

ELISABETH S. NELSON
Curriculum Vitae – January 2014

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Department of Geography
University of North Carolina at Greensboro

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Education

University of South Carolina	1992-1995	Ph.D.	Geography
University of South Carolina	1987-1989	M.S.	Geography
University of North Carolina at Charlotte	1983-1987	B.S.	Geography

Academic Employment History

UNC-Greensboro	Director of Graduate Studies	2003 - 2007
UNC-Greensboro	Associate Professor	2002 - present
UNC-Greensboro	Assistant Professor	1999 - 2002
San Diego State University	Assistant Professor	1996 - 1999
San Diego State University	Lecturer	1995-1996
University of South Carolina	Teaching Assistant	1994-1995

Research and Teaching Interests

Cognitive cartography and Instructional design
Thematic cartography and Map design
Geographic Information Science

Publications

Books

2013 *Exploring Geospatial Technology*. Dubuque, Iowa: Kendall Hunt. Co-author: James A. Nelson

Articles in Refereed Journals

- 2012 *Landscape Controls over Major Nutrients and Primary Productivity of Arctic Lakes*. **Cartography and Geographic Information Science**. 39:4. Co-authors: Prasad Pathak, Roy Stine, Anne Hershey, Stephen Whalen, Zhi-Jun Liu.
- 2008 *Amending the North Carolina Constitution: Spatial and Political Enfranchisement as Portrayed by Delegate Votes and Voter Representation in 1835*, **North Carolina Geographer**, v. 16: 36-49. Co-author: James C. Burke

- 2007 *Face Symbols: Research Issues and Cartographic Potential*, **Cartographica**, v. 42(1): 53-64
- 2006 *The Battle of Guilford Courthouse: Using Cartographic Animation to Enhance Understanding of Historic Landscapes*, **Research in Geographic Education**, v. 8: 73-89. Co-authors: R. Stine and M. Swaim
- 2002 *The Impact of Bivariate Symbol Design on Task Performance in a Map Setting*, **Cartographica**, v. 37(4): 61-78 (issue is dated 2000, but article submitted and printed in 2002).
- 2001 *Visualizing Data Uncertainty: A Case Study using Graduated Symbol Maps*, **Cartographic Perspectives**, no. 38: 19-36. Co-author: Laura Edwards.
- 2000 *Designing Effective Bivariate Symbols: The Influence of Perceptual Grouping Processes*, **Cartography and Geographic Information Science**, v. 27(4): 261-278.
- 1999 *Using Selective Attention Theory to Design Bivariate Point Symbols*. **Cartographic Perspectives**, No. 32: 6-28.
- 1998 *Using Flow Maps to Visualize Time-Series Data: Comparing the Effectiveness of a Paper map Series, a Computer Map Series, and Animation*. **Cartographic Perspectives**, No. 30: 47-64. Co-author: H. Johnson.
- 1997 *Visual Search Processes and the Multivariate Point Symbol*. **Cartographica**, v.34(4):19-33. Co-authors: D. Dow, C. Lukinbeal, R. Farley.
- 1996 *Cognitive Maps: Encoding and Representing Spatial Information within the Mind*. **Cartography and Geographic Information Systems**, v. 23(4): 229-247.
- 1996 *Males, Females, and Maps: Evaluating Spatial Encoding Strategies*. **Cartographic Perspectives**, no. 25: 3-18.
- 1994 *Colour Detection on Bivariate Choropleth Maps: The Visual Search Process*. **Cartographica**, v. 31(4): 33-43.
- 1990 *Map Communication on High Resolution CRT's: The Effects of Number of Classes and Hue in the Interpretation of Choropleth Maps*. **Cartographica**, v. 26(2): 40-52. Co-author: P. Gilmartin.

Chapters in Books

- 2010 *Dasymetric Maps*. In Barney Warf (ed.), **Encyclopedia of Geography**. Sage Publications.
- 2008 *Instructional Geographic Information Science: A Multidisciplinary Framework for Geospatial Technologies in Education*, In A. Milson and M. Alibrandi (Eds), **Digital Geography: Geo-spatial Technologies in the Social Studies Classroom**. Greenwich, CT: Information Age Publishing. Co-authors: Bunch, R. Lloyd, R., Kane, M., and Tricot, T.

- 1996 *An Evaluation of Multivariate, Quantitative Point Symbols for Maps*. In Clifford H. Wood and C. Peter Keller (eds.), **Cartographic Design: Theoretical and Practical Perspectives**. England: John Wiley & Sons, Ltd. Co-author: Patricia Gilmartin.

