

Savannah River

2010 Internship at Savannah River Environmental Sciences Field Station

The Savannah River Environmental Sciences Field Station (SRESFS) Internship Program is managed by South Carolina State University in collaboration with 29 member institutions. The program is sponsored by the Department of Energy – Savannah River Operations Office through the US Forest Service Savannah River under Interagency Agreement DE-AI09-00SR22188, the USDA Natural Resources Conservation Service, and the Wal-Mart State Giving Foundation. The SRESFS seeks to increase recruitment and retention of minority students and women in science, engineering, natural resources management and environmental career professions. Housing and courses are help at the University of South Carolina-Aiken, and the Savannah River Site (SRS), respectively. Both are located in or near Aiken, SC.

We welcome undergraduate applicants who have demonstrated academic excellence, displayed commitment to the environment and natural resources, and desire a career in the fields of study described. This course-driven program provides educational and research opportunities that will prepare you for graduate and professional careers in the areas of environmental science, agriculture, and management of terrestrial and natural resources. Currently, no graduate internships are offered.

The Application Process

The minimum GPA required to apply is 2.5. This is a competitive process. Not all applicants are accepted. Please review all sections of the application package thoroughly. Failure to voluntarily provide complete and accurate answers may affect the review and consideration of your application. Please keep a copy of your completed application with all requested materials for your files!

Your application must include all of the following when submitted in order to be considered complete and contain your campus's Field Station faculty contact:

1. Internship Application Form. **Return pages 4 - 7 only.**
2. Transfer of Credit or similar signed document from your home institution. All required signatures must be obtained for the document to be considered complete.
3. Current resume including scholastic honors and extracurricular activities.
4. One page Statement of Intent, describing why you want to be an intern at the SRESFS, and your career interests within the Department of Energy.
5. Writing sample, 500 words or less, about one of the following topics: your major, your personal history, or a current event.
6. Two letters of recommendation from current and/or past college instructors with their work contact information. The letters on the institution's letterhead can be submitted with the application in a sealed envelope with the writer's signature across the seal or can be emailed or faxed to the program office. However, the letters must be received by the deadline date.
7. An unofficial transcript obtained by the applicant from the home institution's website is acceptable for the initial application submission.

The application with all requested materials must be submitted together or your application will not be considered for review! Please keep a copy of your completed application with all requested materials for your files. Given the volume of incoming applications, we cannot return any of the materials submitted.



2010 Course Offerings & Session Dates

Note: Session dates and course offerings are subject to change.

Rising sophomores cannot apply for 400 level courses

Session I Courses (May 29 – June 30, 2010)		Session II Courses (June 27 – July 31, 2010)	
Course Number	Schedule	Course Number	Schedule
ENV 300 – Intro. to Env. Science/4 Credits	TTHSAT	ENV 300 – Intro. to Env. Science/4 Credits	MWF
ENV 305 – Env. Health/ 3 Credits	MW	ENV 306 – GIS & Land Use Decisions/4 Credits	TTHSAT
ENV 310 – Intro. To Soil Science/4 Credits	MWF	ENV 410 – Principles of Agronomy/4 Credits	MWF
ENV 430 – Waste Management/4 Credits	TTHSAT	ENV 420 – Env. Chemistry/4 Credits	TTHSAT
ENV 491 – Soils and Hydrology/4 Credits	MWF	ENV 490 – Principles of Pollution Control/4 Credits	MWF
ENV 492 – Wildlife Ecology and Management/4 Credits	TTHSAT	ENV 495 – Wetlands and Aquatic Ecology/4 Credits	TTHSAT
ENV 399 – Special Topics in the Environment & Natural Resources /1-4 Credits	TBD	ENV 399 - Special Topics in the Environment & Natural Resources /1-4 Credits	TBD

Please Note:

- Interns are housed on the campus of the Univ. of South Carolina, Aiken (USCA).
- The internship courses are conducted at the Savannah River Site and USCA.
- Classes are held on days indicated above.
- Course descriptions and prerequisites may be found below or on our website: <http://www.cnrt.scsu.edu/fieldstation/pandc/courses.html>
- Interns are expected to commit to approximately 10 hours per day Monday through Saturday with classes lasting from 9am to 5pm. Occasional earlier or later times will be required.
- Interns cannot work another job or be enrolled in any non-SRESFS course during the internship.
- Interns must adhere to a dress code that will be described in the acceptance package.
- Interns can be enrolled in up to two courses each session. To facilitate course placement, it is advised that you apply for as many courses as your institution allows.
- Course enrollment is limited to 12 students per course.

