

# UC Santa Barbara

## Newsletters

### Title

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## A UNIVERSITY MINOR IN SPATIAL THINKING?

The Center for Spatial Studies is following up on a recent article by Michael Goodchild in ESRI's *ArcWatch*, Oct. 2008, "[spatial@ucsb—A New Kind of Campus GIS Center?](#)" Goodchild makes the case for expanding opportunities for undergraduates to acquire conceptual and analytical understanding to think spatially about some of society's and science's critical problems. His argument cites empowerment of the general population with spatial technologies (e.g., Google Earth) for which many lack experience in the science and art of critical spatial thinking. The general absence of instructional courses and teaching resources for the development of spatial intelligence in formal education (K-16) lies at the heart of the Center's interest in designing educational opportunities for undergraduate students to acquire an understanding of spatial concepts (e.g., region, scale, connectivity, and diffusion) and skills in applications of spatial technologies, such as geographic information systems (GIS), analytical cartography, and spatial statistics.

Capitalizing on the many UCSB departments, centers, institutes, and services that make use of both explicit and implicit spatial perspectives, [spatial@ucsb](mailto:spatial@ucsb) is currently exploring the design and implementation of an academic Minor program in Spatial Studies. Such a minor could serve the interests of students from all of the major colleges and divisions of the university. As Goodchild sees it, "Spatial thinking provides one of the very few yet powerful themes that can link the disparate activities of a university campus." The establishment of the minor would permit a student to augment a disciplinary specialization with courses that explore the humanistic and scientific dimensions of spatial reasoning. For example, a geography student who is specializing in GIS may benefit from a minor in spatial thinking based on courses in architecture and spatial cognition; whereas a student in psychology may wish to link his specialization in cognition with a minor that introduces tools of spatial visualization in computer science or geography. Faculty and students interested in contributing to discussions about this proposed minor are encouraged to contact Don Janelle ([janelle@geog.ucsb.edu](mailto:janelle@geog.ucsb.edu)).

### THINK SPATIAL BROWN BAGS

12:00–1:00 p.m., Ellison Hall, Room 5824

- 2/25 Rajan Gupta, "Spatial Cognition of Global Energy Systems"
- 3/4 Jim Marston, "Enhancement of spatial cognition and way-finding for vision-impaired travelers using remote infrared audible signage"
- 4/15 Lisa Jevbratt, "Presenting mapmaking as art"
- 5/20 Lisa Weckbacher and Yukari Okamoto, "The role of visualization in geometric problem solving"

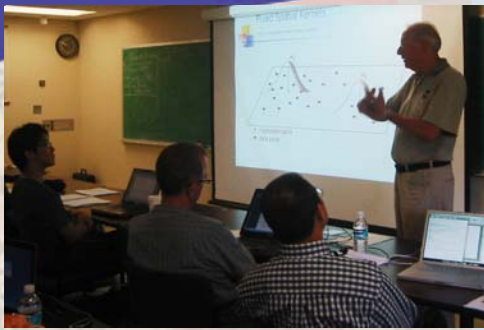
Please direct submissions to  
[kdoehner@spatial.ucsb.edu](mailto:kdoehner@spatial.ucsb.edu).

### RECENT EVENTS 2008

- 7/13–19 Advanced Spatial Analysis Workshop: "Spatial Pattern Analysis"
- 7/16–18 Advanced Training Institute in GIS
- 8/4–7 ESRI International User Conference  
San Diego Convention Center  
(<http://www.esri.com/events/uc/index.html>)
- 12/10–12 20th Anniversary of NCGIA, UCSB Symposium
- 12/15–16 Specialist Meeting "Spatial Thinking in Science and Design"

### UPCOMING EVENTS 2009

- 3/31 Application deadline for Advanced Spatial Analysis Workshop
- 6/2 CIRGIS Meeting, 1:00–3:00 p.m.; Geography Poster display, 3:30–5:00 p.m. (TBA)
- 7/12–17 Advanced Spatial Analysis Workshop: "Spatial Regression Modeling"



*Instructor Arthur Getis*

## SUMMER WORKSHOPS SPATIAL PATTERN ANALYSIS

[spatial@ucsb](mailto:spatial@ucsb) and the Center for Spatially Integrated Social Science (CSISS) hosted a week-long workshop on **Spatial Pattern Analysis** in July 2008. The workshop was funded by a National Institute of Health (NIH) grant to support training for population and health researchers to enhance their research applications of advanced spatial analytical methods. CSISS is the UCSB partner on a five-year NIH award to the Population Research Institute at The Pennsylvania State University (PSU). Drs. Stephen Matthews (PSU) and Don Janelle (UCSB) are co-Principal Investigators.

