

**ASSOCIATED COLLEGES OF THE SOUTH
TECHNOLOGY FELLOWS PROGRAM**

APPLICATION

Please return this completed form, along with your attached proposal, to:

**Technology Fellows Program
Associated Colleges of the South Technology Center
Southwestern University Box 7385
Georgetown, TX 78626**

Applicant Name: Stacey Thornberry

Project Title: GIS in the Biological and Environmental Sciences Laboratory

Project proposed for (select one):

 Spring, 2003 XX Summer, 2003

Project type:

 X Project to be completed at Home Campus (stipend only)
 Residency at ACS Technology Center (Southwestern University) (stipend plus housing and limited meal plan)

Proposed length of residency (and desired dates, if known)

ACS Institution: Birmingham Southern College

Department: Library

Mailing Address: 900 Arkadelphia Road

Birmingham, Alabama

E-Mail: sthornbe@bsc.edu

Approval of Chief Academic
Officer: _____

Printed Name of Chief Academic Officer: Dr. Irvin Penfield - Provost

Background

Birmingham Southern College has recently constructed a new science building and a new core curriculum. It is recognized within the science faculty and the core curriculum that a vital part of scientific and environmental education is the utilization of emerging technologies in the laboratory and classroom environment. Among the emerging technology in the natural and environmental sciences is GIS (Geographic Information Systems). The ACS grant for information fluency created a forum to discuss how GIS could be utilized in the classroom. Through several GIS workshops (offered by the Information Fluency Grant) it was derived that labs could be easily implemented into the already existing curriculum. During these sessions specific courses were identified among the science faculty as the most appropriate for the use of this specific technology.

Birmingham Southern already has a license for the GIS software Arc view through a donation by ESRI Corporation. The corporation is also willing to offer a free upgrade to ARCGIS if needed. This software also includes ARCIMS, which allows maps and data tables to be viewed online by remote users. This software is readily available to most schools through ESRI Corporation at little or no cost to the institution. Thus, other schools could easily obtain this software to incorporate GIS into their curriculums.

The purpose of this proposal is to develop a set of GIS labs for the biological and Environmental sciences that can be easily integrated into existing courses, and can be utilized by all the schools within the ACS. Furthermore, it is the goal of this grant to create labs that can be utilized without extensive training. The labs would be designed for the beginning GIS user. However, the labs could be used as a template and customized by professors with advanced training.

Description

The labs will be created using the aforementioned ESRI software. A total of 10 labs will be created for main topics in the following courses: Earth Sciences, Population and Ecosystem Biology, Zoology (invertebrate and vertebrate), Ecology, Conservation Biology, Botany, and Introduction to Environmental Studies. The grant will fund the creation of the labs, an instructors guide for each lab, and creation of a web site for easy access to the information. The grant will also fund the student and teacher evaluation of labs, throughout the construction process to insure the quality of each lab.

Timeline

- May 26 – Attainment of Free GIS data and Metadata for all the labs
- June 9- Creation of all final lab maps
- June 16- Creation of all Teaching Guides
- July 1- Creation of all student labs
- July 15- Testing of labs with students
- July 22- Lab Corrections

July 29- Teacher Evaluations of Teaching Guides
Aug. 5- Teaching Guide Corrections
Aug. 12- Creation of Web Site for Dissemination Purposes, ACS faculty Critiques, and Final Changes.

Technology

The technical requirements of the project will be met with the aforementioned ESRI software, as well as, Office XP. This will not be funded by the ACS grant.

Other Support

The institute will provide the hardware (PC) and network storage space necessary for the project.

Learning Outcomes

The project will allow students to learn how GIS can be incorporated into specific biological and environmental research. Students will learn how to manage GIS databases, in order to manipulate, analyze, and interpret scientific data. The project will allow students to become familiar with the Arc View interface, and provide them a basic knowledge of the capabilities of the software for future independent projects. Professors will also be able to utilize this software in their research, and further incorporate it into their curriculum as necessary. Hopefully, the project will provide a starting point, which will make GIS more integrated within the sciences for faculty and students alike.

Curriculum

The labs will be incorporated into the curriculum by the science faculty in the laboratory setting. The labs will support the classroom curriculum or major course topics for each of the aforementioned courses. The placement of the labs in the semester, and the frequency of use, will be under the discretion of the instructor.

Assessment

First, students and teachers will evaluate the labs during their creation during the design process for clarity, content, and difficulty. Secondly, the science faculty at all the ACS schools, which will be solicited by email, will evaluate the entire project. Finally, the labs will be assessed after both the instructors and students conclude the labs in the classroom setting. Evaluation forms will be included on the website with each specific lab.

Dissemination

Obviously, The ACS faculty will be made aware of the project during the open critique period, but following that there will be a website constructed during the course of the project aimed at dissemination. From the website, instructors will be able to download the labs and the corresponding teaching guides. The website will also include email for support, and links to GIS tutorials and information. Hard copies of the labs will be made available by request on CD-Rom, in order to conserve paper resources.