

**RICK L. BUNCH**  
**Curriculum Vitae – November 2016**

126 Graham Building  
Department of Geography  
University of North Carolina Greensboro

Cell: (336) 708-7053  
Office (336) 334 - 5388  
Email: [rlbunch@uncg.edu](mailto:rlbunch@uncg.edu)

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**Education**

Ph.D. (2000)	University of South Carolina	Geography
M.S. (1998)	University of South Carolina	Geography
B.S. (1996)	The Ohio State University	Geography

**Primary Research Interests**

Geographic Information Science: GIS/Spatial Cognition

**Courses**

Undergraduate and graduate courses in Geographic Information Systems

**Appointments**

**University of North Carolina Greensboro, Geography**

2012 – Present	Professor
2007 - 2012	Associate Professor
2006 - 2014	Director, Center for Geographic Information Science
2004 - 2007	Assistant Professor

**Central Michigan University, Geography**

2002 - 2004	Assistant Professor and Director, Center for Geographic Information Science
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**Southern Illinois University Edwardsville, Geography**

2001 - 2002	Assistant Professor
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**University of Minnesota Minneapolis, Geography**

2000 - 2001	Visiting Assistant Professor
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## Research

### Publications

- Nowlin, J, and Bunch, R. 2016. "Geography of Wine in North Carolina: Geospatial Concepts Applied to Physical Terroir." *Proceedings of the XI International Terroir Congress 2016*, 482–87. Linville College, McMinnville OR: Southern Oregon University.
- Murray, C, Bunch, R., and Hunt, L. 2016. "Strengthening Community-Level Understanding of and Responses to Intimate Partner Violence Using Geographic Information Systems (GIS)," *Journal of Aggression, Conflict and Peace Research*, 8: 197 – 211.
- Nowlin, J., and Bunch, R. 2016. "A Model for Selecting Viticultural Sites in the Piedmont Triad Region of North Carolina," *International Journal of Applied Geospatial Research*. 7: 38 – 37.
- Bunch, R., Tapp, A., and Pathak, P. 2013. "Leveraging the Science of Geographic Information Systems" In Donald P. Albert and G. Rebecca Dobbs (Eds), *Emerging Methods and Multidisciplinary Applications in Geospatial Research* (reprint), Hershey, PA: IGI Global, 255-261
- Ackerman, W., and Bunch, R. 2012. "A Comparative Analysis of Indian Gaming in the United States," *American Indian Quarterly*. 36: 50 – 74.
- Bunch, R., Tapp, A., Pathak, P. 2011. "Leveraging the Science of Geographic Information Systems," *International Journal of Applied Geospatial Research*. 2: 33-38.
- Lloyd, R., and Bunch, R. 2010. "Learning Geographic Information from a Map and Text: Learning Environment and Individual Differences," *Cartographica*. 45: 169-184.
- Long, M., Bunch, R., and Lloyd, R. 2010. "Anti-Americanism, Political Cartoons and a Socio-Geographic Imagination: An Invitation for Further Work," *Sociological Inquiry*. 80: 650-660.
- Rychtar, J., Jones, E., and Bunch, R., and Gove, R 2010. "Calculating Edge Length Bias and the Relative Size of a 'Neighborhood' in Spatial Social Networks," *Far East Journal of Applied Mathematics*. 39: 53-69.
- Long, M., Bunch, R., and Lloyd, R. 2009. "Measuring Anti-Americanism in Editorial Cartoons," *Social Science Quarterly*. 90: 652 - 673.
- Bunch, R., Nelson, E., Lloyd, R., Kane, M., and Tricot, T. 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, 227 - 245

