SPACE Workshop
Santa Barbara, California
15 – 20 July 2007
**The CSISS Mission** recognizes the growing significance of space, spatiality, location, and place in social science research. It seeks to develop unrestricted access to tools and perspectives that will advance the spatial analytic capabilities of researchers throughout the social sciences. CSISS was funded in 1999 with support from the **National Science Foundation** under its program to promote research infrastructure in the social and behavioral sciences.

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### CSISS News

**Goodchild Receiving CITA Lifetime Achievement Award**

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<td>2007 Workshop Programs: SPACE</td>
<td>These introductory materials include <strong>CSISS Classics</strong> and select video clips from the CSISS summer workshops.</td>
<td>CSISS has compiled e-journals, bibliographies, and other spatial resources for the social sciences.</td>
<td>Here's where you'll find information about software for the exploration and analysis of spatial data.</td>
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<td>Try out one of our custom search engines to find spatial analysis resources on the Internet.</td>
<td>Here's where you'll find information and registration for workshops, conferences and specialist meetings.</td>
<td>Bibliographies and publications related to spatial methods and their use in the social sciences.</td>
<td>CSISS presentations, news, personnel, and sitemap. Our Strategic Plan and Annual Reports are also found here.</td>
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**Core Programs | Learning Resources | Spatial Resources | Spatial Tools | Search Engines | CSISS Events | Community Center | About CSISS**

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Modeling a Center for Spatially Integrated Social Science

Critical Themes in Social Science

+ 

Tools and Concepts for Spatial Thinking

+ 

Infrastructure

= 

Advances in Spatial Social Science
Some Critical Themes in the Social Sciences

- Space-time accessibility
- Equity
- Externality effects
- Risk assessment
- Small-area analysis
- Sense of place
- Cultural analysis
- Demographic processes
- Health and disease
- Crime mapping and law enforcement
- Community organization
- Governance
- Electoral processes
- Globalization
- International conflict
- Coupling human and environmental systems
- etc
Tools and Concepts for Spatial Thinking:

• Agent-based modeling
• Point-pattern analysis
• Exploratory spatial data analysis
• Bayesian analysis
• Spatial interaction modeling
• Dynamic visualization
• Flow-data analysis
• Analytical cartography
• Spatial econometrics
• Location-allocation modeling
• GIS
• Remote sensing
• etc.
Spatial Analysis

Outcomes

- Specialist Meetings
- Tools Development
- Place-Based Search
- Workshops

- Learning Resources
- Virtual Community
- Internet Portal
- Best-Practice Publications

- Advances in Theory
- New NSF Programs
- New Journals
- International Conference(s)

- Interdisciplinary Collaboration
- New Applications
- New Social Science Resources

Spatial Econometrics
Location-Allocation Modeling
Flow Data Analysis
GIS
Analytical Cartography
Dynamic Visualization
ESDA
Bayesian Analysis
Spatial Interaction Modeling

Agent-Based Modeling
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Spatial Interaction Modeling
Center for Spatially Integrated Social Science

1999

2004 – 2007

SPACE
Spatial Perspectives on Analysis for Curriculum Enhancement

2005 – 2007

2008 – 2012

NSF
National Institutes of Health
GIS and Population Science

About the Program

The Mission

This GIS Population Science program has a primary mission to provide training and use of spatial methods in population research by the population scientists. In support of this mission, the Population Research Institute (Pennsylvania State University) and the Center for Spatially Integrated Social Science (at the University of California, Santa Barbara) have combined their expertise to offer new graduate students, postdocs, and young faculty in demography and in related fields access to learning and research resources by workshop participation in the international community of population scientists.

The Target Audience

Two-week-long GIS Population Science workshops will be offered in standardized, intensive training for young researchers in geographically specifically tailored toward population science. The primary audience for these workshops includes interdisciplinary pre-doctoral students of demography at NICHD-supported centers in the United States, institutional members of the wider NICHD funded Centers (APC), graduate students in demography-related disciplines in non-APC institutions (including agricultural economics, anthropology, public health, rural sociology, sociology), as well as young faculty and population agencies.

Host Organizations and Program Funding

The Penn State and UCSB partnership builds on shared expertise in demography, statistics, and cartographic visualization; shared experience in web-based management; and complementary expertise in demographic science and digital libraries. See About for more information.

