

**Integrating GIS into the Liberal Arts Curriculum – Replicating a Successful Program  
Progress Report on a Project Funded by an Information Fluency Grant to Millsaps College  
and Rhodes College from the Associated Colleges of the South**

submitted by Debora Mann

May 14, 2003

**Summary**

The purpose of this project is to introduce Millsaps College faculty and staff to the potential of Geographic Information Systems (GIS) as a teaching and research tool for the liberal arts using an approach developed by faculty at Rhodes College. Funded by an Information Fluency Grant, Rhodes faculty held a seminar in the fall of 2002 that promoted the use of spatial analysis across the campus and resulted in collaboration among faculty, students and staff. We have now extended this successful approach to Millsaps College.

On February 1, 2003, three Rhodes faculty members and their student assistant held a workshop at Millsaps College. The workshop was attended by eleven Millsaps faculty members from the Departments of Biology, Geology, Computer Science and the Else School of management; three staff members; three students invited by faculty; and two student GIS assistants. On March 1, eight participants attended a follow-up meeting to report on their progress with GIS projects and to discuss strategies for developing and supporting the GIS program at Millsaps. These participants are continuing to work on their GIS projects. They have been assisted by two students who will continue as paid GIS assistants during the fall 2003 semester.

There have been several important outcomes of this project. In addition to providing stipends for the student assistants and the faculty/staff participants, funds from the grant have been used to equip the Millsaps Wilson Library computer lab with software for GIS. This lab can now be used by individuals and also by classes for work on GIS projects. Faculty in biology and geology are planning to incorporate GIS into existing courses. In addition, Dr. Stan Galicki is planning to offer a new course on GIS in the spring of 2004. This will not only provide valuable training for students as they enter graduate programs and the workforce but will also provide a pool of knowledgeable students who can assist other students, faculty and staff with GIS projects at Millsaps. The experience our student assistants have gained this semester is already proving to be an asset in finding employment. Kevin Best will use GIS in his summer job with the Mississippi Bureau of Geology. The project has also promoted collaboration among faculty and staff. In particular, Dr. Ajay Aggarwal of the Else School of Management is collaborating with Ms. Johanna Bettis-Bruce, research analyst for the College, and with Ms. Theresa Surber, manager of information systems for the Development Office, to create a GIS-based alumni network.

**Events to Date**

GIS Open House

On January 15, 2003, the Millsaps organizers held a GIS Open House from noon to 1PM in the faculty/staff dining room of the Millsaps campus cafeteria. The purpose of the Open House was to build interest in the upcoming GIS workshop by illustrating the ways in which GIS might be used by faculty and staff at a liberal arts college. Dr. Jimmie Purser prepared a Powerpoint presentation explaining the nature of GIS. John Bienvenue, GIS student assistant at Rhodes, prepared a Powerpoint presentation highlighting the projects undertaken by the participants at the

GIS workshop at Rhodes. Dr. Stan Galicki, a current GIS user, was on hand during the Open House to answer questions and to describe additional applications of GIS. The Open House was attended by about 15 members of the Millsaps faculty and staff.

GIS Workshop

In preparation for the workshop, the GIS software ArcView 8.2 was installed in the computer lab of the Millsaps Wilson Library by Barry Jackson, Jeanne Bodron-Hayes and Brandi Stockstill of Computer Services. On February 1, 2003, Dr. Carol Ekstrom, Dr. Steve Ceccoli, Dr. David Kesler and John Bienvenue led a GIS workshop at Millsaps. The workshop was attended by 11 faculty members, 3 staff members, 3 students invited by faculty participants, and the two student GIS assistants Kevin Best and Motoi Namihira. A list of the faculty and staff participants and their interest in learning GIS appears in Table 1.

Table 1. Faculty and Staff Participants in the GIS Workshop February 1, 2003

Participant	Interest in GIS
Dr. Sarah Armstrong, Biology	Mapping biological data from the Yucatan
Dr. Jim McKeown, Biology	Mapping entomological records from the Yucatan
Dr. Debora Mann, Biology	Mapping biological data
Dr. Dick Highfill, Biology	Tracking Millsaps alumni
Professor Robert Nevins, Biology	Tracking Millsaps medical alumni
Dr. Jamie Harris, Geology	Investigating earthquake hazards in Mississippi
Dr. Delbert Gann, Geology	Mapping the location of building stones of geological interest in Jackson
Dr. Stan Galicki, Geology	Hydrology applications
Dr. Dennis Dance, Computer Science	Data mining
Dr. Kevin Pauli, Else School of Management	Business applications of GIS
Dr. Ajay Aggarwal, Else School of Management	Tracking Millsaps alumni
Ms. Theresa Surber	Tracking Millsaps alumni
Ms. Johanna-Bettis Bruce	Tracking Millsaps alumni
Ms. Dora Robertson, secretary for the Science Division	Mapping flood hazards

The presenters began the workshop with an overview of GIS and its applications. Each faculty/staff participant was provided with a workbook and a CD-ROM prepared by the presenters and containing information on data available for use with GIS. The participants then divided into three interest groups for a hands-on session in the computer lab. Each presenter guided a group of participants through a sample GIS exercise that illustrated some of the most commonly used features of the software. This was followed by a discussion over lunch about the ways in which GIS might be used for teaching and research at Millsaps. It was agreed that there is considerable interest among faculty and staff in using GIS and that a GIS course would be of

great benefit to students in preparing them for graduate school and the workplace. It would also provide a pool of students proficient in GIS who could assist other students, faculty and staff in the use of GIS. The Rhodes faculty shared ideas and syllabi they use in teaching GIS in their courses.

