.

<sup>3</sup> Id.; 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

<sup>4</sup> Doyle, 2002

<sup>5</sup> Doyle, 2002

<sup>6</sup> Romero, A. & Christina Jones; Not All Are Created Equal: An Analysis of the Environmental Programs/Departments in U.S. Academic Institutions Until May 2003. *Macalester Environmental Review*; Posted May 29, 2003. <http://www.macalester.edu/environmentalstudies/MacEnvReview/equalarticle2003>.