Professional Magazines

- 2006 *Geographic Information Science in Health: Priming the Pump*, **Directions Magazine**, May 31, 2006. <<http://www.directionsmag.com>>. Co-authors: Rick L. Bunch, Jeffrey C. Patton, Carly L. Hertz, and Roy S. Stine
- 2006 *Academic Publishing and the Role of Open Access*, **ACSM Bulletin**.

Book Reviews

- 1996 A review of *How Maps Work: Representation, Visualization, and Design* by Alan M. MacEachren. In **Cartographic Perspectives**, no. 24 (Spring): 27-30.

Software Reviews

- 1997 A review of *MAPublisher 2.0* by Avenza Software. In **GeoInfo Systems**, April 1997: 51-52.

Unpublished Manuals

- 2006 *Graduate Student Handbook*, 2nd edition. Department of Geography, University of North Carolina at Greensboro.
- 2005 *GIS and Public Health: A GIS Workbook*. Department of Geography, University of North Carolina Greensboro. 76 pages. Co-authors: R. Bunch, and R. Stine.
- 2005 *GIS and Public Health: A GIS Primer*. Department of Geography, University of North Carolina at Greensboro, 46 pages. Co-authors: R. Bunch and R. Stine.
- 2004 *Graduate Student Handbook*. Department of Geography, University of North Carolina at Greensboro.

Works in progress

- 2014 Symbol Design and the Dynamic Visual Search Process

Professional Presentations

- 2005 *Map Prototype: Experts and Novices*, Annual Meeting of the Association of American Geographers, Chicago, IL. Co-authors: J. Patton (presenter), R. Bunch, R., and R. Williams.

- 2005 *GIS and the Dasymetric Map: A Cartography Lab Exercise*, National Council for Geographic Education, 2005 Annual Meeting, October 12-15, Birmingham, Alabama.
- 2004 *Defining the Map Prototype*, North American Cartographic Information Society, 24th Annual Meeting, October 6-9, Portland, Maine. Co-authors: R. Williams, J. Patton (presenter), R. Bunch.
- 2001 *Bivariate Symbol Design for Thematic Maps: Concepts and Guidelines*, Southeastern Division of the Association of American Geographers, 21st Annual Meeting, November 18-20, Lexington, Kentucky.
- 2001 *The Impact of Bivariate Symbol Design on Task Performance in a Map Setting*, North American Cartographic Information Society, 21st Annual Meeting, October 3-6, Portland, Oregon.
- 2000 *Visualizing Data Uncertainty on Graduated Symbol Maps*, Association of American Geographers Southeastern Division, 55th Meeting, November 18-21, 2000.
- 1999 *Creating 2-d and Interactive 3-d Maps for Web-based Delivery*, Applied Geography Conference, October 13-16, Charlotte, North Carolina.
- 1999 *Selective Attention and the Design of Map Symbols*, Association of American Geographers, 95th Annual Meeting, March 23-27, Honolulu, Hawaii.
- 1998 *Symbol Functionality and the Role of Selective Attention in Cartographic Design*, North American Cartographic Society, 18th Annual Meeting, October 7-10, Milwaukee, Wisconsin.
- 1998 *Search Processes and Multivariate Symbols: A Case Study using Chernoff Faces*, Association of American Geographers, 94th Annual Meeting, March 25 - 29, Boston, Massachusetts (with D. Dow, C. Lukinbeal, R. Farley).
- 1997 *Visualizing Flow Lines through Time: A Comparison of Animated Maps and Chess Maps*, North American Cartographic Society, 17th Annual Meeting, October 1-4, Lexington, Kentucky (with H. Johnson).
- 1997 *Visualizing the Tijuana River Watershed for Environmental Research and Education*, GIS/LIS, October 28-30, Cincinnati, Ohio (with R. Wright and H. Johnson).
- 1997 *Search Processes and Multivariate Symbols: A Case Study using Chernoff Faces*, Colloquium, Department of Geography, University of California -Santa Barbara, December 4, Santa Barbara, California (with D. Dow, C. Lukinbeal, R. Farley).
- 1996 *Orienteering in the United States: Geographic Patterns of Participation*, North American Cartographic Information Society, 16th Annual Meeting, October 2 - 5, San Antonio, Texas.
- 1996 *Gender Differences in Encoding Spatial Information*, Association of American Geographers, 92nd Annual Meeting, April 9 - 13, Charlotte, North Carolina.
- 1995 *Assessing Theories of the Mental Representations of Map Knowledge*, Association of American Geographers, 91st Annual Meeting, March 14 - 18, Chicago, Illinois.