- Lloyd, R., and Bunch, R. 2008. "Explaining Map-Reading Performance Efficiency: Gender, Memory, and Geographic Information," *Cartography and Geographic Information Science*. 35: 171 - 202.
- Tapp, A., and Bunch, R. 2008. "Mapping the Invisible World: Modeling Wireless Communications with Geographic Information Systems," *American Congress on Surveying and Mapping*. 232: 14 - 17.
- Bunch, R., and Lloyd, R. 2006. "The Cognitive Load of Geographic Information," *The Professional Geographer*. 58: 209 - 220.
- Walker, S., Bunch, R., Muñiz, O., Murr, C., Qiu, X., Rockey Moore, M., Warren, M., and Wridt, P. 2005. "Cognition and Learning in Geographic Education: A Research Agenda," *Research in Geographic Education*. 7: 21 - 31.
- Lloyd, R., and Bunch, R. 2005. "Individual Differences in Map Reading Spatial Abilities Using Perceptual and Memory Processes," *Cartography and Geographic Information Science*. 32: 33 - 46.
- Milson, A., DeChano, L., Bunch, R., Caito, J., and Qui, X. 2005. "GIS in K-12 Education: Pedagogical Tool or Weapon of Mass Distraction?," *Research in Geographic Education*. 7: 62 - 73.
- Lloyd, R., and Bunch, R. 2003. "Technology and Map Learning: Users, Methods, and Symbols," *Annals of the Association of American Geographers*. 93: 828 - 850.
- Bunch, R., and Lloyd, R. 2002. "Are Sex Differences Important for Complex Spatial Tasks?," *Research in Geographic Education*. 4: 43 - 62.
- Bunch, R., and Lloyd, R. 2000. "The Search for Boundaries on Maps: Color Processing and Map Pattern Effects," *Cartography and Geographic Information Science*. 27: 15 - 29.
- Bunch, R. 2000. "GIS and the Acquisition of Spatial Information: Differences among Adults and Young Adolescents," *Research in Geographic Education*. 2: 65 - 95.
- Bunch, R. 1999. "Searching for Color Boundaries on Maps," *Southeastern Geographer*. 34: 220 - 234.

#### Manuals, Reports, and Non-refereed Articles

- Bunch, R., Final Report: Mammography Facility Surveillance (Contract No. 200-2008-27889). Submitted to the Division of Cancer Prevention and Control, National Center for

Chronic Disease Prevention and Health Promotion, Centers for Disease Control (2013, August). (With Darryl Cooney and Shawn Hirsch of SciMetrika). pgs. 1 – 62.

- Bunch, R., Summary Report: Mammography Facility Surveillance (Contract No. 200-2008-27889). Submitted to the Division of Cancer Prevention and Control, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control (2013, March). (With Darryl Cooney and Shawn Hirsch of SciMetrika). pgs. 1 – 18.
- Bunch, R., Indoor Mobile Phone Signal Strength Survey of the University of North Carolina Greensboro (2011, June). Submitted to Facilities Management, University of North Carolina Greensboro. pgs. 1 – 113.
- Bunch, R., and Tapp, A., Assessment of the 2008-2009 Bus Routing Network of Guilford Child Development (2009, July). Submitted to Guilford Child Development, Greensboro, NC. pgs. 1 – 29.
- Bunch, R., Patton, J., Nelson, E., Hertz, C., and Stine, R. 2006. “Geographic Information Science in Health: Priming the Pump.” *Directions Magazine: The Worldwide Source for Geospatial Technology*. (2006, May).  
[http://www.directionsmag.com/article.php?article\\_id=2188](http://www.directionsmag.com/article.php?article_id=2188)
- Bunch, R., Nelson, E., and Stine, R. 2005. GIS and Public Health: A GIS Workbook. Department of Geography, University of North Carolina Greensboro. pgs. 1 - 76.
- Nelson, E., Bunch, R., and Stine, R. 2005. GIS and Public Health: A GIS Primer. Department of Geography, University of North Carolina Greensboro. pgs. 1 - 46.
- Bunch, R., Curry, K., and Patton, D. 2003. Geographic Information Systems Needs Assessment and Implementation Strategy for Isabella County, MI. Center for Geographic Information Science, Central Michigan University. pgs. 1 - 80.

