

**GEOGRAPHIC INFORMATION SYSTEMS (GIS)
STATEWIDE IMPACT SURVEY - 2002**

Compiled by:

**University System of Georgia,
Board of Regents Advisory Committee on
Geological Sciences and Geography**

Introduction

The Board of Regents of the University System of Georgia (BOR) has long been in support of the use of Geographic Information Systems (GIS) technology on a statewide basis. The viability and flexibility of this applied mode of technology has proven to be a boon to researchers and students at institutions of higher learning throughout the state. The BOR initially made this technology available to its institutions by wholly funding site licenses for GIS technology from the Earth Systems Research Institute (ESRI). The intent was to keep the colleges and universities of Georgia at the forefront of the technological revolution. However, with changing times, changing policies and redirection initiatives, the BOR currently funds half the annual statewide site license fee. Therefore, schools across the state must contribute collectively, \$50,000 of the \$100,000 yearly ESRI site license fee.

Members of the BOR Advisory Committee on Geological Sciences and Geography developed this survey in an effort to demonstrate that the BOR initiative for GIS was indeed having a positive impact, at least in the Geological Sciences and Geography. Table 1 gives an indication of the pervasiveness of GIS technology throughout state universities and colleges and the respective departments where GIS technology is housed. The following institutional survey requested information on: 1) faculty; 2) departments using GIS; 3) programs that were turning out students with GIS knowledge; 4) available computer hardware and software; 5) teaching methods; 6) research initiatives; and 7) community service initiatives. Upon viewing the results of the survey the members of the Committee noted the quality and comprehensiveness of GIS initiatives and recommends that GIS technology should continue to receive BOR support.

Concerns were raised by Committee members that the discretionary funding at the institutional level, because of redirection initiatives and local policies could jeopardize the continued use of GIS technology and necessary equipment upgrades as the technology evolves. This survey clearly demonstrates that GIS technology is indeed alive and well in Georgia. The University System of Georgia and the Georgia State Legislature are on record as being committed to providing its citizens with the means to compete in a technology driven future. Therefore, Geographic Information Systems technology at colleges and universities across the state should not only be maintained, but fully supported as a viable academic and practical tool for learning, research, analysis, and innovation.

Dr. Harold R. Trendell, Chair
Advisory Committee on the Geological Sciences and Geography
2000-2002

Table 1

Current GIS departmental site licenses held at USG institutions.

<p>Bainbridge College Business Affairs Plant Operations</p> <p>Columbus State University</p> <p>Fort Valley State University Geography History Political Science Agricultural Instruction (PLSCI)</p> <p>Gainesville College</p> <p>Gordon College Plant Operations</p> <p>Georgia Institute of Technology City Planning Civil and Environmental Engineering Earth and Atmospheric Sciences Public Policy International Affairs Building Construction GTRI Facilities Office</p> <p>Georgia State University Geography Geology Instructional Research Center Policy Studies Political Science Risk Management & Real Estate</p> <p>Georgia Southern University Geography Geology</p> <p>Kennesaw State University Sociology Anthropology Geography Burruss Institute</p> <p>State University of West Georgia Biology Geography Geology Information Technology Services Geosciences</p> <p>Valdosta State University Physics Astronomy Geosciences</p>	<p>University of Georgia Agriculture and Applied Economics Anthropology Artificial Intelligence Arts & Science Architectural Planning Biological & Agricultural Engineering Botany College of Education Coastal Plains Experiment Station Crop & Soil Sciences Economics Ecology Engineering Environmental Design Facilities Planning Family & Consumer Sciences J.W. Fanning Institute Forestry Geography Housing & Consumer Economics Institute of Government Institutional Research & Planning Information Technology Outreach Services Journalism Marine Institute Marine Sciences NESPAL Office of Information Technology Office of Legal Affairs Real Estate Recreation & Leisure Studies SANREM CRSP / International Agriculture Savannah River Ecology Lab Terry College of Business UCNS University Architects Veterinary Medicine</p>
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Augusta State University

GIS Faculty/Staff:

Dr. Richard C. Capps

Academic Department:

Chemistry and Physics

Program:

BS degrees in Chemistry, Physics

Hardware:

One Pentium PC with 100 MB RAM;
HP plotter

Software:

ArcView 8;
IDRISI 32

Teaching:

We teach Physical and Historical Geology and direct Earth Science related undergraduate research. Software and hardware are used for directed studies research courses and presentations at professional meetings.