Two dozen researchers from across the country (Ph.D. candidates, Postdocs, and early-career scientists) took part in the workshop to learn about advanced spatial approaches for investigating such concerns as the spread of diseases (e.g., AIDS, cancer, chagas), spatial dimensions of fertility in the developing world, immigrant settlement patterns, spatial strategies for combating urban crime, and links between the design of built environments and obesity.

The primary workshop instructors included noted spatial statistician Arthur Getis and demographer John Weeks (both from San Diego State University) and Jared Aldstadt (University at Buffalo). Additional presentations by Mike Goodchild (UCSB) and Gerard Rushton (medical geographer, University of Iowa) rounded out an intensive week of learning new techniques, critical discussion, and re-search implementation. Indy Hurt (Ph.D. candidate in Geography at UCSB and [spatial@ucsb](mailto:spatial@ucsb) Research Associate) and David Folch (Ph.D. candidate at Arizona State University), served as technical consultants.

This summer's program will feature a workshop on Spatial Regression Modeling July 13–17, 2009, taught by Katherine Curtis and Paul Voss (both from the University of Wisconsin at Madison).

Full details about the Advanced Spatial Analysis program and about specific workshops are available at: [www.csiss.org/GISPopSci](http://www.csiss.org/GISPopSci). Please direct questions to Don Janelle ([janelle@geog.ucsb.edu](mailto:janelle@geog.ucsb.edu)).

## SPATIAL HELP DESK CONSULTATIONS

As part of the Center for Spatial Studies' effort to promote spatial thinking, techniques, and tools across campus, each Wednesday afternoon, [spatial@ucsb](mailto:spatial@ucsb) offers "help desk" research consultations. This free service, held at the [spatial@ucsb](mailto:spatial@ucsb) computing lab in 2616 Ellison Hall and staffed by spatial center graduate students, is open to the entire campus community. The primary focus is on research design and implementation for faculty, staff, and graduate student projects. In addition, the help desk serves as a starting point to connect with spatial resources available around campus, such as expert personnel, instructional materials, and software.

Since the inception of the consultation program, support requests have ranged from simple advice on cartographic design to complex, multistep spatial information modeling. Following are a sample of projects from various departments that have received technical support from the [spatial@ucsb](mailto:spatial@ucsb) help desk:

- inventorying food preparation sites of California prehistoric peoples (Dept. of Anthropology),
- mapping California farm labor (Dept. of Anthropology),
- modeling harvest pattern change following the creation of a marine preserve (Bren School),
- assessing crime patterns near various categories of media distribution sites (Dept. of Communication),
- routing police patrols to disrupt gang activity (Dept. of Economics),
- mapping Asian communications infrastructures (Dept. of Film and Media Studies),
- delineating information flows for disaster mapping (Dept. of Geography),
- analyzing transportation networks and socioeconomic factors on access to education in a developing nation (Dept. of Geography),
- identifying dangerous bridges with respect to pedestrian traffic (Dept. of Political Science),
- assessing cartographic arrangement against spatial cognition (Dept. of Psychology), and
- prescribing maintenance schedules for campus roads, parking lots, and paths by quantitatively modeling conditions (Design and Construction Services).

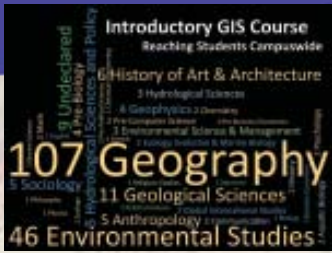
Interested researchers are encouraged to contact [spatial@ucsb](mailto:spatial@ucsb) for a consultation appointment. Drop-ins also are welcome on a first-come, first-served basis.

**Information:** Spatial Help Desk and Consultations, Wednesdays 12:30 p.m.–5:00 p.m., [spatial@ucsb](mailto:spatial@ucsb) computing lab (Ellison Hall, Room 2616). Please contact Alan Glennon for more information or to make an appointment; email: [alan@spatial.ucsb.edu](mailto:alan@spatial.ucsb.edu), phone: 893-8224.



*Alan Glennon assists Geography M.A. student, Pamela Dalal.*

Photograph by: Kathleen Mulaney



# GEOG 176A: INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS

REACHING STUDENTS CAMPUSWIDE

## SUMMER WORKSHOPS GEOGRAPHIC INFORMATION SYSTEMS FOR BEHAVIORAL RESEARCH

Every year, the Geography Department offers a three-course series on geographic information systems and science. Students have the option to take the first course in either summer or fall quarter. As can be found on the departmental website, this course, commonly referred to as Geog 176A, introduces students to “modern spatial data processing, development, implementation, and functions of geographic information systems; relations between GIS and remote sensing; and applications of geographic information systems to a variety of environmental issues” (<http://www.geog.ucsb.edu/courses/undergraduate-courses/>).