#### Presentations

- Nowlin JW and Bunch R. 2017. New Pierce’s Disease Resistant Grape Varieties: The Implications for the Southeastern U.S. Wine Industry. AAG Boston, MA. April 5 – 9, 2017.
- Nowlin JW and Bunch R. 2016. North Carolina Vineyard Site Selection: Testing the Effectiveness of North Carolina Cooperative Extension Guidance. SEDAAG, Columbia, SC. Nov 20 – 23, 2016.

- Nowlin JW and Bunch R. 2016. North Carolina Terroir(s). AAG, San Francisco, CA. March 29 – April 2, 2016.
- Nowlin JW and Bunch R. 2015. Boundary Interpretations of American Viticultural Areas within North Carolina. SEDAAG, Pensacola, FL. Nov 22 – 24, 2016.
- Geographic Information Science as a Framework to Understand Health Care Access and Utilization, The Science of Healthy Behaviors, Greensboro, NC, 2013.
- Bunch R. “Geospatial Intelligence and Engineering,” Office of Naval Research and Technology, Renaissance Computing Institute, Chapel Hill, NC, 2012.
- Bunch R. “Space Analysis,” Human Domain Analysis Workshop, U.S. Army Special Operations Command, Airborne and Special Operations Museum, Fayetteville, NC, 2012.
- Bunch, R. “GIS and Radio Wave Propagation Modeling,” Colloquium Guest Speaker, Department of Geography, University of South Carolina, Columbia, SC, 2010.
- Bunch, R., and Tapp, A. “Predicting Broadband Service Coverage for Wireless Networks,” The e-NC Authority Data Confab, Chapel Hill, NC, 2010.
- Ackerman, W., and Bunch, R. “A Comparative Analysis of Indian Gaming in the United States,” Annual Meeting of the Association of American Geographers, Washington D.C. 2010.
- Hertz, C., Jones, E., Noble, E., Bunch, R., Murphy, A., Tobin, G., and Faas, A. “Combining GIS and Network Analysis to Compare Social Distance with Geographic Distance,” American Anthropological Association, San Francisco CA, 2008.
- Bunch, R., and Lloyd, R. “Variations in Map-Reading Performance Efficiency,” Spatial Learning in Geography Workshop, National Geographic Society and the National Science Foundation, Washington D.C. 2008.
- Bunch, R. “Geographic Information Systems and Radio Wave Propagation Modeling,” Colloquium Speaker Series, College of Engineering, North Carolina A&T State University, NC 2007.
- Bunch, R. “The Role of GIS in Health,” Annual Conference of the North Carolina Public Health Association, New Bern, NC 2006.
- Gels, D., Stine, R., and Bunch, R. “Finding the Trail to Troublesome Creek: Withdrawal Route and Position after the Battle of Guilford Courthouse, 15-16 March 1781,” Southeastern Division of the Association of American Geographers, Morgantown, WV 2006.

- Patton, J., Nelson, E., Bunch, R., and Williams, R. "The Map Prototype: Experts and Novices," Annual Meeting of the Association of American Geographers, Chicago, IL 2006.
- Bunch, R. "GIS and School Emergency Management: An Intraspace Perspective," North Carolina Geographic Information Systems Conference, Winston-Salem, NC 2005.
- Williams, R., Patton, J., Nelson, E., and Bunch, R. "Defining the Map Prototype," North American Cartographic Information Society, Portland, ME 2004.
- Bunch, R. "GIS and School Emergency Planning," Department of Political Science, College of Charleston, Charleston, SC 2004.
- Bunch, R., and Lloyd, R. "Sex and Familiarity with State Shapes and Locations," Annual Meeting of the Association of American Geographers, Philadelphia, PA 2004.
- Lloyd, R., and Bunch, R. "Competing Sex Differences in Spatial Cognition," Southeastern Division of the Association of American Geographers, Charlotte, NC 2003.
- Bunch, R., and Lloyd, R. "Geographic Information Systems and Spatial Information," Annual Meeting of the Association of American Geographers, New Orleans, LA 2003.
- Lloyd, R., and Bunch, R. "Computation and Visualization of Learning Processes: GIS Functions and Users," Annual Meeting of the Southeastern Division of the Association of American Geographers, Richmond, VA 2002.
- Bunch, R. "Slope-Aspect Visualization," Annual Meeting of the Southeastern Division of the Association of American Geographers, Lexington, KY, 2001.
- Bunch, R. "Metric Map Distortions for Adults and Young Adolescents," Annual Meeting of the Southeastern Division of the Association of American Geographers, Chapel Hill, NC 2000.
- Lloyd, R., and Bunch, R. "Visual Search: Cognitive and Cartographic Effects," Annual Meeting of the Association of American Geographers, Pittsburgh, PA 2000.
- Hodgson, M., Lloyd, R., and Bunch, R. "A Justification for Ordering Information Extraction Steps: A Cognitive View," 2000 ASPRS Annual Conference, Washington, DC 2000.
- Bunch, R. "Searching for Color Boundaries on Maps," Annual Meeting of the Southeastern Division of the Association of American Geographers, Memphis, TN 1998.
- Bunch, R. "Searching for Color Boundaries on Bi-polar Choropleth Maps," Annual Meeting of the South Carolina Academy of Science, Greenwood, SC 1998.