#### Follow-up session

On March 1, eight participants in the original workshop gathered for a follow-up session to discuss their progress on their GIS projects. (Two of the participants in the February 1 workshop were in Georgetown, Texas attending the ACS-sponsored GIS symposium on “Putting the Digital South to Work.”) Three participants made Powerpoint presentations on their projects. Dr. Delbert Gann presented “A Geologic Tour of the Natural Building Stones of Jackson, Mississippi.” Dr. Jamie Harris presented “GIS-based Analysis of Earthquake Hazards in Mississippi.” Dr. Debora Mann presented “Mapping Ecological Survey Data from the Blue Ridge Mountains.” Others commented informally on their progress with projects. There followed a discussion on the future of GIS at Millsaps. It was agreed that GIS has great potential as a tool for teaching and research in the liberal arts and should be supported at Millsaps.

#### Workshop evaluation

During the follow-up session the participants filled out an evaluation of the workshop. The questions concerned their experiences at the workshop, their experiences during the one-month interval in which they worked on their projects, and their expectations for the future. The evaluation form is appended along with a transcript of the evaluations.

Two general themes emerged from their comments: first, that a more extensive hands-on session during the workshop would have been beneficial, and second, that the one-month interval between the workshop and follow-up session did not allow enough time to develop their projects fully. Contributing to the latter problem was the fact that although software was available for installation on the office computers of the participants, many had older machines that required an upgrade of the operating system before the software could be installed. Three respondents indicated that the software had not been installed on their office machines in a timely manner. In response to the question “Do you feel that you will use GIS in your teaching/research as a result of your experience with this seminar?” 6 of the 8 respondents answered “yes”, one answered “probably” and one person did not answer the question.

#### **Continuation through the fall semester 2003**

Motoi Namihira and Kevin Best will continue to serve as paid GIS assistants in the fall 2003 semester. They will be available to assist faculty and staff as they continue to work on GIS projects begun during the workshop and will be available for general GIS assistance to faculty, staff and students campus-wide.

**Expenditures to date at Millsaps**

The following expenses were incurred during the spring semester 2003:

ArcView 8.2 software for Millsaps Wilson Library computer lab	\$1041.00
Stipends for 14 faculty and staff workshop participants @\$100 each	\$1400.00
Stipends for 3 Computer Services staff for technical support @\$100 each	\$300.00
Salary for two student assistants @\$250 each for the spring semester	\$500.00
Refreshments for open house, workshop, and follow-up session	<u>\$540.51</u>
Total to date	\$3781.51

The main expenses anticipated for the fall 2003 semester are the salaries for the two student assistants. This will amount to \$250 each for a total of \$500. The remainder of the funds will be used for support materials such as books and digital maps.

## APPENDIX: EVALUATION FORM AND TRANSCRIPTS OF EVALUATIONS

### **Evaluation Questions for Millsaps College GIS Seminar February 1 - March 1, 2003**

As you may know, this workshop was made possible by an Information Fluency grant from the Associated Colleges of the South (ACS). The purpose of the workshop was to serve as a general introduction and orientation to the potential applications of GIS and spatial technology. The workshop is also part of a broader effort to integrate GIS into the liberal arts curriculum. With this in mind, we would appreciate your feedback on the following questions.

1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

b. What aspects of the first session did you find least useful?

c. What would you suggest be done differently for the first session?

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

Additional comments:

**Evaluation Questions for Millsaps College GIS Seminar  
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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**Applying the principles to a hands on experience in the library where we began ArcView**

b. What aspects of the first session did you find least useful?

**It was all useful and necessary to start**

c. What would you suggest be done differently for the first session?

**Have an opportunity to work one on one with someone who would be sure would have the time to get us familiar with some of the basics. More hands on, one-on-one work with an expert initially**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Couldn't keep up with the pace. Got behind and got lost**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**More support, one on one, with new user and expert**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**yes**

Additional comments:

- **need more time**
- **never got program installed in a timely manner**

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**The hands-on workshop**

b. What aspects of the first session did you find least useful?

c. What would you suggest be done differently for the first session?

**Perhaps designing a specific goal for the workshop, ie, create one uniform project for everyone**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**finding data**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**Have it installed on more computers**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

Additional comments:

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**The time on the computers walking through completed projects to see what you could do with different types of data**

b. What aspects of the first session did you find least useful?