The GIS Population Science program is funded by the National Institute of Child Health and Human Development (NICHD) as an R25 award titled "GIS Training Program for Population Scientists" (R25 1 R047744-01). The support of NICHD is gratefully acknowledged.
SPACE
Spatial Perspectives on Analysis for Curriculum Enhancement

• NSF CCLI-National Dissemination Program October 2003 – September 2007
• Consortium: UCSB, Ohio State University, UCGIS
• PI: D Janelle / Co-PIs: M Goodchild and R Appelbaum
• Partner PIs: M-P Kwan (OSU) / A Getis (UCGIS)
Why SPACE?

• Spatial thinking should be one of the foundations for general undergraduate education (for informed citizenship and for general information analysis and assessment)
• Spatial perspectives provide a means of integrating theory within and across disciplines, and for matching it with evidence
• Spatial analysis can serve as a foundation for interdisciplinary cooperation (e.g., the coupling of environmental and social processes)
SPACE Goals

- Facilitate undergraduate faculty development in spatial social science
- Expand curricula resources in spatial social science
- Provide follow-through professional development
- Achieve diversity in access to educational opportunities
- Establish and encourage support networks
- Foster technology integration
- Promote discipline integration
- National dissemination
SPACE Workshop Content Themes

- Geographic Information Systems
- Spatial Pattern Analysis
- Spatial Econometrics
- Map Making and Cartographic Visualization
- Spatial Interaction
- Agent-Based Modeling
- Place-Based Search
- Remote Sensing
- Applications
CSISS Best Practice Publications

M.F. Goodchild and D.G. Janelle, eds.

*Spatially Integrated Social Science* Oxford University Press, 2004

Florence Kelley, the daughter of Congressman William D. Kelley, was one of the most dedicated social activists of the Progressive Era. A graduate of Cornell University and Northwestern University Law School, Florence Kelley was drawn into social activism after studying for a short period at the University of Zurich. In Europe she read the work of Karl Marx (1818-1883) and Friedrich Engels (1820-1895) and became an ardent socialist. She later translated into English Engels' The Condition of the Working Class in London (1887) and corresponded with Engels for the remainder of his life. When Kelley returned to the United States she married a socialist labor leader, but the marriage was short lived. In 1891 Kelley divorced and moved to Chicago, where she became a resident of Hull House, the
Background

Henry Mayhew (1812-1887)

The Intensity of Criminality

Map showing the number of criminal offenders to every 10,000 of population in each county of England and Wales.
CSISS Classics - Spatial Thinking in Sociology

- Charles Booth, Mapping London’s Poverty, 1885-1903
- Patrick Doreian on Linear Models with Spatially Distributed Data
- Florence Kelly, Slums of the Great Cities Survey Maps, 1893
- Colin Loftin and Sally K Ward, Application of Spatial Autocorrelation in Sociology
- Henry Mayhew, London Labour and the London Poor, 1861
- Robert Park and Ernest Burgess, Urban Ecology Studies, 1925
- Clifford R Shaw and Henry D McKay, Social Disorganization Theory
- Georg Simmel, The Sociology of Space
- Alma and Karl Taeuber, Residential Segregation in US Cities
- Alfred Weber, Theory of the Location of Industries, 1909
- William G Skinner, Marketing and Social Structure in Rural China
- Rupert Vance, Space and the American South
## Introduction to Spatial Pattern Analysis in a GIS Environment

<table>
<thead>
<tr>
<th>Topic</th>
<th>Time</th>
<th>Quality</th>
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<tbody>
<tr>
<td>The Nature of Spatial Pattern Analysis</td>
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<td>High</td>
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<tr>
<td>Problems Associated with Spatial Pattern Analysis</td>
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<tr>
<td>An Introduction to GIS</td>
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<td>Audio Only</td>
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<tr>
<td>GIS Functionality</td>
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<tr>
<td>Current Technologies in GIS</td>
<td>14:54</td>
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</tr>
<tr>
<td>Spatial Patterns of Birth Data</td>
<td>15:42</td>
<td>Audio Only</td>
</tr>
<tr>
<td>Spatial Patterns of Fertility in Egypt</td>
<td>10:18</td>
<td>High</td>
</tr>
</tbody>
</table>
Download GeoDa 0.9.5-i
  • Tutorials
  • Sample Data
  • Workbook
  • Openspace Mailing List

Luc Anselin
GIS Cookbook: Introduction

The GIS Cookbook is a collection of simple descriptions and illustrations of GIS methods written with minimal GIS jargon. Recipes cover two GIS software platforms, ArcView 3.x and ArcGIS 8/9.x. The target users are social scientists with an interest in introducing spatial thinking into their current research and also having some experience with computers but little to no exposure to GIS. The GIS Cookbook is in its beginning stages and will be expanded to better serve the needs of social scientists. It will be supplemented with recipes for ArcGIS 9.x prior to the start of the 2005 GIS Population Science Workshops.