Application Deadline:

Applications must be postmarked no later than February 1, 2010. Incomplete applications will not be reviewed.

Applications must be mailed (preferred) and postmarked or faxed by the deadline date. Notification about the status of your application will be e-mailed to you. During the entire application process, you are responsible for checking your Inbox and/or Junk e-mail box for status notifications as well as other important, time-sensitive communications from the SRESFS Program Office.

A representative from the SRESFS Program Office will notify students of the status of their applications via email no later than 45 days after the end of the application period. Information regarding the status of applications will not be available prior to this time.

**Mail completed application to: Professor Denise S. Grant, PE
Field Station Director
c/o Program Coordinator
300 College Street, NE
P. O. Box 8143
Orangeburg, SC 29117
RE: SRESFS Applicant**

Fax completed application to: 803-516-4516 (Write "Field Station Applicant" in the subject line)

Email questions to: jguinyard@scsu.edu
(Type "Field Station Applicant" in the subject line)

Academic Credit

Awarding academic credit for a course is at the discretion of your college or university. However, we will assist you in providing appropriate information as requested by your school. Course descriptions can be found on our website and in this packet. Arrangements for course accreditation should be made between you and your school before you begin the internship.

Earning of Stipend

You are eligible to earn up to \$2000 per session for a total of \$4000 over two sessions. Interns will earn \$2000 per session if they enroll in and complete two, 4-credit hour courses, complete a scientific poster adhering to the guidelines of the program and under the direction of your instructor, are present for all class and program meetings, complete all assessments (during program and afterward), participate in either blogging or composing a video about your experience, adhere to program, housing, SRS and course guidelines, and agree to speak about their intern experience when they return to their home institution.

Savannah River Environmental Sciences Field Station Internship Application

PLEASE TYPE OR PRINT LEGIBLY

Please check the session for which you are applying (you may select both sessions):
 Summer Session I (5/29-6/30) _____ Summer Session II (6/27-7/31) _____

Please indicate if your start/end dates would vary from the listed session dates:

Students may enroll in two courses per session, **for a total of four courses** over both sessions. Use the table below and place (X) next to your course choices. In the event one or more of your courses is already filled/not offered, **please number, in order of preference, your courses:**

Rising sophomores cannot apply for 400 level courses

Session I Courses (May 29 – June 30, 2010)			Session II Courses (June 27 – July 31, 2010)		
Would you like to request this course?	Course Number	Schedule	Would you like to request this course?	Course Number	Schedule
	ENV 300 – Intro. to Env. Science/4 Credits	TTHSAT		ENV 300 – Intro. to Env. Science/4 Credits	MWF
	ENV 305 – Env. Health/ 3 Credits	MW		ENV 306 – GIS & Land Use Decisions/4 Credits	TTHSAT
	ENV 310 – Intro. To Soil Science/4 Credits	MWF		ENV 410 – Principles of Agronomy/4 Credits	MWF
	ENV 430 – Waste Management/4 Credits	TTHSAT		ENV 420 – Env. Chemistry/4 Credits	TTHSAT
	ENV 491 – Soils and Hydrology/4 Credits	MWF		ENV 490 – Principles of Pollution Control/4 Credits	MWF
	ENV 492 – Wildlife Ecology and Management/4 Credits	TTHSAT		ENV 495 – Wetlands and Aquatic Ecology/4 Credits	TTHSAT
	ENV 399 – Special Topics: Emerging Green Technologies	TBD		ENV 399 - Special Topics: topic to be announced later	TBD

ENV 399: Special Topics

Three courses have been proposed: Emerging Green Technologies, Field Botany (with various unique field experiences) and an introduction to plant field ecology like course. Each course is described in the 2010 Courses & Descriptions section. Please indicate by course title which, if any, special topics course you are interested in:

Have you been a Field Station Intern in the past? Yes _____ No _____
 If yes, please list the courses you have previously taken.