Research:

Geologic mapping, population studies (for biology); will be used for archaeological purposes.

Community Service:

Regional and local GIS themes are plotted and placed in ASU's map library.

Coastal Georgia Community College

GIS Faculty/Staff:

Dr. Ntungwa Maasha

Academic Department:

Natural Sciences and Mathematics

Program:

Associate of Science

Hardware:

8 PC's

Software:

TASA Graphic Arts, Inc

(1) Introduction to topographic maps,

(2) The study of Minerals

(3) The Wonders of Rocks and Minerals

(4) The Theory of Plate Tectonics

3-D TopoQuads from (Delorme)

Teaching:

Courses in Physical Geology and Historical Geology.

Research:

Beach processes along Jekyll Island coast.

Community Service:

Helping Middle School Teachers to teach about minerals and rocks.

Columbus State University

GIS Faculty/Staff:

Dr. Glenn Stokes

Academic Department:

Biology/Environmental Sciences

Program:

M.S. Environmental Sciences

Hardware:

Dell Pentiums

Software:

ArcView
ArcInfo

Teaching:

Graduate courses in Environmental Sciences

Research:

Masters Theses and contract work.

Community Service:

None at this time.

Darton College

(GIS NOT IN USE AT THIS INSTITUTION)

GIS Faculty/Staff:

Academic Department:

Program:

Hardware:

Software:

Teaching:

Research:

Community Service:

Gainesville College

GIS Faculty/Staff

Christopher J. Semerjian, Instructor of Physical Geography & GIS
Sheryl Williams, Associate Professor of Chemistry
J.B. Sharma, Associate Professor of Physics (Remote Sensing)

Academic Department

Division of Natural Sciences, Engineering, and Technology

Program

Certificate in Geographic Information Science

Hardware

20 700mhz PCs
19" Monitors
HP 2500c large format printer.
Tectronix Phaser color laser printer
36" Scanner
48" Tablet Digitizer
7 Magellan CM GPS units
10 Garmin recreational GPS units
Leica Total Station
Laser Range Finder

Software

Entire ESRI Suite, unlimited seats
ERDAS imagine, 25 seats
MapInfo, unlimited seats

Teaching

Introduction to Geographic Information Systems
Cartography & Earth Measurement
Spatial Analysis in GIS
Remote Sensing
Data Acquisition & Conversion in GIS
Internship in GIS

Gainesville College continued...

Special Topics in GIS

Service Learning in GIS

Research

Watershed Characterization for Erosion Control in the Soque River Watershed: GIS based erosion modeling

Department of Transportation: Ongoing development of an online interstate detour route GIS system.

Environmental Protection Division: Development of the Source Water Assessment and Protection (SWAP) plan for four major surface water intakes in North Georgia.

Community Service

K12 Outreach: GIS Training and equipment acquisition for nine area high schools (NSF funded)

United States Army Corps of Engineers: Data collection of sediment markers for Lake Sidney Lanier. Data conversion of CAD files.

United States Forestry Service: Data collection along national forest trails.