- 1994 *An Evaluation of Multivariate, Quantitative Point Symbols for Maps*, Symposium on Cartographic Design and Research, August 7-8, Ottawa, Ontario, Canada (with P. Gilmartin).
- 1994 *Color Identification in the Visual Search Process*, Association of American Geographers, 90th Annual Meeting, March 29 - April 2, San Francisco, California.
- 1988 *The Image Mapping Process*, South Carolina Academy of Sciences, March 1988, Orangeburg, South Carolina.

Grants

- 2011 **Online Course Development.** UNCG College of Arts and Sciences: \$5000.00
- 2005 **GIS and Public Policy Dimensions: Emerging and Merging Solutions to Bioterrorism.** Funding Agency: *NC Department of Health and Human Services.* (Co-principal investigators: R. Stine and R. Bunch). Funding Amount: \$15,000.
- 2000 **Using Bivariate Maps to Test Selective Attention Theory.** Funding Agency: *UNC-Greensboro*, New Faculty Grant. Funding Amount: \$2,170.
- 1999 **The Development of Bivariate Crop Rotation Maps.** Funding Agency: *NOVARTIS.* (Co-principal investigators: R. Stine and J. Patton). Funding Amount: \$10,000.
- 1999 **Protocols for Translating Hierarchical Databases to Relational Databases for GIS.** Funding Agency: *NOVARTIS.* (co-principal investigators: R. Stine and J. Patton). Funding Amount: \$10,000.
- 1998 **The Transborder Watershed Research Program.** Funding Agency: *Southwest Center for Environmental Research and Policy.* (Co-Principal Investigators: W. Brady, R. Gersberg, S. Guhathakurta, G. Hepner, J. Stromberg, A. Sweedler, G. Whysong, and R. Wright). Funding Amount: \$750,000.
- 1997 **A Study of Selective Attention for Graphic Variables Used in Cartographic Symbolization.** Funding Agency: *San Diego State University Foundation*, Faculty Grant-in-Aid. Funding Amount: \$6500.
- 1996 **Tijuana River Watershed GIS Education Materials.** Funding Agencies: *National Oceanic and Atmospheric Administration* and *San Diego Association of Governments.* (Co-Principal Investigator: R. Wright). Funding Amount: \$16,800.
- 1994 **Doctoral Dissertation.** Funding Agency: *National Science Foundation*, SBR-9500196. (Co-Principal Investigator: P. Gilmartin). Funding Amount: \$4,874. May 1995 - May 1996.

Maps and Graphic Design

- 2008 **AutoCarto Conference Logo**, 2009
- 2008 **Auto Carto Final Program Design**, 2008
- 2007 **Map Series**. Anderson, J. *The Rebel Den of Nung Tri Cao* , University of Washington Press.

Awards

- 2013 PowerUp Online Teaching Workshop Stipend
- 1998 **Faculty Fellow**, Education Center for Computational Science and Engineering, San Diego State University
- 1994 Sigma Xi Grants-in-Aid of Research
- 1994 Educational Foundation Student Research Fund, University of South Carolina
- 1994 Cartography Specialty Group Honors Paper Competition Winner, AAG
- 1987-89 Rhude Patterson Fellowship, University of South Carolina
- 1986 Honorable Mention, ACSM Map Design Contest
- 1983 -87 Colvard Academic Scholarship, University of North Carolina at Charlotte

Advising

Doctoral (* indicates committee chair)

- 2013 Campbell, R. *Transformations in the Belize Sugar Industry: From Colonial Plantations to a Vital Tourist Industry*.
- 2013 Gramopadhye, J. *Quantitative Analysis of Resource Conflict and Urban Sustainability – A GIScience Based Approach*.
- 2012 Watson, C. *Analysis of urban heat island climates along the I-85/I-40 corridor in central North Carolina*.
- 2010 Tricot, T. *Instructional Geographic Information Science: Map Overlay and Spatial Abilities*.
- 2009 Williams, R. *Nineteenth Century Bird's Eye Views in America: Defining Sense of Place*.
- 2008 Burke, J. *The Railroads of Antebellum North Carolina: A Study in Historical and Political Geography*.
- 2001 Dow, D. *The Effects of Symbolic Iconicity on Grouping and Pattern Recognition in Virtual Environments*. (San Diego State University).

Masters (* indicates committee chair)

- 2014 Alex Sinykin (in progress).
- 2013* Gallaway, D. *Teaching GISc Concepts Using Multimedia Learning Modules Created from Cognitive Load Theory Guidelines*. Non-thesis option.