Lab and lecture materials are updated regularly to keep up with new technologies that continue to address the core concepts of geographic information science.

Many geography departments in other universities offer a similar introductory course but not all departments make the course available to students from other majors on campus. Space is often limited by access to available computers for labs where students complete a significant amount of the course material.

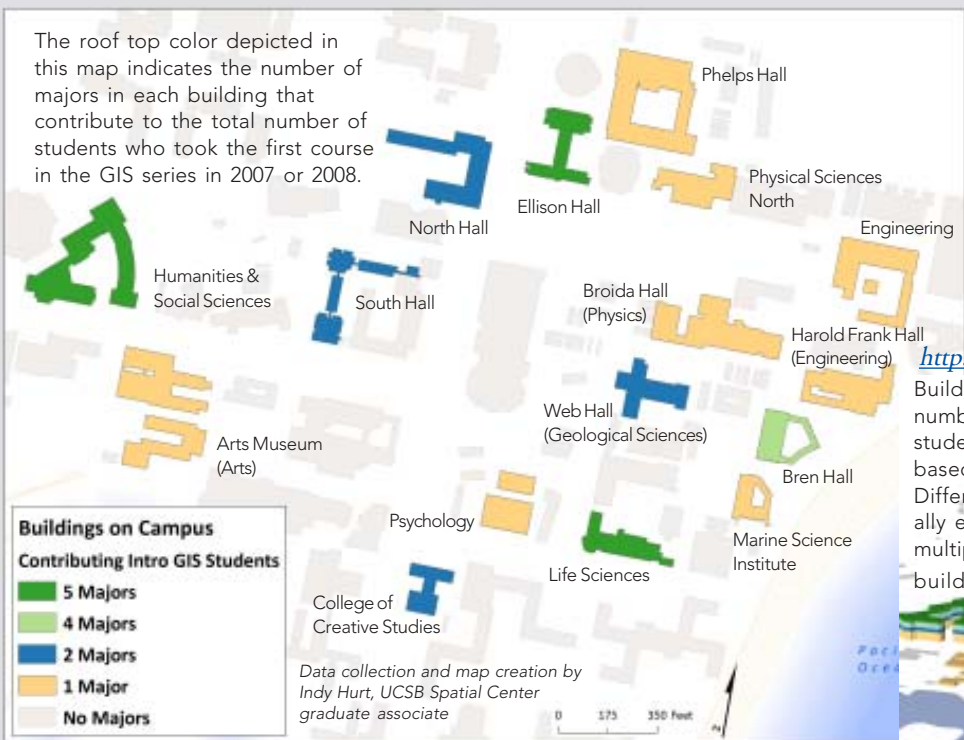
The Geography Department at UCSB is fortunate to have adequate lab space, allowing open enrollment to all interested students. Through student interest and outreach efforts, enrollment of non-geography majors for the Introductory GIS course is on the rise. Non-geography majors represented roughly 46% of students taking the course in the fall for this year and last. The numbers are even greater for summer with 52% and 66% for the 2007 and 2008 summers respectively.

A total of 240 students representing 34 majors took the first course in the series over the last four offerings, and many continue on to complete the series. These maps depict the diversity of our students.

Organized by behavioral geographer and expert in GIS applications at UCSB, Reg Golledge, and sponsored by the American Psychological Association (APA) as part of its annual Advanced Training Institute (ATI) series, a three-day workshop was held on “Geographic Information Systems (GIS) for Behavioral Research” on July 16–18, 2008 at UCSB. Designed to expose psychological scientists to emerging technologies and the most current research methodologies, presentations and demonstrations by leading GIScience experts familiarized workshop participants with selected GIS software and spatial analysis techniques, with a focus on GIS usage in cognitive and behavioral sciences, health sciences, counseling, criminology, and education. Reference materials related to GIS and sample data were provided to participants for use during the labs. Participants were further encouraged to bring examples of the digitized data they planned to analyze using GIS.

Workshop participants included graduate students and post docs spanning a diverse range of fields and universities. Professor Golledge noted “We had an excellent group of participants, some of whom were very knowledgeable about GIS, while others were very enthusiastic about learning. I believe the format proved to be very acceptable to all and, certainly, the volume of topics covered was excellent.”

A book on GIS applications in psychology is currently in preparation.



Information can be viewed at a larger scale at [http://www.spatial.ucsb.edu/docs/INTRO\\_GIS\\_Course.pdf](http://www.spatial.ucsb.edu/docs/INTRO_GIS_Course.pdf)

Building heights represent the number of Introductory GIS students coming from majors based in these buildings. Different colors are proportionally extruded to represent multiple majors from the same building.

