The Role of UCGIS as a Cooperating Agency for GIScience Education

Arthur Getis
San Diego State University
Link: Long standing working relationship with NCGIA/CSISS

UCGIS: Model Curricula

New Consortium Program from CSISS:

Spatial Perspectives on Analysis for Curriculum Enhancement (SPACE)
SPACE

- NSF Division of Undergraduate Education
- Project PI: Donald Janelle
- Co-PIs: Michael Goodchild, Richard Applebaum
- Participants in the Consortium: UCSB, OSU, UCGIS
SPACE

- Seeks to achieve systemic change within undergraduate education in the social sciences.
- Based on the value of spatial thinking, GIS, tools for spatial analysis.
- Firm belief that program will yield:
  Greater relevance to societal problems;
  Greater integration of technology into instruction.
UCGIS Relationship to SPACE

• UCGIS provides SPACE with access to a large number of specialist instructors and training facilities.

• UCGIS is in a position to publicize the activities of SPACE by means of its web site and its links to its member institutions.
UCGIS/SPACE WORKSHOP 2004

- Objectives:
  - Review literature on the role of GIScience in the social sciences.
  - Discuss pedagogical strategies for teaching of GIScience in various social science undergraduate classrooms.
  - Develop modules for instruction tailored to the needs and goals of individual university situations.
  - Develop instruments that will allow for the evaluation of the curriculum modules and their educational success.
Workshop Organization and Instructors

- Workshop leaders and lecturers: Art Getis and John Weeks
- Collaboration and assistance from:
  Evaluation specialists (F. Goodchild, S. Rebich)
- Venue and Time:
  San Diego State University, Department of Geography
  Early August 2004
- Resources:
  Computer laboratories, software, meeting rooms, accommodations, CSISS resources, ESRI, Intergraph, Idrisi
Participants

- Some experience in dealing with spatial analysis and/or GIS
- Stated possibility (perhaps commitment) for including SPACE in classroom
- Social science disciplines represented [urban and regional planning (4), environmental studies (3), GIS (3), geography (3), sociology (3), criminology (2), economics (1), regional science (1)],
- Institutions represented: Ohio State, Ariz St, Gustavus Adolphus, UTexas-Dallas, Old Dominion, Southern Cal, Ariz, West Virginia, Nebraska Wesleyan, CSU Long Beach, Colorado, Maryland, Washington College, Methodist College, GWU, Memphis, Columbia, Hawaii
One-Week Workshop Objectives

- To review, teach participants, and discuss literature on the role of GIScience in the social sciences.
- To discuss pedagogical strategies for the teaching of GIScience in undergraduate classrooms, in general.
- To consider the way in which GIScience might be taught in various social science curricula.
- To develop modules for instruction in undergraduate social science courses tailored to the needs and goals of individual university situations.
- To develop instruments that will allow for the evaluation of the curriculum modules and their educational success.
Monday

- Lectures:
  - The role of spatial science in the social sciences: The meaning of spatial thinking
  - Objectives of SPACE
  - Review of GIScience concepts.
  - Presentation of GIScience solutions to social science problems
  - Characteristics of an ideal project.

- Laboratory:
  - Exercise on a GIScience issue (distribution of crime)
  - Software demo (Geoda)
Tuesday

- Lectures:
  - Spatial analysis application in demography.
  - Construction of curricula.
  - GIScience ideas and tools
  - Further on the construction of curricula.

- Laboratory:
  - Exercise on GIScience issue (clustering)
Wednesday

- Lectures and discussion:
  - Spatial analysis for curriculum development
  - Software demos
  - Curriculum development and enhancement
  - Resource issues in curriculum development
  - Development of evaluation instruments; student assessments.
Thursday

- Lecture and laboratory:
  - Participatory problem solving and decision making with GIScience
  - Software demo (STARS, Flow Mapper)

Beginning of participant presentations
Friday

- Participants present their curriculum development plans
  - Panel discussion
  - Summing up.
Compare to entry survey which asked about background, expectations

Rating (1 to 4 Scale):
- Removed barriers spatial teaching: 3.56
- Met expectations spatial statistics: 3.75
- Gained ideas about pedagogical strategies: 3.56
- Increase in knowledge of spatial tools: 3.81
- Quality of instruction: 3.81
- Quality of exercises: 3.75
- Overall (29 criteria): 3.57
2005 and 2006

- 2005
  San Francisco State University

- 2006
  University of Oklahoma