GIS Cookbook Table of Contents

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<th>ArcGIS 8.x</th>
<th>ArcGIS 9.x</th>
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<tr>
<td>How to Open a Map Document, then Add Data</td>
<td>3.x</td>
<td>8.x</td>
<td>9.x</td>
</tr>
<tr>
<td>How to add data after opening a new view</td>
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<tr>
<td>Performing an Attribute Query</td>
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<tr>
<td>Performing a Spatial Query</td>
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<tr>
<td>Joining a table to an existing table</td>
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<td>8.x</td>
<td>9.x</td>
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</table>
Academic Conference Courses to Enhance Spatial Science (ACCESS) SPACE

• Symposium: *Integrating Geospatial Perspectives and Education in Archaeology*, Society for American Archaeology
  San Juan, Puerto Rico, April 2006. **Veronica Arias, Heather Richards, and Judith van der Elst**

• Workshop: *Integrating GIS and Spatial Analysis into the Undergraduate Planning Curriculum*, Association of Collegiate Schools of Planning
  Charleston, South Carolina, October 2005. **Richard LeGates**

• Demonstration Workshop: *GIS, GPS, and Spatial Analysis Tools in Support of Service Learning*, National Technology and Social Science Conference
  Las Vegas, NV, April 2005. **David Padgett**

• Panel Session: *GIS and Spatial Analysis Tools to Enhance Social Science Course Content and Research*, Association of Social and Behavioral Scientist
  Nashville, TN, March 2005. **David Padgett and Nikitah Imani**
Challenges for SPACE Workshop Participants

• Documenting Results of SPACE Workshops:
  – Entry and Exit Surveys (expectations and evaluations)
  – Follow-up Survey (evidence of implementation and long-term influence)

• Recommending Web Links to resources for spatial social science undergraduate education:
  – Course syllabi
  – Data and course exercises
  – Resources for curriculum, course, and project development, and evaluation
  – Instruments and resources for learning assessment
  – Examples of teaching and student accomplishments
Self-report
Averages
UCSB Workshop Participants 2007

1 = No familiarity
2 = Familiarity
3 = Experience with applications
4 = Good knowledge
5 = Expert knowledge

11  3  7  3  0
4  10  6  2  2
5  7  10  2  0
3  7  9  5  0
0  4  11  9  0
1  5  6  8  4
1  3  6  11  3
1  6  9  5  3
0  2  9  8  5
0  0  4  7  13
0  1  8  8  7
2  7  4  8  3
1  5  7  9  2

0.0  0.5  1.0  1.5  2.0  2.5  3.0  3.5  4.0  4.5
Spatial Thought
Cartography
Data Manage
Visualization
GIS
Spatial Statistics
Curriculum
GIS
Quantitative
Qualitative
Visualization
Internet Search
Data Manage
Cartography
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<tr>
<td>Other</td>
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<td><strong>Totals</strong></td>
<td><strong>706</strong></td>
<td><strong>1789</strong></td>
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**CSISS Residential Workshops**


Includes:

- Eighteen 5-day CSISS workshops
- Eleven 6-day SPACE workshops
- Four 12-day GISPopSci workshops
Advanced Workshops in Population Science 2008 – 2011

• Focused on advanced spatial methods for the population sciences
• CSISSL (UCSB) and the Population Research Institute (Pennsylvania State University)
• Themes:
  – Spatial Point Pattern Analysis (Arthur Getis, John Weeks, & Jared Aldstadt)
  – Geographically Weighted Regression (Stewart Fortheringham, Martin Charlton, & Chris Brunsdon)
  – Spatial Regression (Paul Voss & Kathetrine White)
  – Multi-level and Spatial Models (Kelvyn Jones & S.V. (Subu) Subramanian)
• Apply at [www.csiss.org/GISPopSci](http://www.csiss.org/GISPopSci) in Jan 2008
Bonding in SPACE
Challenge for SPACE Workshop Participants?

Enjoy the Workshop and the Santa Barbara / UCSB Experience!