Personal Information

Full Name: _____
Last First Middle

Social Security #: _____ - _____ - _____

Applicant's Current Home/Dormitory Address: Parents/Guardian Permanent Address:

E-mail: _____ Current During Sch./Dorm Phone: _____

Cell Phone: _____ Parents/Guardian Home Phone: _____

Parents/Guardian Cell Phone: _____

Parents/Guardian E-mail: _____

Date of Birth: ____/____/____ Ethnicity : _____
(mm) (dd) (yyyy)

Currently US Citizen? Yes___ No___

Non-US Citizen? Yes___ No___ Permanent Resident Alien? Yes ___ No___

This section must be completed by all US citizens with a previous country of citizenship, all non-US citizens & all permanent resident aliens. Include a copy of these documents and your I-20, if applicable, with your application.

Country of Citizenship: _____ Visa Type : _____

Country of Birth: _____ Visa Expiration Date : _____

City of Birth: _____ Passport #: _____

Visa # : _____ Country of Issue: _____

Passport Exp. Date: ____/____/____
(mm) (dd) (yyyy)

Aliases used: _____

How did you hear about the Field Station internship program?

Please note your intended career(s) after graduation:

Academic Information

College / University: _____

School's Address: _____ Phone #: _____

Expected Year of Graduation: _____ GPA: _____ Major: _____

Name of Academic Advisor: _____

Advisor's Phone #: _____

Advisor's Email: _____

Current Class Standing: ____ Freshman ____ Sophomore ____ Junior ____ Senior

Security Questions

Have any disciplinary or administrative actions (i.e. probation, suspension, expulsion) been taken against you by your school or are any pending? Yes _____ No _____

Have you ever been charged with or convicted of any criminal offense, DUI / DWI or misdemeanor offense? Yes _____ No _____

Have you ever used, possessed, supplied or manufactured any illegal drugs? Yes _____ No _____

If you answered "Yes" to any questions mention above, please explain and include the dates of the actions on a separate page.

Certification

My statements on this form, and any attachments to it, are true, complete, and correct to the best of my knowledge and belief and are made in good faith. I understand that knowingly false answers will lead to the rejection of my application or immediate dismissal from the program. Further, I reviewed the intern blog and program website and now understand the various aspects and requirements of the program.

Print Name

Applicant's Signature

Date

Signature of Your Campus Field Station Faculty Contact*

Date

***Find name of faculty contact on the next page.**

Campus Field Station Faculty Contact

Name of Institution	Name of Contact Person	Phone#
Albany State University	JoAnn McCrary	(229)430-4811 or 4823
Allen University	Patrick Inyangetor	(803)376-5743
Augusta State University	Rich Griner	(706)737-1539
Benedict College	Milton Morris	(803)705-4608(office)
Clafflin University	Florence Anouro	(803) 535-5249
Clark Atlanta University	Vacant/Use SCSU Contact	
Clemson University	J. Drew Lanham	(864)656-7294
Elizabeth City State University	Maurice Crawford	(252)335-3425
Fayetteville State University	Faren Wolter	(910) 672-2512
Florida A&M University	Henry Neal Williams; Michael Abazinge	(850)599-3550; (850)599-8553
Fort Valley State University	Melinda F. Davis	(478)825-6241
Gainesville College	Jon Hoekstra; Chris Semerjian; Margi Flood	(678)717-3804
Johnson C. Smith University	Joseph Fail	(704) 378-1150
Livingstone College	Sashi Sabaratnam	(704)216-6124
Mercer University	Brian Rood	(478)301-2885
Morehouse College	Errol Archibold	(404) 215-2689
Morris College	Radman M. Ali	(803)934-3200 ext3266
North Carolina A&T University	Godfrey Uzochukwu; Manuel Reyes	(336)334-7030; Voice: (336)334-7787/(228)284-4228
Paine College	Rubin Kesler	(706)821-8342
Savannah State University	Kenneth Sajwan	(912)356-2315
South Carolina State University	Denise S. Grant, Program Director	(803)536-8859
Spelman College	Victor Ibeanusi	(404)270-5866
Tennessee State University	Terrance Johnson	(615)963-5748
Tuskegee University	Walter Hill	(334)727-8157 or 8152
University of Georgia	Vacant/Use SCSU Contact	
University of South Carolina Aiken	Hugh Hanlin	(803)641-3439
University of South Carolina Columbia	Madilyn Fletcher	(803)777-9153
University of South Florida	Ashanti Pyrtle; Kathy Carvalho-Knighton	(727)553.1301; (727) 873-4063 (O), or (727) 873-4833 (Lab)
Voorhees College	Doris J. Ward	(803) 780-1069