Georgia Institute of Technology

Center for Geographic Information Systems

<http://cgis.gatech.edu/index.html>

GIS Faculty/Staff

<http://cgis.gatech.edu/Staff/staff.html>

Academic Department

[College of Architecture City Planning Program](#)
[School of Civil and Environmental Engineering](#)
[School of Earth and Atmospheric Sciences](#)
[School of Public Policy](#)
[GTRI Electro-Optics, Environment & Materials Lab](#)

<http://cgis.gatech.edu/Partners/partners.html>

Program

The primary mission of CGIS is to:

- Research and develop the next generation of GIS technology
- Apply GIS tools technology within academic and research communities
- Teach multiple GIS courses for planners, engineers, environmental specialists, architects, and students and researchers from many other disciplines
- Develop new digital spatial databases for the State of Georgia

<http://cgis.gatech.edu/Mission/mission.html>

Hardware and Software

The Center for GIS currently offers short courses through the Continuing Education program at Georgia Tech. These courses are taught by CGIS research scientists, Georgia Tech faculty members, and industry specialists. The courses are designed for professionals in planning, engineering, and other diverse disciplines interested in applying GIS principles and technology to their issues. No previous GIS knowledge is

Georgia Institute of Technology continued...

required but a working knowledge of the Windows NT environment and basic GIS concepts is helpful.

The Center offers the following courses at regular intervals throughout the year:

- [Introduction to ArcView](#)
- [Advanced GIS](#)
- [Introductory Course in ArcGIS 8.1](#)
- [GIS for Real Estate Professionals](#)
- [Visual Basic in GIS](#)
- [Transportation GIS](#)
- [Introduction to Remote Sensing / Imagery](#)
- [GIS Applications on the Internet](#)

<http://cgis.gatech.edu/Education/education.html>

Teaching

See above

Research and Community Service

The Center for GIS currently has several research projects underway. These research projects are inter-disciplinary in nature and are designed to aid both the public and private sector. Several of the projects were formed through partnerships with public agencies and / or private organizations. These projects are both publicly and privately funded.

<http://cgis.gatech.edu/Projects/projects.html>

Georgia Southern University

GIS Faculty/Staff:

Dr. Susan Langley
Dr. Nancy Leathers
Dr. Dallas D. Rhodes

Academic Department:

Department of Geology and Geography

Program:

Bachelors of Science Degree with a Major in Geography.
Minor in Geographic Information Science.

Hardware:

Spatial Analysis and Geographic Information Systems Laboratory
21 Gateway Windows NT workstations
1 Gateway Server
1 Roll scanner
1 HP Plotter (large format)
1 HP color laser printer
LCD projector system

Software:

ESRI
Full suite of software including ArcView and ARC/INFO.

ERDAS
Imagine (including additional modules).

Teaching:

Real World Applications of GIS
Introduction to GIS
Remote Sensing
Cartography
Advanced GIS

Georgia Southern University continued...

Research:

Coastal erosion of the Georgia Bight.
Savannah River recreational corridor.
Various studies of water use in south Georgia.

Community Service:

None at this time.

GIS Faculty/Staff:

Dr. Tom Weiland

Academic Department:

Geology and Physics

Program:

B.S. Geology

Hardware:

7 Pentium PC's
a large digitizer
oversize printer and 36" pen plotter
12 older networked PC's in another lab

Software:

ESRI Arcview and Arcinfo

Teaching:

One upper division Geology course in GIS.
Also used in numerous Senior Thesis projects.

Research:

GIS has been used in geologic mapping, and in numerous senior theses directed toward local environmental sites, for example in work on abandoned and active landfills, baseline and ongoing data for an adopt-a-stream program.

Community Service:

GIS very heavily used for consulting projects for the area regional planning and development commission, as well as for contract work with various local governments providing base maps for fire hydrants and so on. Students often find temporary employment with these projects while they are in school.

Georgia State University

GIS Faculty/Staff

Dr. Jeremy Crampton
Dr. Jeremy Diem
Dr. Zhi-Yong Yin
Ms. Elaine Hallisey Hendrix
Mr. Jeffery McMichael

Academic Department

Anthropology and Geography

Program

Geography – B.A. and M.A.
Professional Certificate in GIS at M.A. level

Hardware

GIS/Remote Sensing Spatial Analysis Lab with

- 6 Windows 2000 workstations
- 4 SGI UNIX workstations
- 36" HP plotter
- large format scanner
- color laser printer
- digitizers
- 8 GPS units

Cartographic Instructional Lab with

- 15 Windows 2000 workstations
- laser and inkjet printers
- color scanner

Software

- Entire ArcGIS ESRI product line
- ERDAS Imagine
- ER Mapper
- Maptitude
- MapInfo Professional
- IDRISI 32

Georgia State University continued...