- Carbone, G., Lloyd, R., Bunch, R., and Li, X. “Comparison of Different Interpolation Techniques with Monthly Precipitation Data,” Annual Meeting of the Association of American Geographers, Boston, MA 1997.

#### External Funding

- Bunch, R., and Tapp, A. GIS and Cellular Communications Network Planning, CityScape Consultants, Boca Raton, FL \$26,519 (2014).
- Bunch, R., and Tapp, A. Increasing the Spatial Resolution of Broadband Coverage Models, NC Department of Commerce/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$171,360 (2013-14).
- Bunch, R., and Tapp, A. Implementing Google Transit for the Piedmont Authority for Regional Transportation, Piedmont Authority for Regional Transportation, Greensboro, NC \$4,500 (2013).
- Bunch, R., and Tapp, A. Coverage Modeling and Network Planning for Cellular Communications, Cityscape Consultants, Boca Raton, FL \$13,059 (2013).
- Bunch, R., and Tapp, A. Mammography Facility Surveillance Using Geographic Information Systems, SciMetrika, Research Triangle Park, NC, \$20,500 (2012-2013).
- Bunch, R., and Tapp, A. Cellular Communications Planning Using Geographic Information Systems, Cityscape Consultants, Boca Raton, FL, 13,059 (2013).
- Bunch, R., and Tapp, A. Research and Development of Propagation and Data Models for Wireless and Wireline Broadband Coverage in North Carolina, NC Department of Commerce/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$60,102 (2012).
- Bunch, R., and Tapp, A. Assessing Cellular Networks Using Geographic Information Systems, Cityscape Consultants, Boca Raton, FL, \$13,059 (2012).
- Bunch, R., and Tapp, A. Guilford County Neighborhood and Community Assessment and Mapping, Habitat for Humanity of Greater Greensboro, \$1,560 (2012).
- Bunch, R., and Tapp, A. Geographic Information Systems and Broadband Availability Mapping, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$30,240 (2011).
- Bunch R. Analyzing Incidence and Mortality Rates for Ovarian Cancer in the United States, SciMetrika, Research Triangle Park, NC, \$45,150 (2011).