2010 Courses & Descriptions

ENV 300 – Introduction to Environmental Science 4(3, 1): An introductory one semester or summer course for freshman and sophomore students who are interested in environmental studies, natural and physical sciences, social sciences, agriculture, or engineering. The course will also be ideal for those students and individuals that simply want to broaden their knowledge and/or have more understanding of the environment. Introduction to Environmental Science will expose students to biological, chemical, social, political, cultural, and economic factors that affect the environment. Students will be engaged in hands-on activity of the interaction of these factors with terrestrial and aquatic ecosystems. The course will also explore scientific and social implications of climatic change, global warming, and the effects of anthropogenic pollutants and human population on the environment.

Prerequisites: one semester of science or Instructor permission. Sophomore standing.

Textbook: Cunningham, W, Cunningham, M, Saigo, B, Environmental Science, A Global Concern, Ninth edition, McGraw-Hill Higher Education Publishers, 2007.

Syllabus available on the website

ENV 305 – Environmental Health 3(3, 0): This course is designed for students pursuing careers in environmental studies and/or health professions. This course introduces students to environmental affects to human health. The ecological position of human populations within the global ecosystem will be presented along with human populations with the local environment. Impacts of natural environmental factors and pollutants on human health will be explored including case studies. Subjects to be addressed will include effects of natural carcinogen, ultraviolet light, invertebrate disease vector, epidemiology, ecotoxicology, density-dependent disease transmission, food supply health, and water supply quantity and quality. *Prerequisites: Instructor permission and sophomore standing.*

Textbook: TBD

Syllabus available on the website

ENV 306 – Land Use Decisions 4(3, 1): Fundamentals of land use and conservation of natural resources is emphasized. Students will be introduced to zoning regulations, land ownership, and private and public management of land in the United States. The development and the proper use of environmental impact statements are emphasized. Field description and assessment of major agricultural, forestry, rural and urban land uses are illustrated. Classification and mapping of attributes are conducted in the field as they relate to soils, waters, land management, ownership and vegetative cover. Assessment techniques are used including extensive use of GIS integration, landscape management principles, and zoning regulation. Resources conflicts that arise across ownerships are emphasized, including, water quality, wildlife, and visual quality. *Prerequisites: ENV 300 or equivalent course and sophomore standing.*

Textbook: Economics and Contemporary Land Use Policy by Robert J. Johnson and Stephen K. Swallow

Syllabus available on the website

ENV 310: Introduction to Soil Science 4(2.5, 1.5): Designed for students interested in a comprehensive introduction to soil science from both an environmental and plant management perspective, this course is divided into three units. A unit on soil information introduces students to soil properties, characterization, mapping, classification, and land evaluation. A soil management unit addresses nutrient and water management, water, as well as management of soil biota and soil health. The unit on the role of soils in ecosystems considers topics such as soil erosion, nutrient leaching, soils as sinks and sources of greenhouse gases, and the impact of soils on land use. Labs will initially be field-oriented with an emphasis on learning practical skills needed to evaluate and manage soils. Subsequent labs will focus on accessing, interpreting, and applying soil information.

Prerequisites: ENV 300 or Instructor permission. Sophomore standing.

Textbook: The Nature and Properties of Soils by Nyle C. Brady and Ray R. Weil

Syllabus available on the website

ENV 399: Special Topics in the Environment & Natural Resources

A special topics seminar for students interested in natural resources, environmental science or engineering. Its purpose is to allow the offering of advanced and/or related topics not adequately covered in any regular course available to qualified students interested in natural resources, environmental science or engineering. A student may repeat this course with different topics for up to twelve (12) credit hours. Prerequisite: Depends on the topic offered or permission of instructor.

