**Bachelor of Science in Sustainability Science**

**Why Sustainability Science?**

Recent decades have seen the emergence of sustainability as a concept central to the development and future of humankind. Considerations of environmental impact and global change have been at the forefront of scientific and political discourse. Sustainability science is an emerging multi-disciplinary field that aims to develop a deeper and more fundamental understanding of the critical linkages between environmental, human, and social systems at a variety of spatial and temporal scales. An understanding of the vulnerability and resilience of planetary systems in response to social and environmental changes are essential components of this discipline.

Addressing the problems facing humanity are inherently complex, requiring a "holistic and integrated" approach as illustrated by the diagram on the right.

The Sustainability Science major within the Earth and Environmental Sciences department will train students to recognize, study, and analyze myriad of complex relationships between the social, human, and environmental systems that address issues involving topics like population, climate change, natural resources, environmental degradation, food systems, sustainable production and consumption, lifestyles, human security and health among others. For example, how do changes in social and human systems relate to environmental health, and how does climate change impact communities both culturally and economically? Do the communities have the capacity to adapt to slow or rapid changes (resilience) or would such changes exacerbate individual, social, and economic problems (vulnerability)? Questions like these highlight the centrality of complex systems analysis, which will be emphasized in the curriculum of the major.

Thus, with a better understanding of feedbacks within and between environmental, human, and social systems, we can envision developing tools and techniques that can help us transition to a sustainable future in which we live within the means of our planet. Majors, therefore, can use acquired skills to help develop solutions to various problems with the goal of improving the quality of life of global citizens.

**What can you do with this degree?**

Sustainability Science is a rapidly emerging field with tremendous opportunity for a large variety of different career paths. Industries, governments, academics, and communities are recognizing the significance of addressing complex social, environmental, and economic problems holistically. As such, the interdisciplinary training, gained through the major, opens employment opportunities in various government, non-profit groups, academic settings, and private commercial organizations. With careful course selection, students with this degree can not only be prepared for graduate programs in disciplines such as earth and environmental sciences, sociology, business, and political science, among others, but also for jobs that include skills for data analysis, policy management, social outreach, and sustainable development.

Source: Integrated Research Systems for Sustainability Science, 2009
The Bachelor of Science degree in Sustainability Science requires students to take one introductory course, four core courses, five upper level elective courses, MTH 150, and complete a senior thesis. The introductory and core courses with the exception of EES/SUS 112 and SUS 242 will count only towards the Sustainability Science major. Because of the degree of potential overlap of electives between the Sustainability Science major and Earth and Environmental Sciences major, students will not be allowed to double major in both EES and SUS.

**INTRODUCTORY AND CORE COURSES**

**Introductory Course**
Introduction to the concepts of sustainability and the complex problems associated with sustainability. Laboratories cover an introduction to basic methods common in global environmental systems, human systems, and social systems.

SUS 120 Principles of Sustainability Science

**Core Courses**
Core courses introduce the three systems of global sustainability and laboratories focus on an introduction to specific methods within each system. The fourth course focuses on how complex, dynamic systems are modeled.

SUS/EES 112 - Environmental Science  
SUS 240 - Human Systems  
SUS 241 - Social Systems  
SUS 242 - Dynamic Systems Modeling

**Upper Level Electives**
Students will take a total of five electives from the list of approved elective courses. At least one elective from each category and no more than 3 electives from any one area can be selected. These areas focus on the complex problems of global sustainability that arise because of breakdowns within each of the global, human, and social systems, as well as feedbacks between the systems.

**Senior Thesis**
SUS 472 - Research and Analysis  
This is a research, analysis, and writing course based on data collected by the student during summer or academic year research projects. *This course must be taken during the fall of senior year.*

For more information, contact

**DEPARTMENT OF EARTH AND ENVIRONMENTAL SCIENCES**

3300, Poinsett Hwy, Greenville, SC 29613  
Phone: (864) 294-2052 FAX: (864) 294-3585  
Web: http://ees.furman.edu  
FB: facebook.com/EESdepartment