- 2012 Hedgpeth, J. *Creating a Social Vulnerability Index for the Piedmont Triad Region*. Internship option
- 2011 Edwards, S.J. *Geographic Information Systems in the Social Sector: Trends, Opportunities, Barriers, and Best Practices*. Thesis option.
- 2011* Doss, K. *Parcel Mapping Applications*. Non-thesis option.
- 2008* Henderson, A. *GIS Server Administration Guide for Piedmont Triad Council of Governments*. Internship option.
- 2007 Cox, C. *Exploring CCD Imaging*. Non-thesis option.
- 2007 Chance, G. *The Effects of Mason Inlet's Movements on the Shell Island Holiday Resort*. Non-thesis option.
- 2006 Hertz, C. *The Role of Geographic Information Systems in Epidemiology and Public Health*. Internship option.
- 2006 Sattler, L. *U.S. Department of Housing and Urban Development: Funding and Minority Homeownership in North Carolina*. Internship option.
- 2006* Inscore, B. *Exploring the Appropriateness of Porter's Diamond Model; Standard Operating Procedures for Stormwater Infrastructure and Conveyance System Inventory Project: Data QA/QC Corrections to Consultant-Delivered Citywide Dataset*. Non-thesis option.
- 2006* Horney, J. *Urban Poverty and Regional Inequity: Is Sprawl to Blame?* Non-thesis option.
- 2005 Bruton, C. *Greensboro Comprehensive Parks and Recreation Master Plan Update*. Internship Option
- 2005 McGinn, C. *Cape Fear Council of Governments Region "O" Open Space Inventory and Strategy*. Internship Option.
- 2005* Brown, D. *Determining Park Visitor Profiles Using a Geographic Approach*. Internship Option.
- 2005 Armbruster, A. *The Role of Environmental Education in Fostering Pro-environmental Behavior Change*. Internship Option.
- 2004 Williams, R. *Panoramic Maps: A Bird's Eye View of the American Town*. Thesis Option.
- 2004 Brown, E. *An Analysis of the City of Greensboro SafeLight Program*. Internship option.
- 2003* Renken, R. *The Geography of Low-weight Births in Guilford County, 2000-2002*. Internship Option.
- 2001* Barden, S. *Adolescent Pregnancy in North Carolina: An Interactive Map Display*.
- 1999* Edwards, L. *Representing Data Uncertainty on Graduated Symbol Maps* (Thesis; SDSU)

- 1999* Zmudka, T. *The Effects of Terrain Representation on the Interpretation of Recreational Trails Maps*. (Thesis; SDSU).
- 1998* Bost, A. *Assessing Efficiency Differences for Common Spatial Tasks: A Comparison between Screen-based Maps and Paper Maps*. (Thesis; SDSU).
- 1997* Johnson, H. *Visualizing Flow Lines: A Comparison of Animated Maps and Chess Maps*. (Thesis; SDSU).

Service

Participation in Professional Associations

- 2006 – 2009 **Editor**, *Cartography and Geographic Information Science*
- 2005 – 2008 **Member, Board of Directors**, *Cartography and Geographic Information Society*
- 2001 – 2007 **Member**, *Cartographic Perspectives* **Editorial Board**
- 2000 - 2002 **Secretary/Treasurer**, *Cartography Specialty Group*, Association of American Geographers
- 2002 **Member**, *Resolutions Committee*, Association of American Geographers, Southeastern Division
- 1998 – 2000 **Academic Director**, *Cartography Specialty Group*, Association of American Geographers
- 1997 - 2000 **Cartographic Advisor**, *Professional Geographer*
- 1997 - 1999 **Member, Board of Directors**, *North American Cartographic Information Society*
- 1994 - 1995 **Student Director**, *Cartography Specialty Group*, Association of American Geographers

Participation in the Unpublished Review Process: Manuscripts and Proposals

- 2013 *Professional Geographer*
- 2008 *Cartography and Geographic Information Science*
- 2007 *Cartography and Geographic Information Science*
- 2006 *Cartographic Perspectives*
- 2005 *Cartographic Perspectives, National Science Foundation*
- 2004 *National Science Foundation*
- 2003 *Psychonomic Bulletin, Cartographic Perspectives*
- 2003 *Cartographic Perspectives*
- 2002 *Cartographica, Cartographic Perspectives*
- 2001 *Cartography and Geographic Information Systems, Professional Geographer, Cartographica*
- 2000 *Cartographic Perspectives, Cartographica*
- 1999 *Professional Geographer, Southeastern Geographer, GEOMATICA*
- 1998 *John Wiley & Sons, Inc., Professional Geographer, Cartography Specialty Group –*