ENV 399 Course Topics Proposed for Summer 2010:

Emerging Green Technologies 4 (3,1)

The emerging green technologies to be discussed in the course include sustainable construction and alternative energy sources. The "why," "what" and "how" for more sustainable construction projects are presented in this course. Students will gain a working understanding of how to minimize the negative impacts of buildings (and other large construction projects) through classroom activities, self-study and group projects. This course will emphasize collaboration and interdisciplinary aspects of design and construction and is also designed to help students prepare for the Leadership in Energy and Environmental Design (LEED) accreditation exam.

Concepts of renewable energy will include sources of renewable energy, renewable energy commercialization, renewable energy constraints and opportunities, aesthetics, environmental and social considerations.

Prerequisites: ENV 300 or Instructor permission. Sophomore standing.

Textbook: TBD

Syllabus available on website

Field Botany (credit hours TBD)

Introduction, Objectives, and Learning Outcomes

Plants are the base of the biological food chain and the key player in nutrient cycles of the planet, and as such knowledge of the plant community is important for beginning ecologists to learn about. The objectives of this course in Field Botany are:

- to introduce the life cycles of plants with emphasis on conifers and flowering plants
- to provide an introduction to plant anatomy and physiology in the context of how the plant in the field must interact with its environment
- to build an understanding of the importance of the interaction of plant structure and function
- to learn skills of plant collection, preservation, herbarium use, and identification of plants using standard plant keys
- to learn plant evolutionary relationships
- to learn stories of biology and generate new ideas about them
- to become better observers and questioners.

The course would start with an introduction to plant life cycles which would include microscopic observation of plant structures - very especially flowers. Lab instruction would be followed by field trips to sites throughout the region around Aiken concentrating on sites within the Savannah River Site. Collections made either in the morning or afternoon would be followed by sessions in lab preparing specimens and identifying and recording collection locations. Pairs of students would be expected to build a plant collection of at least 50 species representing 25 families. Each student will carry a field notebook to the field and take notes. Notes will be transcribed in the evening and during lab into a formal field journal.

Ideally two overnight field trips would be planned. One to Sapelo Island and the other to Coweeta in the mountains. Collections would be made in both locations if possible but if not then field notes would be taken on observations in the field, and the new ideas that emerge from student field study.

Prerequisites: ENV 300 or Instructor permission. Sophomore standing.

Textbook: Manual of the Vascular Flora of the Carolinas, Radford, Ahles, and Bell.

Handouts of Plant Structure and Function

Syllabus available on website

Introduction to Plant Field Ecology (credit hours TBD)

An introduction to basic principles of ecology. It will include the basic biological and chemical principles necessary to be understood to formulate 'stories in ecology' and to execute field studies of the environment. Each day - either in the morning or afternoon – the class will explore the environment by working in the field either observing elements of the natural environment or collecting data on or related to various components of the environment. The focus of these studies will be plants, and we will try to learn as much as we can about them and their relationships to their environment. The other half day will be devoted to lessons on principles of biology, chemistry, and ecology or lab work on data organization and analysis and sample preparation. All topics and all field work will be taught 'from scratch' so no prior experience in biology or science is necessary.

Prerequisites: ENV 300 or Instructor permission. Sophomore standing.

Textbook: Teaching an Elementary Story of Life: The Web of Biology, Ecology, and Evolution by Fall, Blohm, and Ray.

Syllabus available on website

ENV 410: Principles of Agronomy 4 (2.5,1.5): A foundation course in agronomy applying crop, soil, and environmental sciences in understanding agricultural systems in the world. Course includes introductory concepts of plant, soil, tillage, pest, environmental, and sustainable aspects of crop production.

Prerequisites: ENV 310 and junior standing.

Textbook: Plant Production Systems-Food, Fuel, Feed, Fiber by Mullen, McAndrews, and Taylor, 2008. 5th edition, Kendall-Hunt Publishing, Dubuque, IA.

Syllabus available on the website

ENV 420 – Environmental Chemistry 4(2, 3): This course will enable students to make informed judgments on environmental issues while providing a basic understanding of chemical principles and practices. Emphasis will be placed on ozone depletion, global warming, air and water pollution and the hazards of radioactivity. Students will gain experience in field techniques and principles associated with environmental chemistry, including chemical properties and processes that affect transport, degradation and retention of organic and metal pollutants in soil, water and air. Emphasis is placed upon sampling and monitoring in the field, instrumentation, data analysis, sample handling and storage, GLP and quality control.