**The opening presentations – I'd rather have spent more time with them in the lab**

c. What would you suggest be done differently for the first session?

**Cut down the opening full length presentations and spend a lot more time in the lab.**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Getting my computer set up and then having the time to get into it.**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**I think as more people get into using GIS it would be nice to have more workshops on using it – learn and share various projects.**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**Absolutely**

Additional comments:

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**I didn't realize the range of applications that could be supported using GIS – everything from science to art.**

b. What aspects of the first session did you find least useful?

**The hands on with the software was frustrating. It was too short to get things done.**

c. What would you suggest be done differently for the first session?

**Either lengthen it to allow more interaction with ArcView or shorten it with no software work – only description of applications.**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**TIME to learn and play with the software.**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**Availability of software, support personnel, and time to implement the applications.**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**Yes, but slowly. It has great potential but seems to have a steep learning curve.**

Additional comments:

**Evaluation Questions for Millsaps College GIS Seminar  
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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**The hands on approach was helpful.**

b. What aspects of the first session did you find least useful?

**Too many participants for the time allotted. I felt like I was following a cook-book to ArcView rather than really learning about ArcView. Very confusing in the beginning.**

c. What would you suggest be done differently for the first session?

**Smaller groups with devoted assistants.**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Compatibility of media with ArcView seems to be a problem not easily solved.**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**More exposure, presentations perhaps**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**yes**

Additional comments:

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**The general concept was new to me**

b. What aspects of the first session did you find least useful?

**The hands-on was short/confusing for semi-computer-literate dolts. It'll take longer slower sessions for me to use it.**

c. What would you suggest be done differently for the first session?

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Too short a time to really get something done – at least with my present priorities**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**Practice, practice, practice**

3) Do you feel you will use GIS in your teaching/research/**recruiting/etc.** as a result of your experience with this Seminar?

**probably**

Additional comments:

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**I learned from the presentations of the presenters, but**

b. What aspects of the first session did you find least useful?

**I wanted hands on experience in entering data. I was disappointed that the software wasn't available on all the computers in the lib. lab.**

c. What would you suggest be done differently for the first session?

**I would like to see an exercise with the whole group doing the same things in the lab, similar to a Comp. Sci. class, so we could learn**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Not getting software loaded to my computer in a timely fashion.**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?  
**More time to study and learn the techniques.**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**I would love to see it used in all areas of academia and administration**

Additional comments:

**Overall, I appreciate the opportunity to participate and learn this fun stuff.**

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1) Regarding the first session (February 1),

a. What aspect of the first session did you find most useful in learning about GIS?

**Examples of how it is used.**

**Defined some terms.**

b. What aspects of the first session did you find least useful?

**A little repetition among the presenters in the overview. Time could have been used familiarizing us with the way the Arcmap screen looks, use of various buttons, tools.**

c. What would you suggest be done differently for the first session?

**More time during the hands-on session learning basic skills**

2) Regarding your experience since the first session:

a. What difficulties did you encounter?

**Steep learning curve. Even seemingly simple tasks have stumbling blocks.**

b. What steps need to be taken in order for GIS to become more widely used at Millsaps?

**GIS course to train students.**

**GIS support personnel in Computer Services.**

3) Do you feel you will use GIS in your teaching/research as a result of your experience with this Seminar?

**Yes**

Additional comments:

**Integrating GIS into the Liberal Arts Curriculum: Replicating a Successful Program**

A short summary of Rhodes' preparation for the Millsaps Seminar to accompany Debora Mann's May 13, 2003 report.

submitted by Carol Ekstrom  
5/14/03

Introduction

GIS provides a myriad of new insights for viewing the world. The GIS software is complex, however, and we have concluded that it take an entire campus community to integrate GIS into the Liberal Arts curriculum, and to enjoy the process!

Background

An ACS IF grant allowed us to offer an initial GIS seminar at Rhodes in the fall of 2002. The seminar stimulated significant interest among faculty and staff; the number of students and faculty that used GIS increased from 120 in 2001-2002 to a total of 195 in 2002-2003.

We were pleased to receive the invitation to conduct a similar GIS seminar at Millsaps to help them start a GIS program. The invitation motivated us to reflect on our approach, and to polish the concepts that were the most useful and straightforward for training and engaging others in GIS.

Preparation

Debora Mann and I discussed strategies for the seminar by phone several months before the seminar. Our GIS assistant, John Bienvenu, prepared a CD-ROM illustrating the diverse projects developed during the Rhodes seminar. This was mailed to Millsaps ahead of time to stimulate interest in GIS during the Millsaps' GIS Open House. We gathered new data that focused on the city of Jackson, the state of Mississippi and the expressed interests of the Millsaps group. In addition, we edited our manual materials to make them transportable, compiled notebooks containing the written materials and CD-ROMs with the data, and we also began to think about exporting the seminar and the manuals to other schools. We provided Millsaps with information and contacts on purchasing GIS software that made their ordering process more efficient. The entire preparation process for the second seminar was a challenge that increased our understanding and familiarity with GIS.