- Bunch R., and Tapp, A. Updating Wireless Broadband Prediction Surfaces for the State of North Carolina, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$14,994 (2011).
- Bunch R., and Tapp, A. Integration, Analysis and Display of Geospatial Data for Health Research, SciMetrika, Research Triangle Park, NC, \$7,347 (2011).
- Bunch, R., and Tapp, A. Building Geospatial Datasets for Broadband Subscribers in North Carolina, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$10,967 (2011).
- Bunch, R., and Tapp, A. Spatial Analysis of Ovarian Cancer Care and the Availability of Gynecologic Oncologists, SciMetrika, Research Triangle Park, NC, \$10,884 (2010).
- Bunch, R., and Tapp, A. Geospatial Database Development and Maintenance for Broadband Subscribers, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding) , Washington, DC, \$6,289 (2010).
- Bunch, R., and Tapp, A. Building a Geodatabase using Broadband Subscriber Data, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$4,896 (2010).
- Bunch, R., and Tapp, A. Mobile and Fixed Wireless Broadband: Radio Wave Propagation Modeling for the State of North Carolina, e-NC Authority/National Telecommunications and Information Administration (ARRA Funding), Washington, DC, \$259,692 (2009-10).
- Bunch, R., and Bennett, G. Advanced Spatial Analysis for Banking, Oak Ridge Financial Services, Oak Ridge, NC, \$27,628 (2009-10).
- Tapp, A., Bunch, R. and Sultana, S. Geographic Information Systems for Educational Nonprofit, Guilford Child Development, Greensboro, NC, \$4,435 (2009).
- Bunch, R., and Tapp, A. Radio Wave Propagation Modeling Using Geographic Information Systems, Cityscape Consultants, Boca Raton, FL, \$72,462 (2009-12).
- Tapp, A., and Bunch, R. Assessment of Geographic Information Systems for Educational Nonprofit, Guilford Child Development, Greensboro, NC, \$4,435 (2009).
- Bunch, R., and Tapp, A. Geographic Information Science: Retail and Commercial Property Development, Kotis Properties, Greensboro, NC, \$9,626 (2008-09).

- Bunch, R., and Tapp, A. Implementation of a Wireless Communication Network Planning and Optimization System using Enterprise Geographic Information Systems, Equitable Resources, Pittsburgh, PA, \$90,833 (2008).
- Bunch, R., and Tapp, A. Network Analysis Using Geographic Information Systems, Guilford Child Development, Greensboro, NC, \$4,187 (2008).
- Bunch, R., and Bennett, G. Advanced Geographic Information Systems for Banking, Oak Ridge Financial Services, Oak Ridge, NC, \$26,670 (2008-09).
- Bunch, R. Using Geographic Information Systems for Health Care Strategic Marketing and Needs Assessment, Organizational Objectives Associates, Greensboro, NC, \$12,728 (2007-08).
- Bunch, R., and Bennett, G. Geographic Information Systems for Banking, Oak Ridge Financial Services, Oak Ridge, NC, \$26,340 (2007-08).
- Bunch, R. Using Geographic Information Systems for Retail and Commercial Site Selection and Property Development, Kotis Properties, Greensboro, NC, \$20,771 (2007-08).
- Bunch, R. Geographic Information Systems Modeling Techniques for Wireless Telecommunications, Cityscape Consultants, Boca Raton, FL, \$2,448 (2007).
- Bunch, R., Stine, R., and Patton, J. Geographic Information Systems and Advanced Modeling of Wireless Telecommunications, Cityscape Consultants, Boca Raton, FL, \$71,254 (2006 - 2009).
- Bunch, R. Rapid Response Project 516, Phase II: Integrating Electronic Field Data Collection into Bioterrorism Preparation and Response in North Carolina, Guilford County Department of Public Health - Health Surveillance and Informatics Unit, Greensboro, NC, \$20,000 (2006).
- Stine, R., Bunch, R., and Patton, J. Geographic Information Systems and Telecommunication Models for Public Policy, Cityscape Consultants, Boca Raton, FL, \$23,751 (2005-06).
- Bunch, R., Stine, R., and Nelson, E. Geographic Information Systems and Public Policy Dimensions: Emerging and Merging Solutions to Bioterrorism. Guilford County Department of Public Health – Health Surveillance and Informatics Unit, Greensboro, NC, \$70,000 (2005).
- Stine, R., Bunch, R., and Patton, J. 3-D Cell Tower and Mapping Analysis, Cityscape Consultants, Boca Raton, FL, \$16,328 (2004-05).