Prerequisites: ENV 300, three semesters of chemistry & lab and junior standing.

Textbook: TBD

ENV 430 – Waste Management 4(3, 2): An approved one-semester lecture and laboratory course for students interested in minor concentration in environmental science. The course will explore modern waste disposal management strategies. Landfills and hazardous waste management strategies will be explored. Emphasis will be placed on recycling reuse and composting as alternative waste management strategies.

Prerequisites: Instructor permission and junior standing.

Textbook: TBD

ENV 490 – Principles of Pollution Control 4(3, 1): Students are exposed to environmental engineering principles through standard and cutting edge technologies designed to manage, mitigate or remediate pollutants in soil, water and air. The technologies include waste water management from domestic and industrial sources, landfills, surface water containment, remediation of wastes by chemical and biological process, and transport of solid and hazardous wastes. Students obtain familiarity with database management, characterization of contaminants, sensors, survey procedures, and State and Federal regulations and permitting.

Prerequisites: 3 semesters of chemistry, Instructor permission and junior standing.

Textbook: Davis, M.L. & D.A. Cornwell (2008). Introduction to Environmental Engineering, 4th Ed. McGraw-Hill, NY, NY

Syllabus available on the website

ENV 491 – Soils and Hydrology 4(3, 1): Fundamentals of soils and hydrology essential to environmental science careers are discussed. Topics include soil physical properties that affect transport and retention of pollutants, saturated and unsaturated flow in the soils, drainage, basic aquifer characteristics, erosion and sediment transport, stream flow and storm flow dynamics in response to rainfall and watershed features. Field work will emphasize measurements and assessment of vegetative and non-vegetative surfaces, particularly in the riparian zone.

Prerequisites: Instructor permission and junior standing.

Text Book: TBD

ENV 492 – Wildlife Ecology and Management 4(2, 2): This course will introduce students to the origin and development of wildlife management in the United States of America. The relationship between management and conservation practices and their link to sound ecological assessment will be addressed. Management practices in the USA will be compared and contrasted with those in Europe, Canada and Mexico.

Class time will be divided equally between lecture and laboratory. Current journal articles will be used to supplement the text.

Prerequisites: Instructor permission and junior standing.

Textbook: TBD

ENV 495 – Wetlands and Aquatic Ecology 4(3, 1): Fresh water habitats accounts for 90% of our nation's wetlands. This course will emphasize the vegetation, hydrology, water chemistry, soils, fauna, and management strategies of freshwater ecosystems. Field experiences will include habitat analysis and sampling, limnological sampling, wetland delineation, plant and animal identification, and GIS technology. Appropriate for students interested in parks and recreation, wildlife ecology, fisheries biology, soil science, agriculture, natural resource management, or other field-based careers.

Prerequisites: Instructor permission and junior standing.

Textbook: TBD

SRESFS Internship Application Completion Checklist

Did you remember to include. . . ?

- Internship Application Form. **Return pages 4 - 7 only.**
- Transfer of Credit or similar signed document from your home institution. All required signatures must be obtained and all requested courses listed in order for the document to be considered complete.
- Current resume including scholastic honors and extracurricular activities.
- One page Statement of Intent, describing why you want to be an intern at the SRESFS, and your career interests within the Department of Energy.
- Writing sample, 500 words or less, about one of the following topics: your major, your personal history, or a current event.
- Two letters of recommendation from current and/or past college instructors with their work contact information. The letters on the institution's letterhead can be submitted with the application in a sealed envelope with the writer's signature across the seal or can be emailed or faxed to the program office. However, the letters must be received by the deadline date.
- An unofficial transcript which can be obtained by the applicant from their home institution's website is acceptable for the initial application submission.
- Did you receive the signature of your campus Field Station representative?
- Did you review the 2009 program intern blog and the program website and now understand the various aspects and requirements of the program?

REMEMBER!

- **The application with all requested materials must be submitted together **or your application will not be considered for review!****
- Please keep a copy of your completed application with all requested materials for your files.
- Given the volume of incoming applications, we cannot return any of the materials received.

PLEASE NOTE!

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- **Internship courses are conducted in classrooms/labs of the SRESFS located at the Savannah River Site, and at USCA in Aiken, SC.**