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Areas of Expertise

University teaching, applied and theoretical Geographic Information Science, Geographic Information System planning and implementation, design cartography, tourism development, technical writing, map projections and datums, property mapping, yoga instruction.

Employment

- 8/2006 - present **Lecturer** Department of Geography, East Carolina University, Greenville, NC.
- *Teaching and Advising* – courses included both undergraduate and graduate courses in digital cartography and Geographic Information Systems, spatial data management, map reading, and introductory geography. Advising activities include directing or participating on Master of Arts degree research projects and theses and undergraduate general advisement.
- 10/2004 – 8/2006 **GIS Manager & Planner** County of Greene, Snow Hill, NC
- *GIS Responsibilities* – Sole support for all mapping and GIS activities in Greene County. Applications include: Property mapping, E911 Dispatch Support, Emergency Services mapping and support, Custom mapping, Data dissemination,
 - *Planning Duties* - Subdivision administrator, Review Officer, Greene County Planning Board Support.
 - *Other duties* – Grant writing, Tourism.
- 2003 - present **Sole Proprietor** KAM Mapping, Snow Hill, NC
- Serving as cartographer and GIS Specialist to provide custom mapping services.
- 1997 - 2003 **Assistant Professor** Department of Geography, East Carolina University, Greenville, NC.
- *Teaching and Advising* – courses included both undergraduate and graduate courses in digital cartography and Geographic Information Systems, spatial data management, map reading, and introductory geography. Advising activities include directing or participating on Master of Arts degree research projects and theses and undergraduate general advisement.
 - *Research* – Developed independent research projects in the area of spatial data quality and map projections. Participated in research projects in evaluating and modeling flooding in Eastern North Carolina. Co-PI for shoreline monitoring project at Ft. Raleigh National Historic Park. Preparation of proposals, reports, journal articles and presentation of results at professional conferences.
 - *Service* - A wide variety of duties from departmental to national professional service. *Departmental* – member of undergraduate committee and search committees; lab coordinator for departmental computer facilities, certificate coordinator for the Undergraduate Certificate Program in Geographic Information Science, Faculty advisor for student activities, and other organizational and initiating activities. *University* – an alternate representative to the faculty senate, member of the university teaching grants committee, representative to the Arts and Sciences Curriculum committee, co-organizer of the media room for Floyd: A Conference and organizer of the East Carolina GIS/Mapping Users group. *Professional* – editorial board member of the North Carolina Geographer, co-organizer of a professional seminar on map projections, Rapporteur at the 1997 Global Spatial Data Infrastructure Conference and from 1995 the creation and maintenance of the “Map Projection Home Page”. Reviewing of various

journal articles.

- 1992 - 1997 **Member of Technical Staff, GIS Group** NYNEX Science & Technology Inc., White Plains, NY.
- Primary assignment was to support NYNEX Mobile in its cellular telephony bidding processes. Created digital spatial databases from a variety of sources for numerous cities worldwide: Taipei, Taiwan; Amman, Jordan; four major Indian cities; Jakarta, Indonesia; etc.
 - Created RFP for analog to digital conversion of map data, evaluated responses, supervised the data conversion process and evaluated data for QA/QC. Digitized data as necessary. Built spatial databases. Performed analyses of systems using in-house modeling software and prepared maps and reports for bid submissions.
 - Other assignments include software coding, software documentation, research on spatial data topics and the preparation of technical reports.
- 1996 **Adjunct Lecturer** Department of Geography, Hunter College, New York, NY.
- Taught sections of Introduction to the Mapping Sciences and Introduction to Computing for the Geosciences.
- 1993 **GIS Consultant** New York City Department of City Planning.
- Contract work consisting of the digitization of the entire New York City shoreline from enlarged aerial photography including the coding for all shoreline types.
- 1991-1992 **Research Systems Analyst** New York City Districting Commission.
- Member to the technical team charged with Districting all of New York City. NYC more than tripled its number of City Council districts and employed Geographic Information Systems to evaluate proposed plans from a variety of sources as well as developing plans based upon a complex series of criteria. In addition to designing plans, responsibilities also included preparation of detail analyses of plans, maps and US Department of Justice submissions.
- 1990 **Adjunct Lecturer** Department of Geography, Hunter College, New York, NY.
- Taught laboratory sections of Weather and Climate course.
- 1989-1990 **Computer Laboratory Technician** Spatial Analysis & Remote Sensing Laboratory, Department of Geography, Hunter College. New York, NY.
- Assisted with maintenance of UNIX based computer laboratories and provided software and hardware support.
- 1990 **Cartographic Intern** National Geographic Society, Washington, D.C.
- Researched the effective scales for digital databases used for National Geographic locator maps. Updated digital spatial databases as needed.
- 1989 **GIS Consultant** Toxics Targeting, Ithaca, NY.
- Created proof of concept for a digital spatial database for the development of a service based firm specializing in the identification of environmental toxins for residential customers.
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Education

- 1999 Ph.D. Program in Earth & Environmental Sciences. Graduate School and University Center, City University of New York. Dissertation: Spatial Data Sets and Map Projections - An Analysis of Distortion.
- 1992 M.A. Geography. Hunter College of the City University of New York: Department of Geography, New York, NY. GPA 4.0/4.0. Geospatial emphasis.