- Bunch, R., and Curry, K. Hazard Mitigation Plan Using GIS for Isabella County, Isabella County, MI, \$30,000 (2003).
- Bunch, R., Patton, D., and Curry, K. Geographic Information Systems Needs Assessment and Implementation Strategy. Isabella County, Mount Pleasant, MI, \$12,706 (2003).
- Bunch R. Geospatial Database Development. University City, Department of Planning and Development, University City, MO, \$1,200 (2001).
- Bunch R. Cartographic Specialty Group Graduate Thesis Research Grant, \$300 (1997).

## Students

### *Ph.D.*

- John Nowlin
- Jasraj Gramopadhye, “*Quantitative Analysis of Resource Conflict and Urban Sustainability in Central North Carolina: A GIScience Base Approach*” Department of Geography, University of North Carolina Greensboro (2013).
- Carly Hertz, “*Measuring Social Vulnerability to Natural Hazards: An Examination of the United States Virgin Island,*” Department of Geography, University of North Carolina Greensboro (2011).
- Thomas Tricot, “*Instructional Geographic Information Science: Map Overlay and Spatial Abilities,*” Department of Geography, University of North Carolina Greensboro (2010).
- Timothy Mulrooney, “*Turning Data into Information: Assessing and Reporting GIS Metadata Integrity Using Integrated Computing Technologies,*” Department of Geography, University of North Carolina Greensboro (2009).
- Elizabeth Walton, “*Using Ecological Niche Modeling to Predict Actual and Potential Habitat for the Bog Turtle, Glyptemys muhlenbergii,*” Department of Geography, University of North Carolina Greensboro (2009). (Co-Advisor).

### *Masters*

- Megan Grigg, “*Geographic Information Systems and Law Enforcement,*” Department of Geography, University of North Carolina (2016). Non-thesis option.
- Pamela Hurst, “*A Comparison of Interpolation Methods for Estimating Mountaintop Removal,*” Department of Geography, University of North Carolina Greensboro (2014).

- Sean Kelly, “*A Model for Predicting Highway Noise Using Geographic Information Systems: Interstate 73 in Guilford County, North Carolina*,” Department of Geography, University of North Carolina Greensboro (2013).
- John Nowlin, “*A Mesoscale Geophysical Capability/Suitability Model for Vitis Vinifera Vineyard Site Selection in the North Carolina Piedmont Triad Region: Case Study of Rockingham County, NC*,” Department of Geography, University of North Carolina Greensboro (2013).
- Stephanie Edwards, “*Geographic Information Systems in the Social Sector: Trends, Opportunities, Barriers, and Best Practices*,” Department of Geography, University of North Carolina Greensboro (2011).
- Scott Baker, “*Analyzing the Impacts of Tree Canopy on Cellular Radio Networks*,” Department of Geography, University of North Carolina Greensboro (2010). (Co-Advisor).
- Jason Parrish, “*Geographic Information Systems and Spatial Analysis of Market Segmentation for Community Banks*,” Department of Geography, University of North Carolina Greensboro (2009).
- Anna Faith Tapp, “*Mapping the Impact of Vegetation and Terrain on Cellular Signal Levels*,” Department of Geography, University of North Carolina Greensboro (2008).
- Carly Hertz, “*The Role of Geographic Information Systems in Epidemiology and Public Health*,” Department of Geography, University of North Carolina Greensboro (2006).
- Guy-Justin Andromel Nuyda, “*Using Geographic Information Systems with Wireless Telecommunication and Topography*,” Department of Geography, University of North Carolina Greensboro (2005).
- Douglas Gels, “*Finding the Trail to Troublesome Creek*,” Department of Geography, University of North Carolina Greensboro (2005). (Co-Advisor).

#### *Undergraduate*

- Advisor for Senior Assignment, Jared Eatmon, “*The Addition of Thompson Bend Riparian Corridor to the U.S. Army Corps of Engineers Database*,” Department of Geography, Southern Illinois University (2002).
- Advisor for Senior Assignment, Robert Hursey, “*The Cartographic Process: Mapping SIUE Alumni*,” Department of Geography, Southern Illinois University (2002).