- MapViewer
- Surfer

Teaching

Mapping Fundamentals for GIS
Digital Cartography
Automated Cartographic Production
Geographic Information Systems
Advanced GIS
Internet GIS and Visualization and GIS
Quantitative Spatial Analysis
Remote Sensing
Various Seminars in GIS and Cartography.

Research

Many different faculty and students projects, including:

- Environmental databases for Atlanta and Shanghai, China
- Urbanization and land cover/use changes in Cairo, Egypt, and Shanghai and Guangdong, China,
- Land use and water quality in Atlanta
- Air pollution modeling
- Crime mapping
- Demographic diversity and access to mental health facilities
- Digital divide and environmental justice

Community Service

Providing maps for the university and local communities, faculty research support, demographic analysis for local immigrant population.

Kennesaw State University

GIS Faculty/Staff:

Dr. Mark Patterson, GIS Programs Coordinator
 Dr. Tino LaRosa
 Dr. Garrett Smith
 Dr. Harry Trendell

Academic Department:

Sociology, Geography and Anthropology

Program:

Certificate in Geographic Information Systems

B.S. in Geographic Information Science

Hardware:

15 Dell OptiPlex GX1 computers

They include:

Sony Trinitron 17 inch monitor
 Pentium III 450Mhz CPU
 256 MB RAM
 Maxtor 20GB Hard drive

Hardware continued...

ATI 3D Rage Pro AGP 2X Video Card
 3Com 3C918 Integrated Network Card
 LG CD-ROM – Speed Unknown
 Windows 2000 OS

1 Dell Precision 410 Server

Includes:

1 IBM 9GB SCSI Hard drive
 1 Quantum 9GB SCSI Hard drive
 2 Adaptec Ultra SCSI cards

Kennesaw State University continued...

Dell 15 inch monitor

Windows 2000 Advanced Server OS

- 4 Calcomp Digitizers
- 1 Calcomp Drawing Board III
- 1 HP LaserJet 4050N
- 1 HP 2000C Color Printer
- 1 HP Design Jet 750C Plus (large-format printer)

Software:

- ArcView GIS v3.2
- ArInfo 8.0.3
- ERDAS Imagine 8.4
- Getting to Know ArcView GIS
- Golden Software Surfer 7
- Golden Software Mapviewer 3
- Microsoft Office 2000

Teaching:

GIS Certificate: Five Courses with Introductory Geography as a prerequisite:

1. Introduction to Cartography
2. Introduction to GIS
3. Advanced GIS
4. Elective: (Choose one)
 - A. Remote Sensing
 - B. Urban Geography
 - C. Political Geography
 - D. Economic Geography
 (Candidates apply GIS in research)
5. Internship with Public or Private Sector GIS User

B.S. in Geographic Information Science (4 year - 123 semester hours)

- Concentrations:
- Business Systems
 - Environmental Systems
 - Urban Systems

Kennesaw State University continued...

Research:

Land Conversion in Northwest Metro Georgia
Bartow County Assessment
Transportation Study on Traffic networks in Catania, Italy
Metro Atlanta Crime modeling

Community Service:

KSU Campus mapping
National Park Service Interpretation maps
Ellijay Wildlife Refuge Maps
GA Diabetes Association
ARC Transportation study

State University of West Georgia

GIS Faculty/Staff:

Dr. Brooks Pearson, Assistant Professor
 Dr. Rebecca Dodge, Assistant Professor
 Mr. John Congleton, Lab coordinator

Academic Department:

Geosciences

Program:

B.S. Geography

Hardware:

16 Dell computers; 1.6 Ghz P4 processors; 40 Gig hard drives;
 CD-R networked with two large format printers - HP 755CM; HP800PS;
 three large format digitizers;
 CD duplication system

Software:

ESRI suite for GIS (ArcView & ArcInfo)
 ERDAS suite for remote sensing and image processing

Teaching:

Courses for the Core: XIDS 2001 – What do you really know about climate change?
 Courses for the Major: Computer Cartography, Introduction to Geographic Information Systems, Remote Sensing; Image Processing. Courses in support of teacher Education: GLOBE, GIS for teachers, Remote Sensing for Teachers.

Research:

2001-2003. The Georgia Geospatial Technology Literacy Project . National Science Foundation. 0087185. Total budget \$188,890. a collaborative project between the Geosciences Department at the State University of West Georgia and the Geology Department at Gainesville College.

2001-2002 Landuse Assessment - West Georgia Watershed Assessment. \$12,500. Contract to Hayes, James and Associates from the State of Georgia.

Community Service: Not at this time.

University of Georgia

GIS Faculty

Dr. Thomas Hodler
Dr. C.P. Lo
Dr. Lynn Usery
Dr. Roy Welch
1 position open

GIS Staff

Thomas Jordan
Marguerite Madden

Academic Department

Geography

Program

A.B., B.S., M. A., M.S., PhD. Degrees
Undergraduate certificate in GIS
Graduate certificate in GIS

Hardware**Instructional Labs:**

Mostly Pentium IIIs and Pentium IVs with 256 MB RAM and 10-20GB hard drives,
17 – 21 " monitors and running Win2000,
HP 1050c plotter, HP2500C color inkjet,
HP4500N color laser,
various HP B&W laser printers and color inkjets

Research Labs:

PIIs and PIIIs running Win 95/98/2000 as well as Unix and NT servers,
3x4' digitizers,
Epson 836 scanners (800dpi),
Kern DSR1 Analytical Stereo plotters,
Kern PG2 Analog Stereo plotters,
Trimble Pathfinder GPS,
HP 650C,755C,2500cm plotters.

University of Georgia continued...

Software

ArcGIS/Info 8.1,
Erdas Imagine 8.4,
Surfer 7.0,
Idrisi32,
Atlas GIS 4.0,
Arcview 3.2,
DMS,
Envi,
Dime

Peripheral Software:

CorelDraw 9,
Macromedia Director 7,
Flash 4 & Fireworks 2,
Aldus Freehand 10 with Map Publisher add-in,
Map Viewer 4,
Photoshop 6.0,
SPSS 10.1,
SAS 8.2.

Teaching**Research****Community Service**

Valdosta State University

GIS Faculty/Staff:

Dr. Paul Vincent
Dr. Can Denizman

Academic Department:

Physics, Astronomy, and Geoscience

Program:

B.S. in Environmental Geography

Hardware:

9 Compaq Deskpro computers. All have Pentium III processors running at either 650 or 750 MHz and 128 MB of RAM. They are running the Windows 2000 Operating System

1 Dell Server, Pentium II 250 MHz with 512 MB of RAM running Windows NT 4 Server Operating System (soon to be upgraded to Windows 2000)

Software:

ESRI suite of products as licensed through the University System of Georgia, Information Technology Outreach Services. This includes ArcGIS 8.1, ArcINFO 8.1, and ArcView 3.2 (with extensions)

Teaching:

Presently we are teaching GIS in three classes: Introduction to Computer Cartography and GIS (ArcView 3.2), Introduction to GIS and Remote Sensing (ArcView 3.2), and Advanced GIS (ArcINFO 8.1)

Research:

How people learn GIS and how they implement GIS, and specializing in karst geomorphology, hydrogeology, and application of GIS to earth and environmental sciences.

Community Service:

Teaching science teachers how to implement GIS in their classes and Data exchange with the South Georgia Regional Development Center.