1990 B.A. Geography major,
Mathematics minor. Hunter College of the City University of New York: Department of Geography, New York, NY. Summa Cum Laude, GPA 3.88/4.0, class rank 26/751, elected Phi Beta Kappa April 1990, Department Honors in Geography.

Certifications

Application pending	GIS Professional Certification	The GIS Certification Institute, 1460 Renaissance Dr, ST. 305. Park Ridge, IL 60068-1348
2005	NCPMA-Sponsored Certification--Mapper	NC Property Mappers Association. ncpropertymappers.org
2004	Kripalu Yoga Instructor	200 hour basic certification from the Kripalu Center for Yoga & Health PO Box 793. West Street, Route 183. Lenox, MA 01240

Proposals and Awards

2005. North Carolina's 2005-2006 Adopt-A-Trail Grant. \$5,000. Contentnea Creek Paddle Trail, Greene County Section.
2005. North Carolina's 2005-2006 Recreational Trails Grant. \$40,000. Walking Trails for Greene County Recreational Park.
2001. Co-PI - Shoreline Monitoring at Ft. Raleigh National Historic Park. National Park Service - SER Outer Banks Group. Q519000005. 10/1/00 - 9/30/01.
2001. Development of Laboratory Exercises that Teach Cartographic Theory. East Carolina Teaching Grants Committee 2000. Summer Stipend 2001.
1999. Co-PI. - (w/Dr. Y. Wang, and Dr. J. Colby) Documenting flooding extent due to hurricane Floyd using Landsat 7 TM satellite imagery, funded by the Natural Hazards Research and Applications Information Center, 10/01/99 - 09/30/00, \$1,400.
1997. Proposal for Alterations to cartographic laboratory. Campus Renovation Committee. 10/24/97. \$6,000.
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Awards and Honors

- 1999 Induction to the SEEK Hall of Fame. Hunter College, New York, NY
- 1996 Helena Rubenstein Foundation Tuition Grant
- 1996 Graduate School and University Center - University Fellowship
- 1995 Summer School for Earth Sciences PROCESSES OF GLOBAL CHANGE, July 17-21
- 1995 Department of Defense National Science & Engineering 1995 Graduate Fellowship, Honorable Mention.
- 1992 NYNEX- The 1992 Chairman's Award for World Class Performance.
- 1990 Inducted to Phi Beta Kappa Honor Society
- 1990 Scholarship, Scholarship & Welfare Fund of the Alumni Assoc. of Hunter College
- 1990 Jewish Foundation for the Education of Women, Grant for Graduate Study, Fall 1990, South Florida Chapter
- 1990 American Association of Geographers MS/NESTAVAL Region Graduate Student Paper Contest, 1st prize.
- 1990 Awarded National Geographic Society Internship for Summer 1990.
- 1990 National Council for Geographic Education Undergraduate Award for Outstanding Scholarship in Geography.
- 1990 Mrs. Robert D. Sterling Award, Women's National Farm & Garden Association
- 1986, 87, 89 Deans List, Hunter College

Courses Taught

Graduate

Advanced Geographic Information Systems, G6430, ECU.

Upper Undergraduate

Geographic Information Systems II, G4430, ECU

Advanced Cartographic Design and Production, G4410, ECU

Computer Mapping G3410, ECU

Lower Undergraduate

Introduction to Geography, G1000, ECU

Spatial Data Management G2400, ECU

Map and Aerial Photo Interpretation G2500, ECU

Introduction to the Mapping Sciences, Hunter College

Introduction to Computing for the Geosciences, Hunter College

Recent Published Maps

2006. Mulcahy, K. A. "Winterville", in *The Winterville Magazine. Coming of Age*. Pub. Mitchell Oakley, The Times Leader, Grifton, NC. Vol. 2, No. 1, 2005-06, pp16-17.