Master's Research Grant Proposals

- 1997 *Journal of Geography, Prentice-Hall, Inc.*
1996 *Cartographica, National Science Foundation*

Participation in Professional Conferences

- 2006 *Registration Desk, AutoCarto 2006, June 25 – 28, Vancouver, Washington.*
- 2006 *Session Chair, AutoCarto 2006, June 25 – 28, Vancouver, Washington.*
- 2006 *The Cartography and Geographic Information Society Board Meeting, American Congress on Surveying and Mapping Annual Conference, April 22-25, Orlando Florida.*
- 2005 *The Cartography and Geographic Information Society Board Meeting, American Congress on Surveying and Mapping Annual Conference, March 19-23, Las Vegas Nevada.*
- 2003 *Paper Discussant, 58th Annual Meeting of the Southeastern Division of the Association of American Geographers, Charlotte, North Carolina.*
- 2003 *Editorial Board Meeting, 23rd Annual Meeting of the North American Cartographic Information Society, Jacksonville, Florida.*
- 2001 *Cartography Specialty Group Board and Business Meetings, 98th Annual Meeting of the Association of American Geographers, Los Angeles, CA.*
- 2001 *Cartography Specialty Group Board and Business Meetings, 97th Annual Meeting of the Association of American Geographers, New York, New York.*
- 2000 Organized and chaired a session on *Spatial Cognition, 55th Meeting of the Association of American Geographers, Southeastern Division*
- 1999 Chaired a session on *Tourist Mapping, 19th Annual Meeting of the North American Cartographic Information Society, Williamsburg, Virginia.*
- 1998 Chaired a session on *Technical Aspects of Map Construction, 18th Annual Meeting of the North American Cartographic Information Society, Milwaukee, Wisconsin*
- 1997 Chaired a session on *Designing Maps with Today's Technologies, 17th Annual Meeting of the North American Cartographic Information Society, Lexington, Kentucky.*
- 1996 Organized and chaired a session on *Spatial Cognition, 92nd Annual Meeting of the Association of American Geographers, Charlotte, North Carolina.*

Professional Memberships

Association of American Geographers
Southeastern Division, Association of American Geographers
American Congress on Surveying and Mapping
Canadian Cartographic Association
North American Cartographic Information Society

Participation at the University Level

2013-2014	Member , Departmental <i>Personnel</i> Committee
2012-2013	Member , Departmental <i>Graduate Studies</i> Committee
2010 – 2012	Member , University <i>Award for Innovative Use of Technology in a Thesis/Master’s Production or Dissertation</i> Committee
2010 – 2011	Member , UNCG <i>Faculty Professional Development and Welfare</i> Committee
2009- 2010	Member , Departmental <i>Space</i> Committee
2007- 2008	Member , College of Arts and Sciences <i>Curriculum & Teaching</i> Committee
2006 - 2013	Member , Departmental <i>Curriculum</i> Committee
2006 - 2011	Member , Departmental <i>Personnel</i> Committee
2006 - present	Member , <i>Center for Geographic Information Science</i>
2006 - 2008	Chair , Departmental <i>Graduate Studies</i> Committee
2005	Member , Departmental search committee, <i>GIS/Urban</i> position
2004	Member , Departmental search committee, <i>GIS/Public Policy</i>
2004	Departmental web development, <i>Graduate Studies</i> pages
2004 – 2007	Chair , Departmental <i>Graduate Admissions</i> Committee
2003 – 2007	Director – Department of Geography <i>Graduate Studies</i>
2001 - 2002	Member , UNCG <i>Instructional Technology</i> Committee
2001 - 2002	Departmental <i>Library Liaison</i>
2000- 2005	Member , UNCG <i>General Education Core Global and Nonwestern Perspectives</i> Committee
1999 - 2001	Member , College of Arts and Sciences <i>Harriet Elliot Lecture</i> Committee
1998 - 1999	Member , Departmental <i>Policy Advisory</i> Committee (SDSU)
1998 - 1999	Member , Departmental <i>Curriculum</i> Committee (SDSU)
1996 - 1998	Chair , Departmental <i>Internal Resources</i> Committee (SDSU)
1995 - 1996	Member , Departmental <i>Internal Resources</i> Committee (SDSU)

Participation within the Community

2005	Director, GIS and Public Health: Workshop Series, Summer 2005. co-directors: R. Bunch and R. Stine.
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