2005. Mulcahy, K. A. "Ayden", in *The Ayden Magazine. Excellence in Education*. Pub. Mitchell Oakley, The Times Leader, Grifton, NC. Vol. 2, No. 2, 2005-06, pp26-27.

2005. Mulcahy, K. A. "Bangladesh", in *The Geographical Journal*. Vol. 171, Issue 3, Pg. 195. September 2005.

2004. Mulcahy, K. A. "The Caribbean Sea" in *Southeastern Geography Special Issue*. Vol 45(2), 165-173.

2004. Mulcahy, K. A. "Quintana Roo, Mexico". in *Annals of the Association of American Geographers*. Vol. 95(2). Pg 314-335.

2004. Mulcahy, K. A. "Snow Hill, Hookerton, & Walstonburg." In *Greene Living Magazine*. Pub. Brenda Chambers, The Standard Laconic. Snow Hill, NC. Vol. 1, No. 1. pp. 18-19. June 2004.

Publications

2001. Mulcahy, Karen A. "Two New Metrics for Evaluation of Pixel Based Change in Data Sets of Global Extent due to Projection Transformations." *Cartographica*. Vol. 37, No. 2. Summer 2000. Published October 2001. .

2001. Mulcahy, Karen A. and Keith C. Clarke. "Symbolization of Map Projection Distortion: A Review." *Cartography and Geographic Information Science*. Vol. 28, No. 3, pp. 167-181.

2001. Mulcahy, Karen A. "Map projections; how maps are made; new technologies." *Encyclopedia of World Geography*. Salem Press, Inc.

2001. Wang, Y., Colby, J.D., and Mulcahy, K. "An Efficient Method for Mapping Floodplain Extent in a Coastal Floodplain Integrating Landsat TM and DEM Data." *International Journal of Remote Sensing*.

2001. Wang, Y, Colby, J. and K. Mulcahy, K. "Mapping Flood Extent in Tar River Basin within Pitt County of North Carolina by River Gage and Topographic Data." *In the Aftermath of Hurricane Floyd: Impact in the Coastal Plain*. Maiolo, J.R., Johnson, J.C., and J.C., Whitehead, eds., Wilmington: Coastal Carolina Press.

2000. Mitchelson, Ronald and Karen Mulcahy. "The North Carolina Atlas: Portrait for a New Century." *The North Carolina Geographer*. Vol. 8.
1999. Mulcahy, Karen A. "A Brief Commentary: Floyd's Frustrations." *Statistical Review of the State. The North Carolina Geographer*. Vol. 7.
1999. Colby, J.D., Mulcahy, K., and Wang, Y., Documenting Flooding Extent due to Hurricane Floyd using Landsat 7 TM Satellite Imagery. Field Report to the Natural Hazards Research Center, University of Colorado.
1999. Mulcahy, Karen A. "Spatial Data Sets and Map Projections: An Analysis of Distortion." Ph.D. Dissertation. Graduate School and University Center, City University of New York, New York, NY. DAI-A 60/01, p. 210.
1998. Mulcahy, Karen A. "Who, Where? North Carolina Demographics." *Statistical Review of the State. The North Carolina Geographer*. Vol. 6, Summer.
1997. Mulcahy, Karen A. "Map Projections and Spatial Referencing for Global Data Sets." University Consortium for Geographic Information Science Annual Assembly and Summer Retreat Proceedings. <http://www.spatial.maine.edu/ucgis/testproc/mulcahy/mulcahy.html>. Bar Harbor, ME.
1995. Mulcahy, Karen A. and Keith C. Clarke. "What Shape Are We In? The Display of Map Projection Distortion for Global Change Research." GIS/LIS '95 Annual Conference Proceedings. Bethesda, MD: ASPRS and ACSM, pp. 770-778.
1995. Clarke, Keith C. and Karen A. Mulcahy. "Distortion on the Interrupted Modified Collignon Projection." GIS/LIS '95 Annual Conference Proceedings. Bethesda, MD: ASPRS and ACSM, pp. 175-181.
1994. Mulcahy, Karen A. and Keith C. Clarke. "Government Digital Cartographic Data Policy and Environmental Research Needs." *Computers, Environment and Urban Systems*, Vol. 18, No. 2, pp. 95-101.
1993. Boguchwal, Larry, Roman Krzanowski, Karen Mulcahy and Greg Theisen. "Analysis of New York and New England 1993 Proposed Cell Sites." NYNEX Science and Technology, Inc. Resource Publication, NYNEX: White Plains, NY.
1991. Mulcahy, Karen A. "The Creation of a Digital Cartographic Database for Locator Maps," *The Geographical Bulletin. University of Michigan*, Vol. 33, No. 2, pp. 98-104.
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